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(EMC2011)

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Edit Terek, BSc, Associate Assistant, University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia

Design:
Stanislava Sinđelić, M.Sc, Assistant, University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia

Lecturer:
Dragica Ivin, M.Sc, Professor, University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia

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Višnja Istrat, B.Sc, Associate Assistant, University of Novi Sad, Technical faculty “Mihajlo Pupin”, Zrenjanin, Republic of Serbia

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Vladimir Karuović, B.Sc, System Admin., University of Novi Sad, Technical faculty “Mihajlo Pupin”, Zrenjanin, Republic of Serbia

INTRODUCTION

Department for Management and Technical faculty “Mihajlo Pupin” from Zrenjanin have started the organization of I International Symposium - Engineering Management and Competitiveness (EMC2011) in 2011.

The objectives of the Symposium EMC2011 are: presentation of current knowledge and the exchange of experiences from the field of Engineering management, consideration of development tendencies and trends in Serbia and the world as well, gathering researchers from this field with the aim of expanding regional and international cooperation, raising the level of professional and scientific work at Technical faculty “Mihajlo Pupin” from Zrenjanin, expanding cooperation with economic and educational institutions and encouraging young researchers within this field. Taking into account that this Symposium is international, the importance of this event is obvious for the town of Zrenjanin, Banat region, Vojvodina and Serbia. Organization of EMC2011 by Technical faculty “Mihajlo Pupin” from Zrenjanin represents this scientific-educational institution as one of the major representatives of economic and social development in Banat.

Within this Collection of papers are presented all accepted papers received for I International Symposium Engineering Management and Competitiveness (EMC2011). The papers are divided into eight sessions: Plenary session, Session A: Strategic management, Session B: Operation management, Session C: Economic models and econometry, Session D: R&D management, Session E: Marketing management, Session F: Management information systems, Session G: Students’ papers.

We wish to thank Ministry of Education and Science, Republic of Serbia and University of Novi Sad for supporting the organization of I International Symposium Engineering Management and Competitiveness (EMC 2011) as well as to Technical faculty “Mihajlo Pupin” from Zrenjanin and the dean Prof. PhD Milan Pavlović for their active role concerning the organization of the Symposium. We are also expressing our gratitude to all authors who have contributed with their papers to the organization of our first Symposium EMC.

We would like our Symposium to become a traditional meeting of researchers in June, every year. We are open and thankful for all useful suggestions which could contribute that the next, II International Symposium Engineering Management and Competitiveness (EMC2012) become better in organizational and program sense.

President of the Programming Committee
Prof. Ph.D Milivoj Klarin

Zrenjanin, June 2011.

Word of Thanks

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I International Symposium Engineering Management And Competitiveness 2011 (EMC2011)
June 24-25, 2011, Zrenjanin, Serbia

Plenary session

Papers (pp. 3-48):

IN-HOUSE TRANSPORT AS A PART OF BUSINESS LOGISTICS

Miloslav Seidl*
prof. Ing. Miloslav SEIDL, Ph.D., Department of Technical Science and Informatics, Faculty of Special Engineering, University of Zilina, st. Majova 32, 010 26 Zilina, Slovakia, phone +421 41 513 6852, e-mail: Miloslav.Seidl@fsi.uniza.sk
Zdeněk DVOŘÁK
asoc.prof. Ing. Zdeněk DVOŘÁK, Ph.D., Research Department of Crisis Management, Faculty of Special Engineering, University of Zilina, st. Majova 32, 010 26 Zilina, Slovakia, phone +421 41 513 6854, e-mail: Zdenek.Dvorak@fsi.uniza.sk

ABSTRACT

The paper deals with selected issues the enterprise management services. On the basis of transport and transport logistics tool suggests possible rationalization of transport logistics. The paper stresses the role of in-house transport as an integrating element of internal logistics processes. The paper highlights the importance and possible elements of transport infrastructure factory.

Key words: in-house transport, logistics

INTRODUCTION

Transport as an activity due to the need for relocation of material goods and people interested in logistics particularly important role. Therefore in essence, logistics processes are not feasible without spatial, temporal and structural changes of material and information flows. Specialization of individual economic entities deployed specifically for certain activities or products may cause the necessary changes in place, condition, location and time changes.

Transport decisive influence on the fulfillment of the basic tasks of logistics - the supply of goods and services in the right place at the right time, in the right amounts and administrative costs incurred. In the value chain adds value just moving products from their site of origin to point of consumption, while also creating time contribution of fast and reliable transfer. This added value may create a right only in conjunction with other aspects, namely the right quality and quantity. Products damaged or soiled during transportation do not decide any value, but rather the loss. The same applies to carriage of excess or insufficient quantity.

1. TRANSPORT AND TRANSPORT LOGISTICS

Transport ensures products of the movement (but also people, reports) to the place of consumption. Transport is provided both a link between businesses and whole sectors of the economy. Compared with other sectors, transport is a number of peculiarities resulting from the performance of the functions.

One of the characteristic features of transport is an intangible product that is not possible to produce for stock. This means that the service provided (change of spatial object transportation) is directly consumed by transport users. Resolution processes of manufacturing of transport product from the process of consumption of this product reflect the following terms:

- the right to **transport** the product manufacturing process is focused on internal transport site operator, implementing and managing the movement of vehicles, including their operational maintenance,
- **transportation** to reflect the technological, economic and legal links with transport users, is focused on external relations with other sectors of national economy, government authorities and customers.

Optimization of material and information flows in the logistics chain as one of the key goals of logistics are fully applies to the traffic and transport processes. Logistic approach to managing the movement of goods on a transport network from the receipt of the shipment (shipper) after the transfer (recipient) is the content of transport logistics. Transport logistics deals with solving logistics tasks and measures to be implemented in the preparation and implementation of transport. It deals in particular activities related to material flow, the storage of finished products to sales, including examination of information relating to these activities.

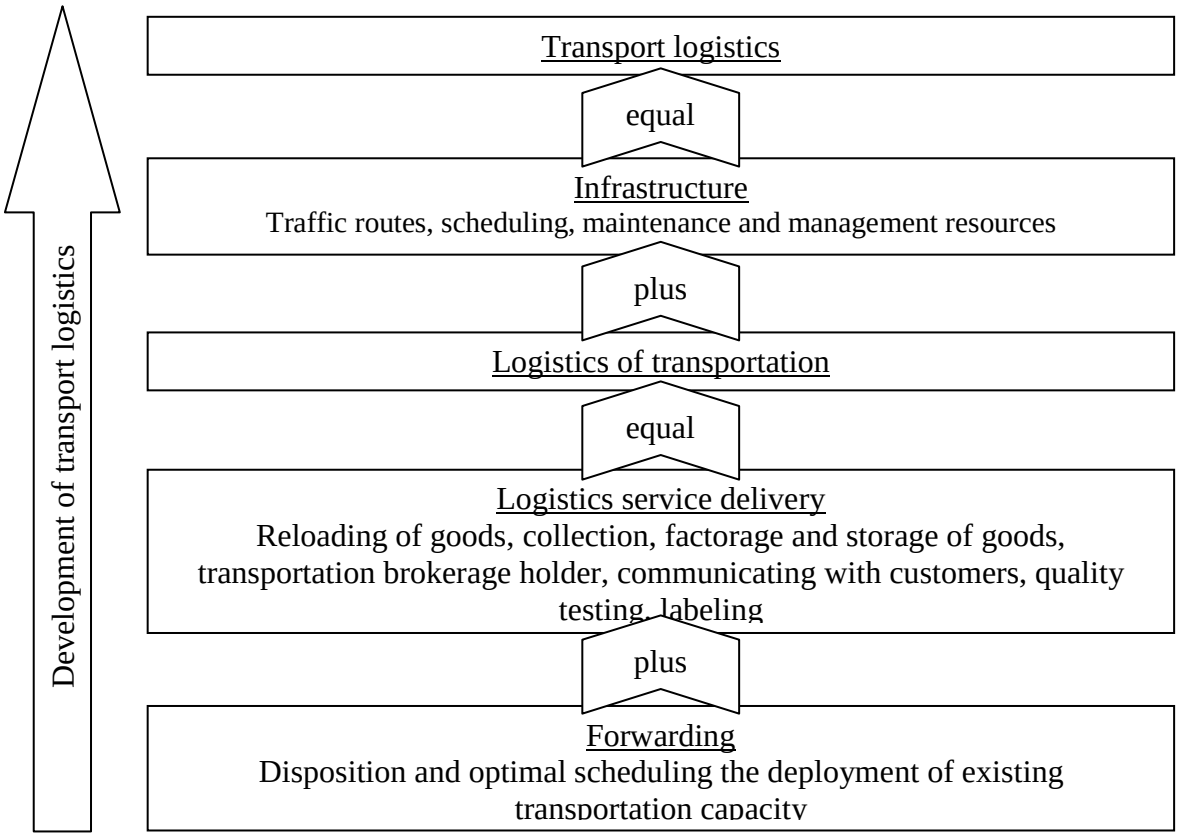

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Fig 1 Parts of transport logistics

In transport logistics applies these rationalization tools (Gurr, 1999):

- standardization of packaging and transport means, or ancillary transportation equipments (pallets, containers etc..)
- increase the specific gravity of the load (more weight and volume of transportation conditions),
- reduction in of stocks through "sensitive" ordering policy given the current needs (taking into account the expected fluctuations in demand),
- adjust of production and other processes within high speed,
- temporal and spatial formation of all the outgoing handling units,

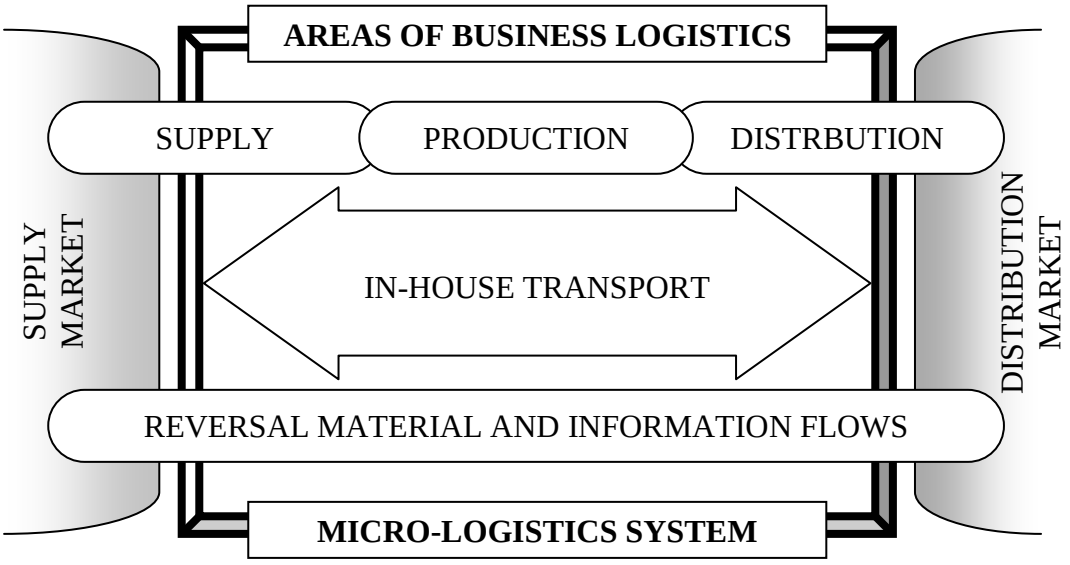
- handling spatial concentration (elimination of trips),
- establish the timing of linear transport (shortening waiting times),
- reduce inventory by reducing the number of external stores,
- business or production scheduling (optimization of material flow),
- development of integrated information systems (reduction of times crossing point traffic control processes in real time).

For the distribution of transport systems are used a number of the criteria. In logistics, traffic systems assessed mainly from two aspects:

- by a holder (land, air, water and pipeline transport systems),
- under the scope (in-house and out-plant transport systems).

2. IN-HOUSE TRANSPORT SYSTEM MANAGEMENT

The basic task is for in-house transport to ensure optimum material flow occurring in the micro-logistic system (the manufacturing enterprise, commercial enterprise, etc.). Duties in-house transport includes the transportation of material, raw materials and intermediate input goods in the warehouse, from warehouse to production (assembly) between production centers, and transportation of finished products for shipping. In terms of the key business activities (manufacturing, service) is a factory transport ancillary activity, done for their own use. This does not diminish its importance as a fundamental function in integrating the overall logistics system business.
The in—house transport position in the corporate micro-logistic transport system is shown in figure number 2.



Source: self working

Fig. 2 Status of the in-house transport

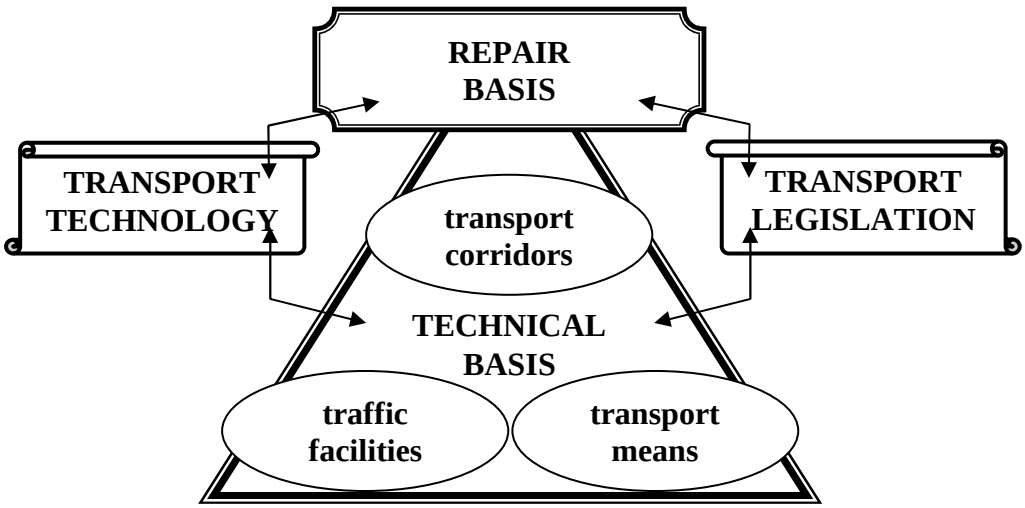
Formation, management and ongoing development of the factory is the main objective of traffic management in-house transport system. This goal raises two basic tasks:

- **Optimization of logistics services for complex variables** into account the whole value chain in-house. Creation and development of a model the factory transport must therefore define the comprehensive logistics strategy for the company to avoid partial optimization.

Transport policy adopted by the factory based on determining the degree of fulfillment of the requirements of organizational component, using the services the factory traffic.

- **Adapting to the factory transportation** the dynamic changes around. The crucial changes are long term character, which can be expected in advance (e.g., temporal and structural parameters of the of manufacturing company, forecasts of energy sources for transport, etc.). Adequate response in-house transport system for these changes is to be prepared in the form of scenarios. Moreover, it is necessary to transport a factory was able to short-term adjustment in changes to the environment (e.g. temporary changes to the planned transport requirements - type and quantity of means of transport, place of loading and unloading time parameters).

The basic elements of in-house transport system are shown in Figure No. 3.



Source: self working

Fig. 3 Transport system elements

By location realization is possible in the factory transport system to identify three types of of transport performances:

- **External,** which provide material and information flows outside the building business. This transport is close to the conditions and parameters of public transport carried out by specialized carriers.
- **Inter-objects** which provide material and information flows between objects within an enterprise (warehouses, manufacturing and assembly halls, operations).
- **Intra-objects** which provide material and information flows within the various business objects (store, workshop). These performances are associated with a range of technology and handling operations (measuring, weighing, counting quantity, cleaning).

This division of is to be taken into account when deciding on the establishment of private transport (in-house), as well as the optimal distribution transportation service between its own performance internal transport and external (foreign) carriers. This decision is particularly the external traffic (a typical example. in building organizations). Inter-objects and mainly intra-objects transport provide only limited opportunities for the application of external carriers (direct link to the technological processes of production, the need for specific transport and handling means, competence in one place).

Economic criteria are fundamental when deciding on their own or foreign transport. Except exact financial costs and their expected return should be taken into account other criteria (operational performance of transportation requirements, knowledge of the conditions by own staff, time and capacity utilization of vehicles).

Draft in-house transport system based on the following input parameters (Schulte, 1994),:

- transportation subject (structure, properties, method of packaging),
- place where the and end of the movement,
- transportation time and weight (volume) of the goods.

Own transport scheduling processes, the factory transport includes:

- disposition of fleet scheduling,
- scheduling road networks,
- information systems for transport networks,
- scheduling the deployment of vehicles (transport capacity allocation, utilization management, route planning, transport means).

3. INFRASTRUCTURES OF IN-HOUSE TRANSPORT

The factory transport infrastructure is part of the overall enterprise infrastructure and its construction is a crucial condition for ensuring the internal material and information flows. It can be defined as a set of line and node elements strictly necessary for the movement of vehicles, including ensuring the security of this movement and also for the maintenance of vehicles and equipment in working order. In broadest definition includes internal transport infrastructure themselves vehicles and equipments.

It is built to ensure that these basic features:

- ensure that legitimate users transportation requirements,
- guaranteeing the required transport service within a specified area,
- ensure the defined quality levels traffic and transportation processes with emphasis on the safety of all these processes, as well as the integrity of the subject shipment,
- maximum respect for environmental requirements,
- minimization of spatial and energy requirements.

As in-house transport system normally uses multiple modes of transport and its infrastructure is quite multifaceted. The basic elements and devices are:

- set aside areas (or land),
- built transport routes (land rail, trackless, overhead rail, cable, pipe, special),
- objects and equipment for crossing routes, avoiding, turning, running decommissioning vehicles (level, interchanges, rail),
- spaces and buildings for operating along the transport routes (for inspection, maintenance, repairs, etc..),
- adjusted areas for loading operations (loading, unloading, transhipment means of transport),
- interlocking, signals, lighting, security, information and communication devices and traffic signs,
- necessary the building service personnel and vehicles (administrative, parking, repair, inspection points, etc.),
- other objects and devices that are part of the energy infrastructure the enterprise and provide a source of energy (particularly electricity and fuel) to operate in-house transport system.

Each of these elements is the operation of the system as a whole different importance. It is therefore necessary to distinguish those elements of infrastructure, the failure or withdrawal would result in an extraordinary situation in the enterprise. These elements can be identified as critical and as a set of critical infrastructure. One of the challenges of corporate management is to assess and identify the elements of critical infrastructure, which is subsequently to be given special attention in their construction, operation and protection.

The process of identification and selection of critical infrastructure the enterprise is complicated and virtually unique the each enterprise. In principle it can be established only very general terms the area of business activities that are most dependent on the correct functioning of traffic, and then determine which elements of transport infrastructure are absolutely necessary. Criteria for selecting elements of critical infrastructure must be based on the expected impact of losing the functionality of a particular element of (Zákon č. 45/2011):

- health and lives of employees, possibly out of enterprise (estimated numbers of killed and injured),
- the enterprise economy (range economic losses, a significant decrease quality of output of goods and services, impact on other partners in the logistics chains),
- threat to the environment,
- time and severity of the possible loss of production,
- the possibility of temporary loss of production coverage using other sources.

Quantification of the various the criteria must be based on specific internal and external conditions of each the enterprise. Assessment the criteria must be complex, applying appropriate methods multi-criteria analysis.

CONCLUSION

In management and optimization of supply chains is necessary give permanent attention to transport issues. It is share of the quality of customer service quality and timely delivery of consignments to undertake specific expenditures, which may constitute a significant proportion. Delimiting the scope of traffic to out-plant and factory is the motive for the coordinated search of reserves and savings to reduce transportation demands throughout the logistics chain. The factory quality management is achieved by optimal transport costs in other areas of trade logistics, especially in storage and material handling.

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THE ART OF PARTICIPATORY LEADERSHIP: A TOOL FOR SOCIAL AND ORGANISATIONAL DEVELOPMENT AND CHANGE

Maša Magzan*
Zagreb School of Economics and Management, Croatia
masa.magzan@zsem.hr

ABSTRACT

This paper describes the art of participatory leadership as a response to management challenges in the 21st century. Fostering collective wisdom and collaborative action, it is an essential tool for social and organisational development during times of uncertainty. Within descriptive mode of analysis, this study investigates how various methodologies used in participatory leadership can help people to work together for change, collaborate in interdisciplinary teams, transcend old paradigms, and create radically more effective, sustainable and creative outcomes in groups. Reporting from various examples, the study focuses on how and why the practice of opening the collective intelligence in organizations and communities may serve as a central driving force for unleashing the creativity as well as supporting and coordinating innovative and sustainable solutions. Data on participatory leadership practices is collected using the following two types of sources: official documentation provided in relevant online resources, and the information from the global community of participative leadership practitioners called Art of Hosting (AoH). The goal of the study is to reveal how the usage of participatory leadership methodology helps finding new solutions for the common good and by thus represents a valuable tool for successful organizational and communal development and change.

Key words: participatory leadership, art of hosting, change, social development, organizational development

1. INTRODUCTION

We have entered the epoch of Responsibilities, which requires new, more socially minded human beings and new more participatory and place-based concepts of citizenship and democracy…
Mac Johnson

Organizations today are facing challenges never experienced before. Organizational sucess is largely depending on the organization's ability to unleash the creativity of people who want to make a difference and create change. Managers at all levels in any organization are increasingly becoming responsible for creating a cultural context that is a fertile ground for innovation and enterpreneural thinking. For that reason, growing number of organizations are using the concept of 'distributed leadership' or leadership at all levels. It assumes excelling employee development and involvement and is a logical response to the requirements of the new organizational environment marked by innovation-driven competition which demands that teamwork and leadership are distributed across many players, both within and across organizations, up and down the hierarchy (Ancona, 2007). Companies such as Southwest Airlines who involve their emplyees in problem solving and innovation are poster child for distributed leadership which assumes that 'the more organizations disperse leadership throughout their structure, the more effective they are' (Ancona, 2007:218).

In the wider social context, engaging groups and teams in a meaningful conversation, deliberate collaboration, and group-supported action for the common good becomes more necessary then ever before. This is because solutions to the complex problems such as poverty, political violence and global warming, can be only found when people from diverse sectors like business, government and NGOs work together (Magzan-Maslač, 2010). In other words, in order to successfully deal

with the various social and environmental challenges we face today, we need to 'develop far more collective intelligence as a society and as a global civilization -- and then apply it with wisdom.' (Atlee, 2011).

The whole can be greater than the sum of the parts

The idea of collective intelligence is spread in numerous books and websites, professional meetings, online discussions, and informal conversations. Today "collective intelligence" became such a common a phrase that Google lists over a million pages using it, together with hundreds of thousands of other pages using similar terms such as "collective IQ," "collective wisdom," "community intelligence," "group intelligence," and so on. The establishment of the MIT Center for Collective Intelligence in October 13, 2006 (http://cci.mit.edu/), was a turning point in CI evolution. It is important to note that although people have been talking about the collective intelligence for decades, its true life begun with the new communication technologies and Internet because they allow huge numbers of people all over the planet to work together in new ways. The successes of systems like Linux and Wikipedia suggests that the time has come for many more similar systems to emerge. We should benefit from the fact that it is now possible to harness the collective intelligence of thousands of people around the world to work closely together at a scale that was never possible before in human history.

An example of CI in action would be the climate change project called Climate CoLab (Malone, 2011). An online community of people from all over the world is working together and creating, analyzing, and discussing detailed proposals for how to address global climate change. This productive global conversation continues to link people together from around the world - over 13,000 visitors coming from 131 countries on all the world's continents. The intention of the project is to educate general public about climate change issues, but also to facilitate a more productive global dialogue with emerging plans and policies being better than anything otherwise would have been developed.

Since collective intelligence is a holy grail of social change and social creativity, if we could better understand how to support it, increase it and facilitate it, we would be more able to effectively co-create a better world. Since organizational effectiveness stems from how well the group works together, the same applies to organizational development. The research has shown that collective intelligence "is not strongly correlated with the average or maximum individual intelligence of group members but is correlated with the average social sensitivity of group members, the equality in distribution of conversational turn-taking, and the proportion of females in the group (Wooley et al., 2010). In other words, those groups whose members had higher levels of 'social sensitivity', and that is 'willingness of the group to let all its members take turns and apply their skills to a given challenge, the group was more collectively intelligent' (Dizikes, 2010). Therefore, the whole is greater than the sum of its parts because the intelligence among groups of people who cooperate well shows that such intelligence extends beyond the cognitive abilities of the groups' individual members.

2. THE ART OF PARTICIPATORY LEADERSHIP OR THE ART OF HOSTING

"Hosting is an emerging set of practices
for facilitating group conversations of all sizes,
supported by principles that:
maximize collective intelligence;
welcome and listen to diverse viewpoints;
maximize participation and civility;
and transform conflict
into creative cooperation."
- The core team of practitioners, Upper Arlington, Columbus Ohio

http://www.artofhosting.org/thepractice/

Since the solutions to the problems we face today cannot be found in one single view or perspective, but are most often hidden behind the collective knowledge and potential of all stakeholders, the complexity of the environment in which we both work and live require the change in how we work together. The power of participatory leadership is in using the intelligence that exists everywhere in the community, the company, school, or organization. Participatory leadership means dialogue and conversations that foster collective learning and wisdom for more collaborative, sustainable, and innovative solutions.

A set of practices called the Art of Hosting (AoH) represent tools that give birth to the participatory leadership. The group process methodologies used in Art of hosting are techniques such as *Open Space Technology*, *World Café*, *Appreciative Inquiry* and others (for a detailed list of facilitation tools used, go to http://artofhosting.ning.com/forum/topics/chris-corrigans-facilitation).What they have incommon is the potential to release creativity and collective knowledge through building an individual's contribution to the group. Such tools help facilitate „group conversations of all sizes, supported by principles that: maximize collective intelligence; welcome and listen to diverse viewpoints; maximize participation and civility; and transform conflict into creative cooperation." (www.artofhosting.org). In other words, AoH represents a set of practices based on the common sense and that is to bring stakeholders together in conversation when new solutions for the common good are needed. This practice explores hosting on both an individual and collective level and serves the needs of both, social and organizational development and change.

Therefore, the art of participatory leadership or the art of hosting relies on the principles of ' self organization, participation, ownership and non-linear solutions because they are the keys for both individual and collective discoveries' (www.artofhosting.org). This is different and complimentary to more traditional ways of working that are often based on rational planning and full control of the progress. The "Art" part refers to that fact that people don't work with pre-determined methods but rather approach each conversation from a design perspective, offering the best design for the context based on the simple principles of good conversation. The „host" part refers to the new role of the leader whose work with people is based on inclusion, cooperation and augmenting the collective potential of the group needed for the change and development. Besides having knowledge and courage to ask the right question in order to engage the group into a meaningful conversation, a new leader has to be skilful facilitator of conversations that lead to creation of enduring solutions. Let us now briefly explore the requirements for creating and hosting meningful conversations.

The Change of the Leadership Ideology and Nature of our Conversations

The problems of the war and disharmony in our world is maybe because of all the conversations that never took place... - Queen Margaret of Denmark

Knowing that 'creating an alternative future rests on the nature of our conversations and our capacity to relocate where cause resides' (Block, 2007), it is clear why any authentic transformation requires meaningful conversation and eliciting the wisdom of the group through maximizing participation. Since people increasingly want to participate in the choices that affect their lives and they want to make a difference, leaders in nonprofit organizations, government agencies, businesses, professional associations and communities around the world are being called upon to engage people in a more collaborative way. In order to create organizational cultures based on participation and creativity where people can tap into their collective interior and intelligence, both the change in the nature of the conversation and a leadership ideology are needed. The reason for this 'global mind shift' in a new era of conscious co-evolution is the power of collective inteligence according to which any group itself has the wisdom and creativity needed to deal with the situation

so the only thing needed is the context that corrals and focuses the group's insights toward a specific topic and a focus question. This changes the dominant conventional belief system where the task of leadership is to set a vision and bring others 'on board.' Furthermore, the default culture on leadership which most leadership training still focuses on assumes that:

„Leader and top are essential
The future destination can be blueprinted
The work is to bring others "on board"
More measurement produces better results
People need more training
Rewards are related to outcomes
What worked elsewhere can work here
The future is a problem to be solved
Leaders should be a role model" (Block, 2007)

As Otto Scharmer and many other thought leaders call it, shifting from an Egosystem awareness to Ecosystem awareness is the essence of leadership of our time. Since the research suggests that in groupes „where one person dominated, the group was less intelligent than in groups where the conversational turns were more evenly distributed" (Wooley, 2010), in order to tap into the power of collective intelligence, leaders role is to create conditions in which everyone can be involved. This notion of participatory leadership challenges the conventional thinking which holds the leaders are the role models that everyone should follow. Such ideology represents a form of parenting, and the alternative is to move away from it so instead of parental dominion, leadership functions as a form of partnership. This assumes that the role of the leader is to invite people, focus their attention on certain issues and design conversations that will take place.

In order to identify the thinking and tools for the needed transformation of the nature of our conversations, it is important to understand the essentials of having meaningful conversations. Here are some of the basic tools for a good conversational design (for a detailed version of all seven tools, see 'The Seven Little Helpers, available at http://www.evolutionarynexus.org/book/export/html/909)

1) The power of asking the right question

When inviting people into a conversation that matters, it is necessary to have an overall question that embodies the purpose of the meeting. This is the "calling question" and is best formulated together with key stakeholders. Asking the right question is the most effective way of opening up a conversation and keeping it engaging because a high-quality question focuses on what is meaningful for the participants, triggers our curiosity and invites us to explore further.

2) Gathering and harvesting

Instead of meetings which are preplanned and scheduled and are most often intended for production rather than hospitality, it is better to use the term gathering. Anthropologically, this signifies a form of our social genetic wiring that has existed among people of diverse socio-cultural backgrounds for centuries. It is a common practice that people gather and talk about things that matter to them. Also, instead of planning a meeting, plan to harvest your learnings during the gathering. This is more than taking notes in a meeting – people should be invited to co-create the harvest. A big piece of paper can be placed in the middle of the table so that everyone can reach it and put notes that capture ideas and findings. Since the group can see the connections and watch the emerging whole of the conversation, mind represent a great way to capture the essence of conversation. (For more information, consult The Art of Harvesting booklet available from Monica Nissen and Chris Corrigan, available at http://www.artofhosting.org/download/Artofharvesting26_221.pdf).

3) Make a wise decision, act upon it and stay together.

If the gathering needs to come to a decisions, make on based on consensus process. Have in mind that wise decisions emerge from conversation, not voting. After deciding what needs to be done, act, commit and do it. And finally, staying together refers to the fact that relationships create sustainability. Use well the power of trust which is the most precious resource of the group.

In the following section, it is time to discuss the practical implications of the art of orchestrating conversations.

3. How can Participatory Leadership turn Leaders into Hosts and Citizens into Heroes?

In their most recent book *Walk Out Walk On: A Learning Journey into Communities Daring to Live the Future Now* (2011), Deborah Frieze and Margaret Weathley are bringing stories from seven communities around the world about people who have walked out of limiting beliefs and assumptions and walked on to create healthy and resilient communities. One of the seven learning journeys is a story of citizenship in Columbus, OH where citizens of this mid-size, Middle American city are discovering their capacity to engage together to create a better future (for an excerpt from the book with Columbus story, go to http://www.berkana.org/pdf/FromHerotoHost_web.pdf). This is a story of how leaders of some America's largest institutions—healthcare, academia, government who are giving up take-charge, heroic leadership, and instead chose to engage members of their community. Through their positional power and authority they act as "hosts," calling together people from all parts of the system to work together to solve problems such as hunger, homelessness, education, public safety, healthcare and other important issues. Although this story is about small, local efforts, it has a power to move laterally through a network of relationships and finally emerge as large-scale change.

A great example of such potential is a worldwide action-research initiative called The World Inquiry into business as an agent of world benefit (www.worldinquiry.org). Catalyzed by Case Western Reserve University's Weatherhead School of Management under the leadership of Ron Fry and Nadya Zhexembayeva,, this growing open-source network showcases the best in business-in-society innovations and sparks conversations about the role and potential of business to act as an agent of world benefit. Digital stories of exceptional business and social practices are shared and the best of the uncovered innovations are profiled in the Innovation Bank. This project uses the Appreciative Inquiry methodology as one of AoH tools as a way of mobilizing millions and millions of face-to-face conversations with business leaders, visionaries, students, scholars, social entrepreneurs, thought leaders, and wisdom companions including children, wise elders and spiritual teachers.

Here are some other examples of powerful AoH conversations that took place in various parts around the globe. In order to reveal the potential of questions for opening up new possibilities, energy and accelerating transformation in organizations or communities, these conversations will be listed here in the form of calling questions. Unlike worldinquiry project, they do not rely on the potential of the internet as a medium that inspires world-wide creativity and connection, but use face-to-face dialogue initiated by the following powerful questions that provoke the images of the future, which is the first step in building the future:

How will the practice of participatory leadership help the European Commission serve Europe?
How will The Technical Schools in Denmark be attractive learning environments in 2015?, Vision Camp - students and leaders co creating the future Technical Schools in Denmark
What is the next level of service to the world for the AIESEC international leadership community?
What new questions does Leeds need to be asking itself for the 21st century? Awareness day in Leeds, *How will meet the challenges of the next decade?* Directors seminar, EU Commission
(for more examples visit http://www.interchange.dk/ourwork/clients/ and http://appreciativeinquiry.case.edu/intro/bestcases.cfm)

The beauty of participatory leadership approach lies in the fact that the simplest truths are the most powerful. It is wide-known that human conversation is the oldest and easiest way to generate conditions for change. Vibrant global community of Art of Hosting practitioners functions just like an open-source operating system (think of Linux, for example) in which a worldwide community of developers continuously create new and different applications by using the same source code. Through their networks and relationships this source code is based on core principles and practices for how to host conversations which include: setting intention, creating hospitable space, asking powerful questions, surfacing collective intelligence, trusting emergence, finding mates, harvesting learning and moving into wise action. The power of such approach is that it allows people to do what they like best and that is to connect and create together.

Instead of a conclusion, there is an appropriate quote from another famous M. Wheatley's book (2009) "...in an increasingly dark time...it is difficult to do good and lasting work...in any country and in any type of work, we are being asked to work faster, more competitively, more selfishly - and to focus on the short-term...these values cannot lead to anything healthy and sustainable, and they are alarmingly destructive. We may feel distressed, overwhelmed, numbed and afraid - we are living in a time when countless people are losing their faith in people and their futures. But beneath these feelings, we still desire learning, freedom, meaning and love...and people are still basically good and caring."

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INFORMATION PROVISION OF LOGISTICS SUPPORT IN CIVIL PROTECTION

Eva Sventeková*
Ing. Eva Sventeková, PhD., Faculty of Special Engineering, University of Zilina, Slovakia, tel: 0421 41 513 6862, e-mail: Eva.Sventekova@fsi.uniza.sk,
Zdeněk Dvořák
Assoc. Prof. Ing. Zdeněk Dvořák, PhD., Faculty of Special Engineering, University of Zilina, Slovakia, tel: 0421 41 513 6854, e-mail: Zdenek.Dvorak@fsi.uniza.sk.

ABSTRACT

The paper describes new view for possible logistics support in civil protection. New information and communication technology have great possibility of using in all people activities. Civil protection is very specific field, where all proposal solutions bring results with very different probability.

Key words: information provision, logistics support

INTRODUCTION

Nowadays, life is becoming more complex together with growing of population, developing of technology and increasing of risks. Hence, authorized people have to take more powerful measures to struggle against natural, weather and technology disasters. When disasters occur, it is vital to rescue the large number of people in the shortest period of time and provide essential needs with appropriate methods. But all these activities depend on having effective disaster management plans, good teams, sufficient equipments and correct practice knowledge. When we come across a kind of disaster, we have to be well prepared to implement our plans.

Nowadays, civil protection and its logistics support is a science in universities and it has a scientific worth, not a simple work. So, realizing of this process requires systematic effort to manage and reply it. Actually logistics and its support in civil protection is a broad topic, branch of science. We can say lots of things in point of plans, preparedness, regulations, implementations etc. for all kind of disasters and crises situations.

Logistics may be identified in various types of definition today but most of them have a common side to describe it generally. It can define as a process of planning, implementing, organizing and controlling the information and sources from point of origin to point of needs effectively, speedy and timely. Shortly, it means having the right thing, at the right place, at the right time. Thus, the most important part of this process arises as administration of it. If we want to be accomplished in this work, we have to provide some basic rules or principles about solving problems. So, we need accurate information sources and moves. So we don’t win the race with wrong information.

LOGISTICS SUPPORT IN CIVIL PROTECTION

Logistics may be defined as the process of planning, implementing and controlling the efficient, effective flow and related information from point of origin to point of consumption (including inbound, outbound, internal and external movement) for the purpose of conforming to the customer´s requirements. For logistics support in civil protection is most important to create concrete system. The specific properties of this system are intangible flows – services as health service, deliverance, displacement, accommodation, protection, information flow, etc. These services can be bound by using some material. Some possible structure of elements in logistics support system in crises situations solving is in figure 1.

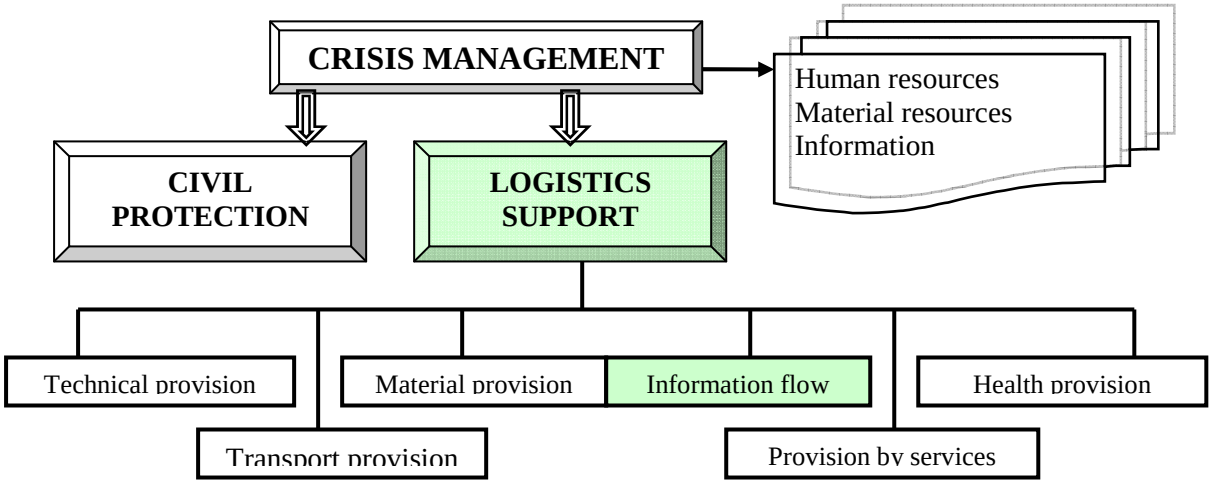

Figure 1: Logistics support in civil protection

For logistics support of disasters, it is the best to divide it components to take care of disaster situation effectively. So, we can divide logistics in two parts, planning and implementation.

First of all, planning is based on gathering correct information about current opportunities and sources. If plans are based on wrong data and information, they can not be useful in practice, also they might cause crucial damages. Planning is activity to evaluate by taking into account that which situation might we come across or what will we do in the future and to determine a form of movement. Because plans provide us that:

- People and institutions gain time.
- Economic sources don't be wasted.
- It provides to reach determined aim.

Planning process starts with description of authorized group or committee and assignment of a coordinator.

Emergency assistance planning means that planning to provide necessary and suitable aid to victims of disaster area.

Each kind of emergency situation might has own emergency planning but actually they have lots of common features like:

- Determining of teams and their powers and duties that which one of them will be employed.
- Specifying of command and control centres.
- Determining of sources and opportunities which should be used and setting of systems to reach them.

- Preparing of infrastructure of plans like searching, rescuing, first aid, evacuation, housing, logistic support etc.
- Determining of communication and transportation tools, vehicles.
- Establishing of mechanisms for warning and informing people to be awareness.
- Inventorying of sources like human, equipment, material, food, financial source for a province or county in case of emergency.
- Planning of obtaining necessary aid material and equipment in the shortest possible period of time in case of emergency situation.
- Determining of stores, stocking and keeping of materials.
- Searching of ways to send aid material and equipments to far and inaccessible regions.

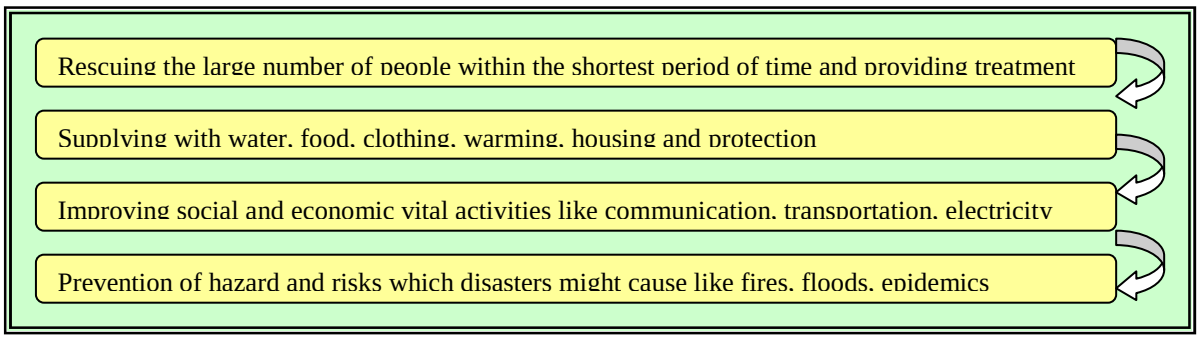

Figure 2: Main purpose of emergency situation planning

Detailed planning of elements that places of stores and institution which have sources and stocks, priority of them which will be used first and transportation of them in case of disaster by which vehicles they will send and which amounts.

- Keeping of emergency aids storage and transportation standards.
- Providing of fund and methods for urgent purchase.
- Activation of regional opportunities in disaster area.
- This planning is provided and implemented with related institutions' participation.

Implementation of civil protection and its logistics provision means to transfer of emergency aid goods and emergency aid attendants to disaster areas.

- Transportation from emergency aid stores to disaster areas.
- Creating temporary storage centres in disaster areas.
- Distributing of disaster aids balanced and ordered.
- Processing of stock control and registry mechanism regularly.
- Providing of crisis centre and communication.

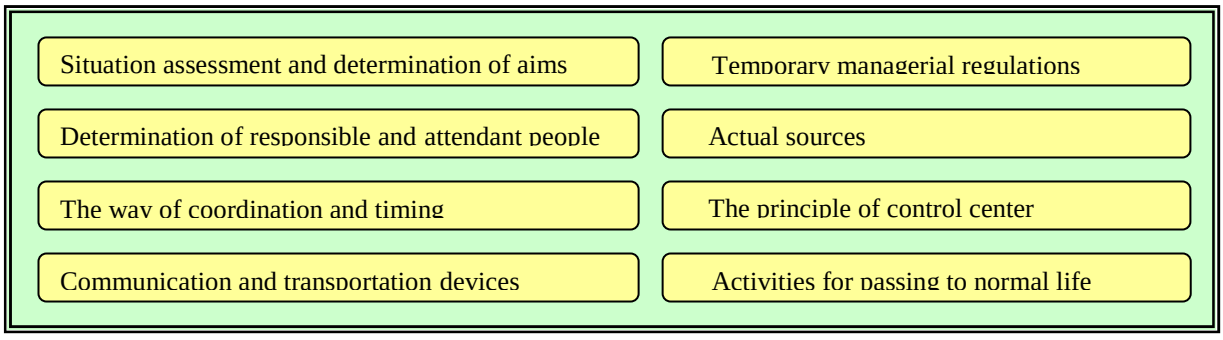

Figure 3: Emergency assistance content

INFORMATION TECHNOLOGY IN CIVIL PROTECTION

GSM, GPS, Extranet, GPRS are the sets of technologies that ordinary people have heard, sometimes not knowing what the functions that these technologies bring to our day-delays.
Data-GIS is an application for control of fleets in the area of GIS (Geographic Information System) to know the position of vehicles in real time, send and receive messages of equipment, fleet management.

In the operating room, the module allows management through the graphical interface view for the fleet of cars, its position in digital map, its speed, the miles done, and direction of travel. The alarm system allows generating the beginning of the motion of vehicles and issue alerts for SOS. Each car has a box equipped with GPS system, for sending information, which is operated automatically when the ignition of the vehicle.

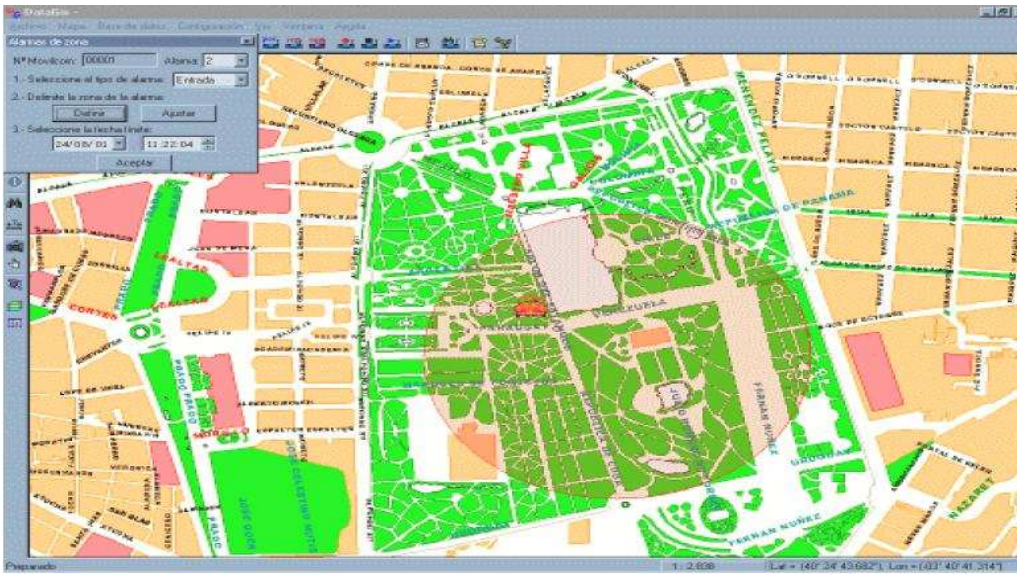

Figure 4: Geographic Information System

ICT - Information and Communication Technologies are important tools for the normal performance of any mission. For Events Management, it is expected that in the future will be intertwined with the Fire Department to update the data.

RIOS program, the interface Surveillance System Alert and Water Resources for ANPC (National Civil Protection Authority) is the application that provides real-time, information hydrometeorological and water quality collected by automatic stations with teletransmission, and some hydrometeorological data.

The following parameters are available to ANPC:

- Hydrometric stations - hydrometric height, tail, quota.
- Water quality stations - temperature, conductivity, oxygen, dissolved, and PH urbinez.
- Reservoirs - volume, influent flow, off fluent flow.

This application is a fundamental support in the management and planning for possible flooding in the Tagus basin, and beyond.

CDOS (District Operations Command Relief) uses geographic information systems Arcgis (ESRI) for preparation of studies and reports. It is a special information technology for fire departments.

Also the email came streamline procedures and contacts, and all releases and operational standards, and weather warnings broadcast in this way by the Municipal Services of Civil Protection, Civil Protection agents and other entities in the system.

The administration itself is facilitated with the dematerialisation of individual cases of fire. Generate Application (Human Resource Management), allows in few minutes to know for example, the number of staff by the Active Fire Department, his qualifications etc. Highlight for automatic monthly issue of the Order of Service with a total registration of movements of personnel and other management information bureaucratic.

The Future, guess it is less bureaucrat with the creation and development of the System of National Census and Registration of Fire, "set in the program SIMPLEX 2007, which will through an extranet platform Fire brigades launch and manage the information of new and existing elements fire.

The advantages of this technology has been useful in relief operations in theatres of forest fires, it was possible to locate with any precision the beginning of an outbreak of fire, by examining the concentration of car-fighting that occurred in the first place.
In this context it was possible to ascertain, almost in real time, the perimeter of a fire with the observation in digital map of the positioning of the means involved.

As an example of the daily tasks carried out with the use of ICT applications for Events Management, Media Management and Resource Management and Means of Air, they permit monitoring and monitoring of all events through, the registration and classification of these, classification of severity, upgrade of facilities and resources involved in its resolution, registration of all activities and operational decisions and monitoring the activities of air resources.

The main features of these programs emphasize is the ability to identify each occurrence in the resources involved and available, its classification and the ability to fight; supply of permanent points of situation, updated and organized, to provide information in real-time, based on priorities and response times.

The relationship between logistics and information technology is evident, especially when we talk about solving crises, saving lives. With technology the error becomes smaller, the response time is getting smaller, and greater efficiency.

CONCLUSION

Logistics in civil protection means that disasters, people, harm, equipments, saving, solving such technical, information and material process are like a chain and it has a lot of rings. Each part of this chain connects strongly to the other and these parts have to be made from right and strong materials. Because human life dependents to this chain. Whenever it is needed, it has to be ready for duty, help, life. Effectiveness, power and speed of Logistics in Civil Protection are headstones of this chain and its success dependents to them. So, governments, representatives, experts are responsible to ensure the implementation of this circle. Human life is the priceless value and nobody wastes it.

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DEVELOPMENT OF A STOHASTIC MODEL FOR DETERMINING THE ELEMENTS OF PRODUCTION CYCLE TIME AND THEIR OPTIMIZATION FOR SERIAL PRODUCTION IN METAL PROCESSING INDUSTY AND RECYCLING PROCESSES

Čala I.
Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb
Klarin M.*
Faculty of Tehnical Engineering, "Mihajlo Pupin" Zrenjanin, University of Novi Sad
Radojčić M.
Faculty of Tehnical Engineering,Čačak, University Kragujevac
Erceg Ž.
Agency for Small and Medium Business, Doboj, BIH
mklarin@open.telekom.rs

ABSTRACT

This project is a continuation (previous ours)project, where it was found that production cycle (PC) time is extremely long in domestic companies. Then, in the National Strategy of Technological Development of Serbia it was pointed out that metal products account for less than 30% of the overall amount of waste, even though the process output contains approx. 70% of recyclable materials. On the other hand, in the lead journals, over the past years there have emerged novel PC management methodologies, coming from Italy, Croatia, Slovenia, Taiwan and Tanzania, indicating the importance of the area which, when involves the need for cleaner production, reaches the very top of attractiveness. That is why the goal of this project is to develop a stochastic model for determining the elements of PC time and their optimization. They will enable quality monitoring and analysis of the PC time, which results in lesser stocks levels and larger turnover of means in the production and recycling processes, raising Serbian metal processing industry competitiveness, with adequate waste management and industrial pollution reduction, and all this to comply with the Decision No 768/2008 of the European Parliament and of the Council of Europe.

INTRODUCTION

The goal of the project is to develop a stochastic model for determining the elements of production cycle (PC) time and their optimization for serial production in metal processing industry, including the recycling processes. The newly set model will enable quality monitoring and analysis of PC time, which results in reduced freezing of funds, smaller stocks levels and larger turnover of means in the production and recycling processes. Its final outcome is a raised competitiveness of Serbian metal processing industry, with adequate waste management and diminished industrial pollution, and all this to comply with the Decision No 768/2008 of the European Parliament and of the Council of Europe. The project sub-goals involve:

a) Setting a modified model of current observations which eliminates the drawbacks of the Tipett model and introduces a more detailed analysis of the PC time elements.
b) Setting a PC model where stochastic functions do not follow binomial but normal distribution law.
c) Development of a PC monitoring method based on methods of quality control with the error of ± 2 SD.
d) Determination of the impact of series size, organizational level and product characteristics on the PC duration, i.e. the coefficient of flow by applying structural equation modeling (SEM). Setting and development of a model of influential factors on PC duration.

e) All above mentioned will be designed in accordance with the idea of a supply chain model that includes regional recycling centers.

The project will contain:

- Research of advanced methodologies for PC time reduction, increasingly emerging in SCI-list papers in the past years (Int. Jour. of Prod. Research, Jour. of Cleaner Prod., Technovation, and Int. J. Adv. Manuf. Tech.), coming often from less competitive regions such as Serbia.
- Formulating and interpreting the hypothesis that the stochastic method of current observations of the PC time elements is applicable in practice.
- Experimental evidence of the hypothesis obtained from screening a larger number of sections with serial production in metal processing industry and in recycling processes.
- Setting and development of models of impact factors on PC duration, on the basis of experimental research.
- Analysis and practical application of methodologies in Serbian companies, and
- Publication of results in lead international journals.

In our former research the emphasis was placed on PC time elements related to the machine, and results were published in lead international journals: Int. Jour. of Prod. Research, Vol. 38, No 12, 2000 (The shift level of the utilization of capacity as the stochastic variable in work sampling) and Proc. of the Inst. of Mech. Engineers, Part E-Jour. of Proc. Mech. Eng., Vol. 224, No E18 (A method to assess capacity utilization in short cycle functional layouts). These results were cited in Serbia and lead international journals. A new research is a continuation of mentioned investigations.

It is notorious that the product persists on the market if it is of adequate quality, price, volume of production, and time of delivery. These factors can be further divided into their variables, but being functionally interconnected, they can lead to position loss on the market, and finally to product and company vanish. The factor having the greatest number of interconnections and dependencies is the time of delivery, the factor depending most on PC time, i. e. the overall purchase-sales cycle. Under conditions of increasingly easier monitoring and regulating of business activities, the core of purchase-sales cycle has not become optimized yet – PC in metal processing industry, especially in serial production, while the possibilities of recycling have been considered very rarely (except in the case with FIAT). According to the 2010-2012 Strategy of economic development of the Republic of Serbia, the deterioration of processing industry competitiveness in 2005 was also affected by inadequate recycling, so in the period 2010-2012 the emphasis will be placed on waste management and industrial pollution reduction. Hence, PC research within this project will be related to serial production in metal processing medium-sized plants as well as to plant recycling sections as a supply chain, because they are of utmost importance for production restarting in Serbia and establishment of sustainable development from the standpoint of the promotion of ecology through the process of product recycling in metal processing industry.

The modified method of current observations will enable the determination of percent of each element of PC time against the overall PC duration of both production and recycling. As it is statistic and is based on a certain number of current observations of a certain activity, it is simpler and more efficient than continuous screening method. Monitoring within the PC will include technological time with preparation-finish time and manufacturing time, non-technological time: time for transport, control, packing, and within the non-production time: stoppage due to poor organization, deficit of raw materials, breakdown and deficit of tools, machine breakdown and groups of other diverse stoppages, their interdependences, as well as other factors – series size, organizational level and product characteristics – influencing those above mentioned. Also, analysis will be carried out on effect of PC reduction on the company's market and financial performances.

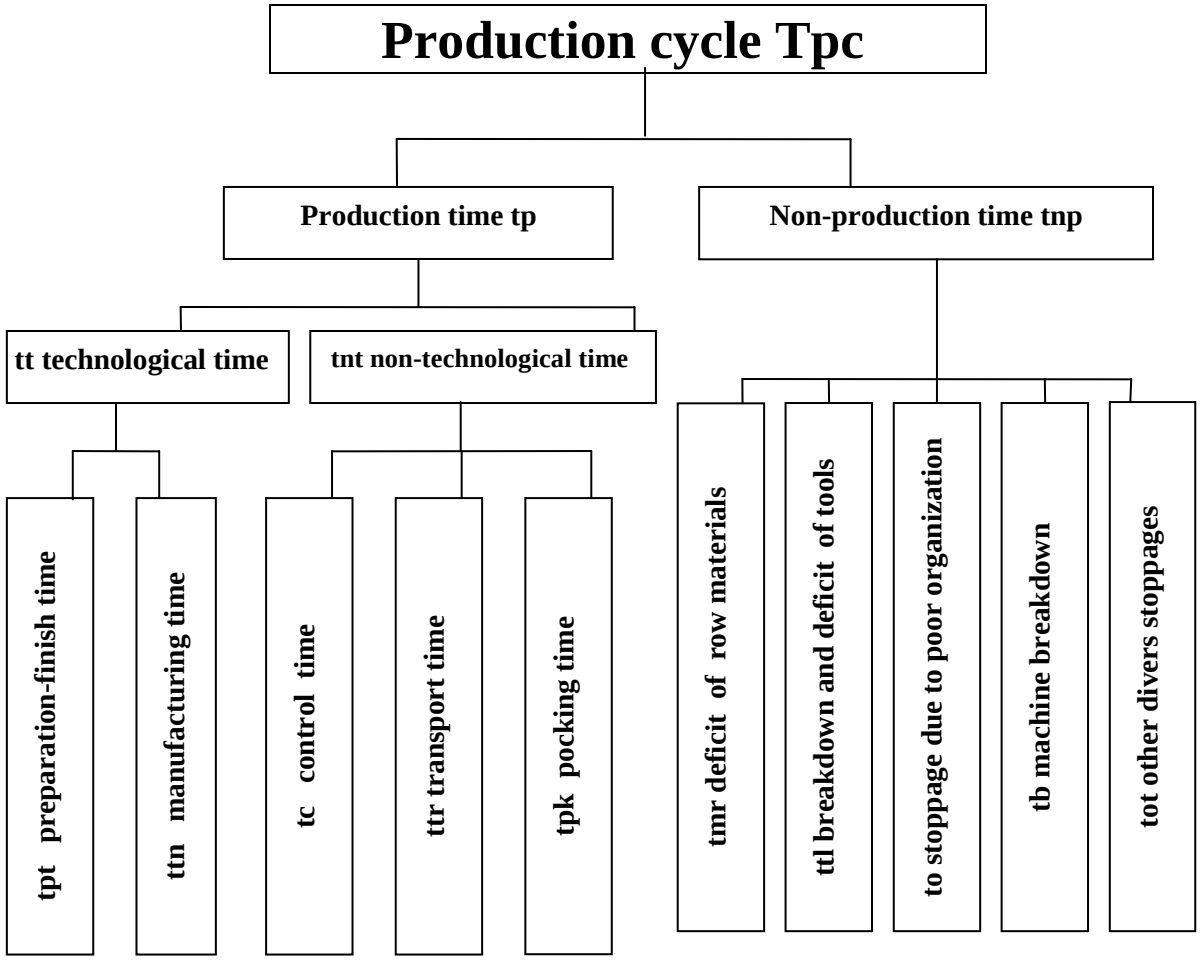

Figure 1. Production cycle

No	Time		Production time					Non- production time				
	h	min	tpt	tm	tc	ttr	tpk	tmr	ttl	to	tb	tto
1	8	31		+								
2	10	12										+
3	10	26								+		
4	11	55	+									
. .												
n	14	41										
∑												

Figure 2. Observation paper per Work Sampling Method

Investigation will be in lerge number of enterprises, according to time the elements of PC on the Fig. 1 and the sheet Work Sampling in the Fig. 2, and on that basis we can determine percent of certain elements in the whole production cycle (PC).

On the other hand according to [3] and [4] we investigatate flow coefficient, whose function is presented on the Fig. 3.

The basic production indicator of the flow coefficient, whose forms the relationship between the total production time T_{pc} and the process machine time t_{tm}

$$K = Tpc / ttm$$

In mass production again the increase of the pieces number the coefficient is reducting.

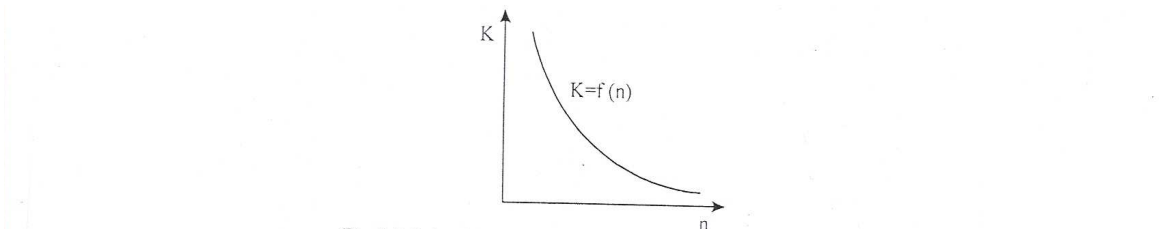

Figure 3. K factor coefficient relationship of pieces number n.

In the ILR factory according to [5] for a series of 3 to 11 pieces, i.e. for individual production it is:

$$Kp = 2,76 + 17,64/ ttm$$

The project is of crucial importance both for general theory and practice. According to the information available, there have not been attempts in the world to solve the issue that this project is dealing with by applying the stochastic methods, hence the issue is of importance in this respect. After the interest and research in this area have declined for a few years, there occurs a renewal of interest in the world of science. This is what the Editor-in-Chief of Int. Journal of Production Research said about the rebirth of interest in this area of research.

The results expected mirror themselves in:

- Setting a modified model of current observations which elements the drawbacks of the Tipett model and introduces a more detailed analysis of the elements of production cycle (PC) time.Setting the PC model where stochastic functions do not follow binomial but normal distribution law. Development of a model for PC monitoring, based on methods of quality control in time with the error of ± 2 SD.
- The work was supported by a grant from the Serbian Ministy of science under contract No 35017.

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MULTIDIMENSIONAL MODEL OF PRODUCTION SCHEDULING AND MONITORING

Drago Lisjak
Trade Departm, Faculty of Economics & Business, Univrsity of Zagreb, Croatia
Zvonko Sajfert
Technical Faculty "Mihajlo Pupin"Zrenjanin
sajfertz@tfzr.uns.ac.rs
Sanja Stanisavljev*
Technical Faculty "Mihajlo Pupin"Zrenjanin
sanjastanisavljev@live.co.uk

ABSTRACT

Abstract: Paper present multi-dimensional model of production scheduling and monitoring that should be useful to manufacturing and industrial engineers in metal industry. The model basically starts from the accepted assumption of the Modern Organization Theory that the company is a multi-dimensional system and that its elements are connected by stochastic links, therefore it is logical that for the planning process all relevant elements should be considered, meaning that the multidimensional model of operating planning shall provide better solutions than planning only into one dimension that usually is used in practice.

Key words: Production scheduling and monitoring, multidimensional model

1. INTRODUCTION

The substance of the conventional Gantt's chart which is still the basis for scheduling and operational monitoring of production in metal industry is that lengths of horizontally drawn lines to some scale mean the duration of works per items, and simultaneously the start and end of works.
Fig.1 is graphical presentation of one progress indicating board. It is in horizontal direction divided in days, and by vertical direction the work positions are lined-up (machines in some workshop). The board is so marked as to display the machines occupancy and cardboard's are used, cut in suitable scale (for instance 1 h = 10 cm). The cardboard's are ranged by the planned sequence of operations, at each work position. As a standby, due to possible standstill, between individual cardboard's some space has been left (for instance 4 hours/week). In addition to this the work shift is reported to 10 hours, so that the work, if necessary, could be extended without disturbance to the next process. There is a plum above the board, serving to monitor the operation course.

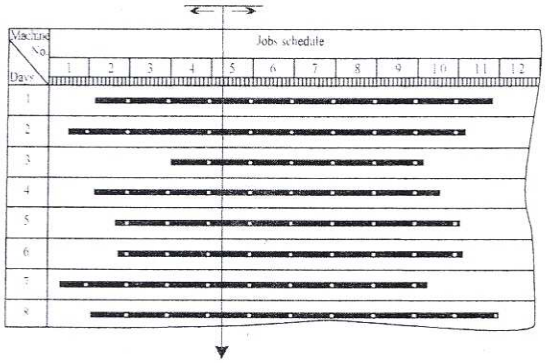

Figure 1: Progress indicating board

For monitoring the operation course a bar progress chart (or "critical path method") by elements has been prepared (Fig.2) representing the base for the most modern systems of monitoring.

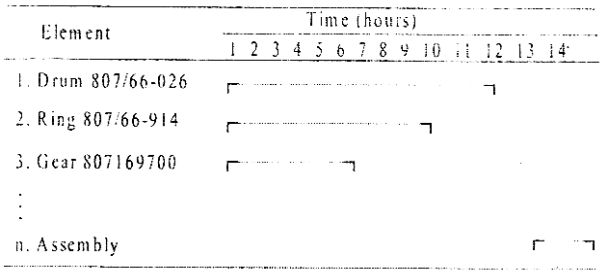

Figure 2: Gantt's chart by elements

This monitoring method is suitable for production with linear machines arrangement, while the capacity problem is more or less solved: the main problem is the length of production cycle and the process interaction between the elements.

The principal problem in the group machines arrangement is how to reduce the transport routes under such conditions by maximum utilization of the machines capacities. By production planning, monitoring and control by this system, we can solve in first place the problems of machines capacities, and then all other problems in connection with them. Therefore in addition to the previous chart it will be necessary to apply progress monitoring chart per each machine.

2. MULTIDIMENSIONAL MODEL

The multidimensional model enables connection of operation time elements per different machines, products an, operators, which cannot be identified from the conventional Gantt's charts, being in one plane. The connection i obtained from geometrical projection in the section of two planes (on the model with three planes on Fig. 1 shown wit dashed lines) and so effects and techniques of critical path method with respect to presentation of structural connection between individual operations (operation time elements) are obtained. The sequence of operations and time elements is dictated by the process-operation list.

The Fig. I shows that in the plane "e-t" the planned work items are given: gear, ring and drum, whose sequence by the machines is dictated by the process. After completion of the processing on the turning lathe, the drum is transported (ttr)and reaches the grinder or the boring machine. Likewise the ring and drum are operating according to the process.

In the "m-t" plane the machines occupation is presented. So on the lathe on Fig. I after the drum, the ring is placed an(between them is the time envisaged for preparatory-final works (tpz)(more precisely these are auxiliary-manual time elements). The starting time of ring execution is - in addition to preceding process machine time for the ring execution on the boring machine and drum on the lathe in plane "e-t" and process machine time for drum execution on the lath in "m-t" plane is imposed by the relationship of the appurtenant time elements for transport ttr and preparatory-final time tpz in plane ,"m-t". It is clear that the higher time of these two dictates the start of the following operation, in our case the ring on the lathe.

Also it should be taken into account that waiting due to the differences of in duration of these two times are not shown on Fig.l. The model itself should comprise the intermediate spaces not included up to now in the presented activities occurring due to different standstills and cancellations.

In the "elements-time" plane ("e-t") it is possible to plan and follow-up the operator when he works on one or several machines. It is also possible to show the operators' time if in addition to the work on several machine transport between each operation is performed. So for instance on Fig. 2 in the "e-t" dimension the operator "XY" transports a part (ring) to the grinding machine, and upon watt completion he transports it to another machine lathe. from where it will be transported by another worker, which means that the operator is dealing with two machines. However, the most frequent case in industrial production is that one worker is serving one machine, and where the internal transport is by mechanical means, or it is performed by another worker, so planning and monitoring of time elements of the worker's operation can be equal with the planning and monitoring of the machines operation.

Tools and accessories are connected to the machine, their planning and monitoring is related to the "machine-time" plane ("m-t"), for the preparatory-final time (machine setting) respectively and it is possible to present them in this plane.

Nevertheless, it is possible even for planning and monitoring of transport time as well as preparatory-final one to introduce new planes in the model, and in this manner we can obtain a multi-dimensional model. It is clear that precise planning, monitoring and control of production requires more precise restriction of time elements by the three principal dimensions: item of work, machine and man. The restriction of time elements between the man and machine provided up to now the conventional chart "man-machine" but it was conceived for one man only - the operator, and for one machine. The required condition in our model is achieved in the three-dimensional model with the axes "machine-operator-time" (m-o-t). From the plane "operator-time" the connection is realized by the plane "machine-time" from the plane "work items-time" in the three-dimensional model with axes "machine-work itemoperators". Thus, the common plane of tile two three-dimensional model is "m-t", which is obvious from Fig.3.

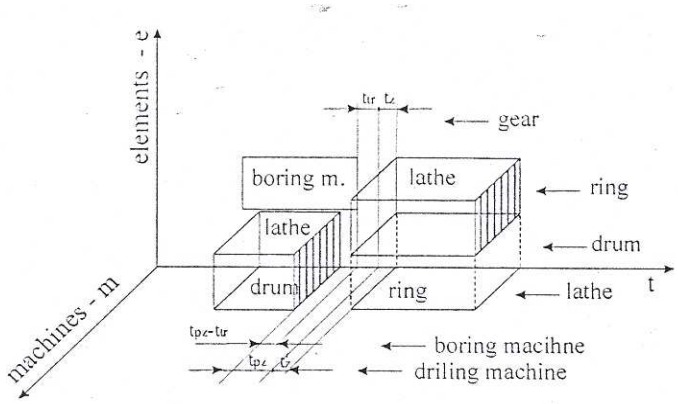

Figure 3: Elements of multidimensional models of operative planning

The plane "r-t" is combined with the plane "m-t" as it is assumed that in industrial production the working place is limited, i.e. the machine operator is not consuming his time on other elements of working time, being the obligation of other workers, such as internal transport, etc., which elements depend to the "e-t" dimension in the model. This model is shown on Fig.4

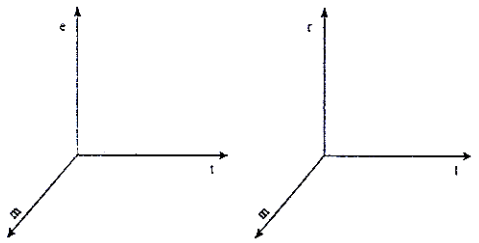

Figure 4: Planes in multidimensional model

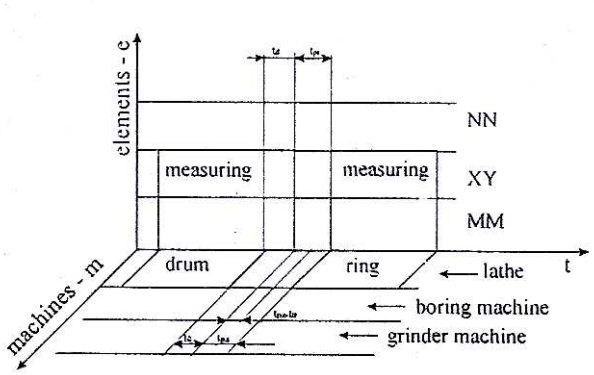

Figure 5: Common "m-t" plane in multidimensional model

By parallel planning by all four basic model axes "m-r-e-t" we obtain the final basic multi-dimensional model.

Simple computer program (adapted to the one for TMP) with the limitation that at the same time at one machine one work item is available, supervised by one operator by respecting the process and as shortest as possible production cycle, provides the solution and possibility of updated re-planning by the multidimensional model as shown on Fig.3.

Under conditions of industrial production, on the other hand, all these elements of work time (Fig. 3), machining time inclusive calculated in the technology and standardized times included in the production quota in individual, small series and series production are beyond less than the time elements of waiting time, standstill and cancellation.

The realistic planning model and production monitoring should include also these operation elements and their stochasticity with respect to time duration. The model from Fig. 1 is now modified for a case of waiting time, standstill and cancellation, so we obtain the model on Fig.6. The Fig. 6. displays that in the ring "channel" failure occurred during the operation in the boring machine resulting in shifting the later times; transport time and process time on the lathe. It is clearly reflected in the "m-t" plane and now the ring shall wait some time to reach the lathe, which is marked on the figure in the. "lathe" channel with tc. Therefore, all times shall be indicated in the model, only waiting time, standstill and cancellation most probably shall have planned total time, but to be divided at random, which by the computer program under real conditions shall be recorded in the shortest period possible (re-planning process).

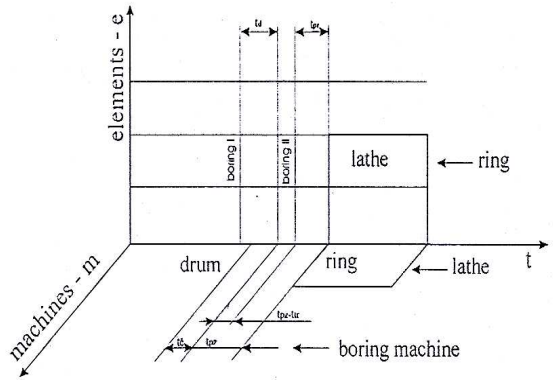

Figure 6: Final multidimensional model of production scheduling and monitoring

In the depicted real production conditions the elements of work time whose duration is subjected to stochastic laws of distribution can be ove!"vVhelmed and tested at different production levels, whereas two are the basic ones:
- level of metal industry
- level of the enterprise (plant).

Having the knowledge of the work time elements, the almbiguity in planning and monitoring of production is reduced. According to Opitz (1971) from the total time (duration) of production cycle in German metal industry only 2% is process-machining time, and it is not realistic to plan (schedule) in our circumstances to be better, although this information should be taken with prudence.
For this purpose we have surveyed the elements of work time by machines and by items and the surveying methodology shall be described later.
The coefficients of work time and the total degree of machines utilization are given in Table 1. The sample included the period during 5 years of our largest metalwork industries with 74 plants (strata) and 3510 machines.

Table 1. Level of capacity utilisation, the structure of the time machines spend in operation and out operation

		η_{tm}	η_{pz}	η_m	ηk	η_a	η_c	η_o	η
I	η_i	0,375	0,119	0,074	0,072	0,048	0,122	0,179	0,506
	N_i	2026	2144	2555	2297	2250	2765	2508	3049
II	η_i	0,192	0,080	0,058	0,056	0,008	0,052	0,500	0,266
	N_i	991	1121	417	727	592	779	888	1345

It is obvious from the table that the average capacity efficiency in the first shift is about 0,506, while the average standstill due to machine failure μk = 0,073, due to operators' negligence μc = 0,122, due to organization lack even 0,179. Calculations are done according to Richardson et al. (1982) and Klarin et.al. (2010).

If we have recorded data at the enterprise or plant level, it could be possible to make better planning, and the end result shall be shorter period of works elements for various waiting and standstills, thus resulting in shorter production cycle and better capacities use.

In operational planning and production monitoring particular attention deserve control elements of working time, internal transport and packing of goods, as they develop when the work items are not in the-machining process and there is no correlation or other direct links between these elements, for example the machine elements of work time. It is possible in practice that the capacity efficiency is very high, and yet the production cycle extremely long, as we have too many items in

the series and inadequate organization in the operation sequence (consecutive), so the item is waiting for machining. This dimension of the problem should be identified prior to the application of our multi-dimensional planning and monitoring model of the production cycle and process-machining time, the so-called flow coefficient, which according to investigations in our metal industries for small series production of 3-11 items amounts to 8-20 (k= tc/ttm), and for series of several hundred items it is 3-10.

For the concrete plant surveyed in the preceding period we shall obtain more precise data for the case of internal transport time - ttr which shall be taken into account during its fitting in our model. The multi-dimensional model of operating planning is prepared manually and by man logic. During the monitoring phase it could be applied semi-automatic or automatic, but during the setting phase it depends on the production system (individual, mass, etc.)

Operational planning and monitoring is a complex system whose task is to the fastest possible way and with less funds accomplishes the market demands, all by eliminating the occurred problems. Undoubtedly, this is achieved by better utilization of the capacities and by removing the standstills but certainly by production effected with less transport and quality control, production that shall be executed in parallel with other activities (Hackstein et al., 1989). Shigeo Shingo (see Luczak, 2001), the President of the Japanese Association for Control (1986). calls such production "Just in time". Such production is without storage's and unnecessary transport, but it requires strict discipline and that all items are from own manufacture and suppliers reach exactly on time on the right place for processing or erection.

3. CONCLUSION

Multidimensional model for production scheduling and monitoring that we propose enables connection of operation time elements per different machines, products and operators, which cannot be identified from conventional Gantt's charts, being in one plane. That is the reason why we think so that multidimensional model is tool for effective production planning useful to manufacturing and industrial engineers and managers in metal industry today.

Proposed model for production scheduling and monitoring starts from the standpoint that the company is a multidimensional system and that its elements are connected by stochastic links, so that all relevant elements are considered. Indeed, the efficiency and effectiveness of the production process in a company, as a subject to considerable number of factors, their balance and way they operate together, requires the model which shall offer more connections to be previously planned.

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TOOLS FOR SUCCESS IN CONTEMPORARY INDUSTRIAL WORLD

Jesa H. Kreiner, Ph.D, PE, Professor Emeritus,
Mechanical Engineering Department, California State University at Fullerton, California, USA
e-mail: kreiner@fullerton.edu

Abstract

This paper presents a summary of contemporary thoughts on which skills are necessary to succeed in the fiercely competitive workplace which go above and beyond the normal professional skills required in the field. In this author's opinion among the most important ones are the ability to understand the culture of the workplace, ability to lucidly and cogently express and present ideas, ability to deal with the upturns and downturns of the economy, creativity in problem solving, willingness to take risks, understanding of the political realities in the institution, commitment to social responsibility and demonstrated willingness to advance one's knowledge in the field thus avoiding becoming obsolescent.

INTRODUCTION

Over the years the demands for new and modern skills have gone up and up and up. More subject matter is packed in the curricula of just about every discipline, from business to engineering, from medicine to economics, from geography to meteorology and so on and on. The complexity of the workplace has increased, people of all ages, genders, orientations, national origins and backgrounds have to harmonize their efforts, the boundaries of international cooperation have embraced the entire world and hardly any product emanates from within one country. Most incorporate components made worldwide which are integrated into the final product. So what are the essential tools for success in the modern world? How do we go about indoctrinating the new professionals in dealing with the modern world?

Many papers have dealt with the theme that one must not look only backward to evaluate what was done that could be improved but look forward into the future and project the changes which are taking place during every day and beyond. The truism advanced by the ancient Greek philosopher Heraclitus and subsequently affirmed by Plato and others that the only thing that is permanent is change must become the mantra of the contemporary education, it must be inculcated in every professional irrespective of the field.

That professional courses must be taught at the state of the art level is given and also essential but, at the same time, students must be made aware of the ongoing developments in the fields and not at the expense of the fundamentals of the discipline. Does this mean that more must be packed into the already full array of courses and laboratories and ever enlarging the curriculum? Of course not! But it means that courses enhancing the techniques of careful examination of what are presented and, going beyond that, of critical assessment of subject matter and approaches of identifying problems and problem solving techniques with both classical methods as well as modern ones become essential tools of dealing with the modern world.

TOOLS FOR SUCCESS

Dealing with the workplace becomes a matter of survival and only the fittest do both survive and excel in it. That means understanding the culture of the institution and how to cope with it becomes as important as the professional prowess and expertise in the field. Dealing with management requires frequently mastering the language of the place with all nuances and figurative speaking. Leadership skills can be taught and must be taught as through these one can truly become a valuable team member and active contributor in workplace. Passivity is not the part of a contemporary set of tools. Active and participating leadership is.

One learns a lot from past practices, from history and looking and evaluating the past is a prudent way to proceed into the future but also one must look into the future as well. Changes can be anticipated from the proverbial “handwriting is on the wall” and from the trends in the marketplace. Over the years changes in fabrication techniques, in newly developed sophisticated materials, in updated management approaches, in our comprehension of environmental effects and other parameters lead into the future and must be understood as the world changes around us. The massive changes in the workplace with respect to the gender of workers and their ethnicity make the workplace a different one from the decade ago. Global competition affected the production of just about anything and collaborative endeavors abound everywhere. A recent review of components of this author’s favorite vehicle, the (formerly) Swedish Saab indicated that the engines were made in Japan, some electrical components made in Spain, parts of the transmission in Italy and so on. As this is written Saab is owned by a Dutch company Spyker, which bought it when General Motors, that purchased it before from the original Swedish owners, decided that the car, in spite of its many dedicated worldwide fans, was not a profitable one and decided to dispose of it. After a series of would-be buyers from China and other places it was ultimately purchased by the Spyker Corporation of Holland. But its future is far from certain in spite of the ruggedness and high quality of the automobile.

Understanding of the business cycles with its upturns and downturns, the ever changing labor costs and the development of new technologies displacing the older ones make prediction extremely uncertain and difficult. Yet it is mandatory for survival of a business outfit. Concerns about the environmental effects and workers' health make the older technologies vulnerable to more regulations and compliance standards and increase the production costs.

So, how does one prepare for the future? What is to be taught in Universities and how are the essential skills to enable the budding professionals to succeed in their lives?

That the workplace has its own demands, its politics, its culture, its expectations and numerous challenges is given. Coping with these and successfully integrating oneself into it is a condition *sine qua non.* Providing skills to accomplish this should also be incumbent on the educational process. Establishing formal modules which facilitate this is a challenge for the educational establishment. The tools kit should include the following:

Ability to make convincing oral presentation: the skills of presenting one's ideas in a cogent, understandable manner in which the message is crisply defined and effectively shared. This may include visual aids, i.e. Power Point, graphical representation and the like. Effective delivery does not come by itself. It must be taught and practiced if it is to flow smoothly. Most young professionals (and a good many older ones) do experience stage fright from audiences, some of which are not always friendly. Creating a clearly defined and cogent message is a test on true understanding of subject matter. Ability to deal with questions and defuse tension with a degree of humor can be taught. And what better way to achieve that than requiring presentations during classes taught in the form of reports on research done within the conduct of the class. The chances are good that the audiences within the University settings would be friendlier than in the workplace! The practice of giving the presentations should become an increasingly integral part of the educational process.

Becoming a fully functioning member of a working team takes time and effort. And time is a very precious commodity of which there is little to find in the workplace. Hence this integration facility must be given a start during the educational process as well. This can be accomplished through group projects where students (and sometime faculty and staff members) work together to accomplish a given task. They have to grow together into a smoothly functioning team, sharing fruits of their labor and frustrations of failure. Creation of harmonious teams represents a challenge both within the University setting and industrial ones. Harmonizing talents, submerging strong egos into an entity where individual preferences are cast aside for the success of the common goals are daunting effort. Team building is one of the keys for successful performance in the workplace. Defining who is to do what and parceling the responsibilities makes eminent sense in both previously settings. Growing a team does not take place instantenously but requires both time and efforts.

Problem solving becomes a task for the established teams and is to be accomplished through various problem solving processes. Creativity of individual members must be tapped without allowing the most vocal members to monopolize the process. Through brainstorming or similar ways quantity and variety of ideas allow for team members to provide their thoughts on how to approach and solve the existing problems.

Conflict resolutions skills techniques ameliorate clashes inherent in any situation where people are working together. Any situations where persons' attitudes are involved are likely to result in conflicts and bruised feelings and emotions. Therefore it is incumbent to clearly define *a priori* the necessary steps and actions that must be engaged to overcome problems established before or ones that emerge during the process of creation of the product. These skills are likely to contribute to validate sense of belonging to a team where each member is considered a valuable and productive one.

Management of people and resources is a must if a productive working environment is to be established. Of crucial importance is control of time expended on meetings where issues are discussed. The time spent in these discussions must be spent constructively and a clear purpose established. Roles of each participant must be clearly defined and meetings kept on track. Agenda must precede the meeting so as to preclude waste of time and the effectiveness of the time spent assured. Planning of the meetings is crucial as is copious documentation of what took place in the meetings in form of exhaustive minutes and action plans what is to be done.

Willingness to get involved in the workplace plays an enormous role in the successful development of one's career of the institution. Demonstrating passion for the work that is being done and clear commitment to the work advances one's progress and the rise in the hierarchy. Being proactive assures that the person will be considered for more responsible roles and leadership positions in the future. In order to make a real contribution one must be carefully observant and astutely diagnose possibilities of improvements. Rather than offering critiques one should examine the opportunities for improvement and, once these are identified, offer them through the chain of commands. However, before jumping and offering any recommendations and/or suggestions for improvement one should listen carefully to the persons with extended career at the same institution. After all, they have a longer tenure there and may know more about what has been done previously and has been abandoned for one reason or another. Reflecting on one's approaches is a prudent way to become a true colleague rather than someone who imposes one's personality on the way "we do things here". Advancing one's people skills cannot be done via any formulas, one has to work on it. This is best achieved by interactions in the workplace, by cultivating relationships with others and by demonstrating that one has only the common good in mind and wants to provide constructive thoughts.

Updating one's professional skills through continuing education and self-improvement by attending professional meetings and conventions, reading of published papers in the field, and other methods of growth has become increasingly critical to staying competitive in the marketplace. Development of new materials, new fabrication methods, new production tools, and the like lead to better products as do the multiplicity of newly developed computer aided techniques. Sophisticated market evaluation techniques help direct new product development. Unlike it was for quite some time that each profession worked in its own space the tremendous push for interdisciplinary work has produced magnificent results. Nowhere is it more evident than in the biomedical field leading to the (almost) bionic men and women. But in order to work in an interdisciplinary environment one must learn the language of each of the disciplines involved thus placing new pressures on the practicing professionals. As the old German proverb eloquently states "*Staying in place means falling behind*"! Continuing education during the practice of one's profession alleviates the pressures on all involved.

CONCLUSION - LAST BUT NOT LEAST

Last but not least is the increased demand that social responsibility be a part of the tools package implanted in the new professional. The legitimacy of the educational process is severely tainted and tested by events currently taking place on our planet: the nuclear power's place in the energy demands, the poisoning of the environment through careless disposition of toxic materials, the carbon emissions and global warming of our planet coupled with natural disasters which may or may not be linked to the role of the humans all lead to emphasis on the increased responsibilities in all human endeavors. And there is no better place to infuse this social responsibility than through the educational process at the Universities. Instead of focusing on individual that promotes only personal interests and personal advancement we must uphold the general societal welfare and each individual's. Instead of demanding and/or expecting that governmental regulations take care of the existing and future problems each person must share the responsibility for what takes place not only locally but also worldwide. The power of professional organizations cannot be overemphasized and involvement in their activities for the common good becomes one of the cornerstones of the development of our civilization. Hence it becomes incumbent for Universities to work together with professional organization in a symbiotic manner leading to a concerned citizen, current professional and a better and more involved human being leading to a better world.

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Biography

Dr. Jesa H Kreiner is a Professor Emeritus of Mechanical Engineering at California State University in Fullerton, California. His research interests encompass design engineering, failure analysis, behavior of materials under adverse conditions and social aspects of the engineering profession. He has published over 100 papers and contributed to several books. He has lectured extensively both in the US and abroad. Dr. Kreiner is a recipient of numerous awards and has served as a consultant to US Government Agencies and private industry

DEVELOPMENT OF AN INFORMATION SYSTEM OF THE COMPUTER CENTER

Ivica Veza*
Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, University of Split, Croatia, e-mal: ivica.veza@fesb.hr
Zoran Nesic
Technical faculty, Cacak, University of Kragujevac, Serbia,
e-mail: zornes2002@yahoo.com
Bozenko Bilić
Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, University of Split, Croatia, e-mal: Bozenko.Bilic@fesb.hr

ABSTRACT

Computer center, as well as any organizational entity, established requirement for efficient organization of their data and information flow in its business activities. These requirements are largely manifested in a computer center of large scale, with a greater number of employees, more prominent organizational structure, a large number of projects and software solutions. This paper discusses some key aspects of information system of computer center. Solutions can be shown to have universal application in different segments.

Key words: Information systems, software solutions

INTRODUCTION

Integrated information system is an indispensable factor in each business organization. General characteristics of this system are based on a single database, single system of identification and the information flow regulated at the organizational level of the entire enterprise. International Federation for Information Processing – IFIP defines an information system as follows: "Information system is a system that collects, stores, processes and delivers information relevant to the organization and society, in order to be accessible and usable for anyone who wants to use them, including management, customers, employees and others. The information system is an active social system that may or may not, use information technology." (IFIP - International Federation for Information Processing). Development of an information system is a complex process. It consists of multiple sub-cycles that include not only IT specialists, but also users, local experts and business leaders.

In addition to the complexity of system development and individual designs, another significant feature of an information system is its organizational structure. The complexity of this structure is particularly evident in major computational centers, with maintenance of large information systems. Schiesser and Kern (2001) point: “An infrastructure usually consists of data and voice networks and communications, technical services, database administration, computer operations, and help desks. While the structure and composition of infrastructure groups may vary, the above represents a typical organization in a medium- to large-size IT department”.

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Such complexity of the construction and operation of information systems requires strict monitoring of all its parameters at any time, in real time. "The risk of building a system is unstable, with mistakes, immeasurable and sensitive, and forcing more companies to seek a methodology that can strike a balance between rigor and speed" (Yourdon, 2000). Many authors warn of the risks of using applications that are not thoroughly evaluated in terms of safety and that probably are not properly maintained (Davis, 1998).

Walkern and Kern (2001) stated that the information system represents "a concentration of expertise, processes, and tools dedicated to taking customers' requests and fulfilling them in a timely and cost-effective manner, leaving the customer delighted with the experience. A service center has a defined range of service offerings, from fixing problems to providing value-added services, and everything in between."

However, in literature can be found a bit of information about practical problems faced by IT professionals in real conditions. Authors Barrett et al. (2004) emphasize: “We found system administrators operate within large-scale, complex environments that present significant technical, social, cognitive, and business challenges. We discuss our findings concerning administrator needs for coordinating work, maintaining situation awareness, planning and rehearsing complex procedures, building tools, and supporting complicated interleaved workflows.”

The development of information technology have a great extent to the demands of users of information systems in terms of quality of obtained information, the speed and reliability, and implemented modern technology (Amor, 2001). Therefore, many authors agree: “We have to change our user services organization to reflect the new reality” (Castner, 1990). “It looks at how IT has been traditionally serving needs and how cloud computing improves and expands on these services, so you can strategize about how a cloud might provide solutions to specific IT questions or answer business needs.” (Chee and Franklin, 2010).

A modern way to improve system functioning is the Business Activity Monitoring. “Business activity monitoring (BAM) provides real-time access to critical business performance indicators to improve the speed and effectiveness of business operations. This is mainly due to the fact that there are no formal standards which enumerate what specific features BAM systems must include or theoretical models which support comparative analyses between BAM systems.” (Dahanayake et al., 2011). Many authors have considered other methods for improvement of the information system functioning (Cutright and Stemmer, 2007), (Gerace and Cavusoglu, 2009), (DiRienzo et al., 2010).

SOME CONSIDERATIONS ON AN INFORMATION SYSTEM OF COMPUTER CNTER

Computer center is a service, which apart from the development of integrated information systems, has a need for processing its own data. Regardless of the formation of integrated information systems of a company, this service can obtain its local information subsystem of the distributed character. This information subsystem can be formed for the local needs of the service, outside the centralized database. Although today is „continuing "war" in the organization of computing between computer center centralization and individually autonomous decentralization“ (Wellman 2006), it is necessary to accept the decentralization and the organization of the Computer Center.

Great importance in the development and maintenance of this information system is the formation of a local database at the data center. The proposed basic relational model and structure of this database is shown in Figure 1 Information contained in the depicted the local database are intended primarily for designers, developers and database administrators of the computer center, in developing and maintaining information systems. The database is not a part of an integrated information system, but it makes a distributed segment for a specific purpose.

The aim of the proposed database and application solutions for maintenance of the most important information of the computer center is based on problems that arise in practice, especially in the data center of large scale, with a greater number of employees, prominent organizational structure, a large number of projects and software solutions. In that sense, establishes a requirement to maintain a large amount of data of a data center in real time. Information about projects and application solutions are generally defined by organizational regulations. However, it is important that the data presented in this system is often subject to changes, which depend on both the internal and external environment (user applications) so it is necessary to update them regularly.

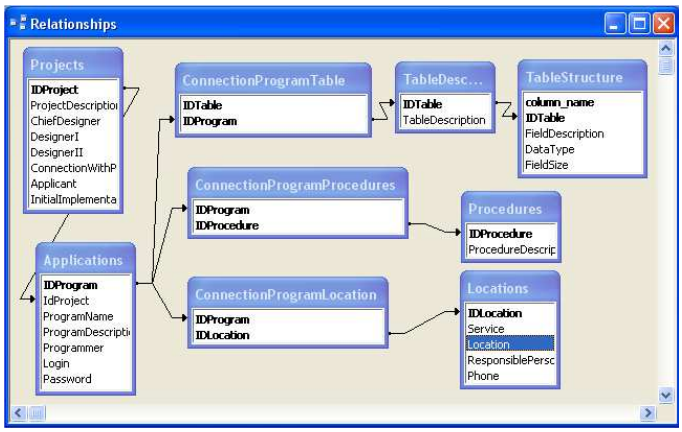

Figure 1: Relational database model

Request of information system designers primarily refers to information up to date about software solutions, the structure of database tables and end users who have access to the central database in terms of its updates, and use in accordance with its authorization.

The practical significance of the presented solution is also very important for programmers in aim of developing applications. Information about the current structure of individual tables in real time are essential to develop and modify applications, especially in collaborative work of many programmers. Some tables are often shared by different projects and applications. The slightest change in the structure of individual tables can significantly affect the operation of the entire information system. Information about customers and their locations is the basis for monitoring the performance of software solutions, implementation of the overall project and installing new versions. Solving everyday problems in the functioning of information systems is based on these data , as a baseline in overcoming them.

The proposed solution is of great importance for the operation of the database administrator. Large-scale information systems necessarily involve a large number of tables, complex relational model, and a large number of registered procedures and functions. By queries over the proposed relational model it is obtained information about affiliation of certain procedures and tables to application programs, design solutions, persons responsible for their creation and maintenance. Considering the large number of changes in complex databases, such information in real time is crucial for the database administrator.

Figure 1 shows a basic model of the relational database, in a function of monitoring information for the development of projects and software solutions of the computer center. The considered model aims to monitoring the basic data on project implementation of information system in real time.

The starting point of the relational database is a table *Projects*, whith some written basic information about projects related to application programs, developed in the data center. Some basic information about the projects include the following information:

- IDProject – Project identification number (a number uniquely identifying each project)
- Project description – Summarized basic information about the project

- Chief designer – The chief designer responsible for the project of information system development
- Designer I, Designer II – Designers for specific areas of information systems, responsible for project development
- A connection with the project – Very common, in practice, information that functionally connects the current with another project
- Applicant – User a designed solution
- Initial implementation – Date of realization of the project can be completed with other information: Start of development and completion of basic design, the beginning of implementation and others.

Table *Applications* includes basic information on individual application solutions implemented within individual projects. The most important fields of the table are following:

- IDProgram – The unique identification number of a program
- IdProject – External key for the formation of relational connection with the table Projects. Field indicates the membership of applicative solution to a particular project
- Program name – Full name of a program
- Program description – Brief description of a program
- Programmer – The person responsible for program development
- Login – Username of a program for database access
- Password – Password for database access

Table *TableDescription* contains informative description of individual tables. Relation One-To-Many is associated with the table *TableStructure* with the data of the structure of individual tables at the level of records.

Table *Procedures* is a table with basic information of all registered procedures (Stored Procedures) and functions created in a central database of the information system, designed for performing specific application solutions. In addition to the system of marking procedures, defined by organizational guidelines, such evidence is a very important in practice, because of the large number of enrolled procedures in the database. This table is of great importance in database administration.

Table *Locations* contains information about applications installed on users' computers. Although the maintenance of the data in this table is often difficult, due to the influence of external factors, the information shown in the table are of great importance for the development and maintenance of the information system due to:

- formation of the security system for the entry, edit and use of data
- installation of new version of a program
- contact with users at solving current problems

The most important fields of the table are following:

- IDLocation – Identification of the location of the installed application
- Service – Name of the service
- Location– Location name
- Responsible person – Person responsible for the use of application
- Phone

Table *ConnectionProgramTable*, *ConnectionProgramProcedures* and *ConnectionProgramLocation* were formed for establishment of relational links Many-To-Many. They contain primary keys of table *Programs* and related table.

Figure 2 presents information organized for the the form of initial data for the analysis of the information system functioning. Projects are the basis and backbone of all other activities at construction of information systems. This approach provides a general insight into for the

functioning the information system, but not and only one. Specific needs of developers, database administrators and other IT specialists, and make requests for information about programs, tables, registered procedures, information of users , as a starting point of analysis.

Figure 3. is one of the numerous modes of selected information from a relational database. The form provides access to data about individual tables, of the selected program. Since a project contains multiple database tables, while from the other side, a table can belong to multiple projects, it is established a relationship Many-To-Many.

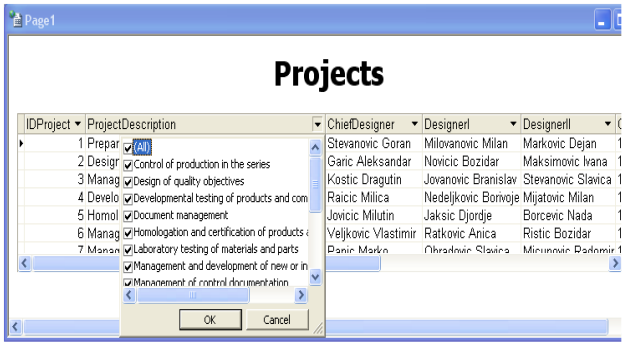

Figure 2: Initial data of projects

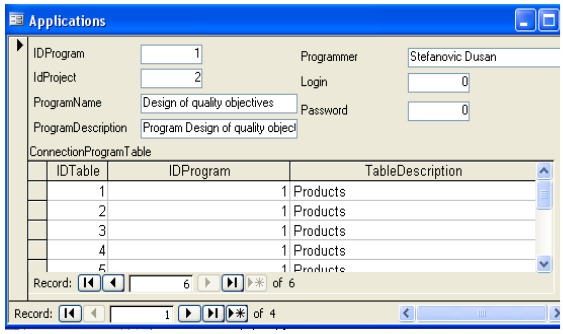

Figure 3: Presentation of data about individual tables of selected program

Figure 4 represents a view of filtered data from the table Procedures, by use of relational model of several tables,. This presentation layer of information (Form) is a just one of numerous approaches, that can be applied in presenting and use of data. This user interface allows updating information in one place, of the whole relational structure of related tables, from the table Projects to the table Procedures. This approach is in the practice especially evident at using Many-to-many relationships. In this way, in one place, it is enabled the access to other information of related tables,. Figure 5 demonstrates obtaining data of locations of installed programs for users, by the Intranet / Internet technologies.

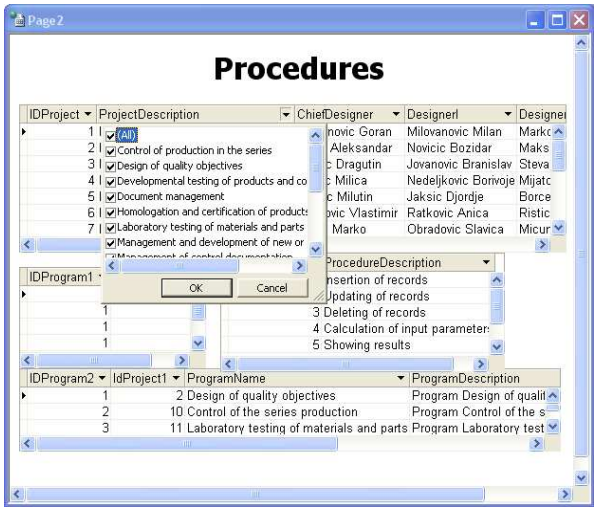

Figure 4: Data filtering of certain procedures, based on the level of project

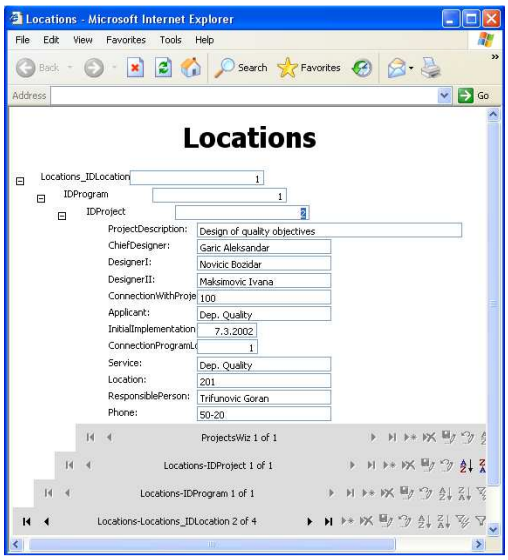

Figure 5: Obtaining location data, by the Intranet / Internet Technology

Application of Intranet technology greatly expands access to software development, compared to conventional desktop applications. The form represents only one solution to the user interface at using multiple tables of relational database. This concept allows a simultaneous view, filtering and sorting data, and their updating. The greatest contribution to modern computer languages is primarily reflected in the unified programming code and application development, regardless of

whether they are intended for the local computer network or Internet environment. Some of the major features of development, pointing to this approach, are reflected in greater opportunities for segmentation of complex applications, sophisticated administration system, access regardless of location..

CONCLUSION

This paper describes one approach to improving the operations of a computer center. This approach is based on the creation of information sub-system intended for designers, developers and system administrators of this service for insight into most important information during the development of projects. Obtaining updated information for this purpose is of significant practical importance for all participants in projects, especially in larger computer centers, at developing large and complex information systems, with many users. Besides the most important information presented in the proposed relational database model, the paper presents various possibilities for their presentation and use. This paper presents a general and universally applicable approach to improving operations of a computer center. This approach is founded on the basis of practical needs, of many years of project development, in a large information system and made its significant practical results in the implementation.

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EFFECTIVE ROOT CAUSE ANALYSIS AND CORRECTIVE ACTION PROCESS

Branislav Tomić *
Senior Quality Coordinator, Bombardier Aerospace, Toronto, Canada
ben.tomic@aero.bombardier.com
Vesna Spasojević Brkić
Assistant Professor, Faculty of Mechanical Engineering, Belgrade University, Belgrade, Serbia
vspasojevic@mas.bg.ac.rs

ABSTRACT

Root Cause Analysis and Corrective Action process are absolutely essential for the improvement of the quality management system and increasing the quality of the final product or service. This article has intention to briefly highlights the major steps that should be taken in the right sequence in order to successfully and permanently resolve any problem from problematic process. It has two major areas which are mutually interrelated and cannot function without each other – root cause analysis and corrective action process. The first one serves the purpose to detect the right root cause of the problem which is the source of the issues and the other one is a set of actions to permanently eliminate the root cause with the proposed solutions that directly attack it in order to completely remove it from the process.

Key words: root cause, corrective action, effectiveness, process

1. INTRODUCTION

Root Cause Analysis and Corrective Action Process is a set of steps, in certain sequence, to identify, detect the cause and successfully rectify the issues that have been experienced in any field of manufacturing or servicing systems.

Root cause analysis (RCA) is a process designed for use in investigating and categorizing the root causes of events with safety, health, environmental, quality, reliability and production impacts. The term “event” is used to generically identify occurrences that produce or have the potential to produce these types of consequences. Simply stated, RCA is a tool designed to help identify not only what and how an event occurred, but also why it happened. Only when investigators are able to determine why an event or failure occurred will they be able to specify workable corrective measures that prevent future events of the type observed. Understanding why an event occurred is the key to developing effective recommendations. Usually RCA has got mixed with the accurate description of what happened and how it happened. However, if the analysts stop there, it is not probed deeply enough to understand the reasons for the problem. Therefore, it is not known what to do to prevent it from occurring again.

Identifying root causes is the key to preventing similar recurrences. An added benefit of an effective RCA is that, over time, the root causes identified across the population of occurrences can be used to target major opportunities for improvement. If, for example, a significant number of analyses point to procurement inadequacies, then resources can be focused on improvement of this management system. Trending of root causes allows development of systematic improvements and assessment of the impact of corrective programs. Effective RCA process serves the purpose to find the root causes of unwanted event and facilitating effective corrective actions to prevent recurrence. Corrective Action (CA) is an action that organization should take to eliminate the root cause of nonconformities in order to prevent recurrence. Corrective actions have to be appropriate to the

effects of the nonconformities encountered. Corrective action process should review nonconformities, determine the causes of nonconformities, evaluate the need for action to ensure that nonconformities do not occur, determine and implement action needed, record the results of taken action, review taken corrective action, flowdown the corrective action requirements if required to the place of problem's origin, and take a specific actions where timely and/or effective corrective actions are not achieved. In other words, CA is a process of identification and elimination of the root causes of a problem, thus preventing its re-occurrence.

Establishing a corrective action process includes also steps how to effectively determine where action is needed, how to quickly assemble a knowledgeable and capable team to work on the case, and predictably produce results and improvements within the imposed or acceptable time frame (Ingram S. T., 1997)

2. ROOT CAUSE ANALYSIS

It's very hard to precisely define the term root cause. There is a substantial debate on the definition of the root cause, but these four cover all aspects of this phenomenon (Rooney and Heuvel, 2004):

1. Root causes are specific underlying causes of observed problem;
2. Root causes are those that can reasonably be identified and therefore fixed;
3. Root causes are those states that depend on management and management has control to fix them;
4. Root causes are those for which effective recommendations for preventing recurrences can be generated and hence eliminate the effect that they produce.

1. Root causes are underlying causes of observed problem. The investigator's goal should be to identify specific underlying causes called root cause(s). The more specific the investigator can be about why an event occurred, the easier it will be to arrive at recommendations that will prevent re-occurrence.
2. Root causes are those that can reasonably be identified and therefore fixed. Occurrence investigations must be cost beneficial. It is not practical to keep valuable manpower occupied indefinitely searching for the root causes of occurrences. Structured RCA helps analysts get the most out of the time they have invested in the investigation. The good representative of this approach is Kepner-Tregoe's technique, when not the best but optimal root cause is sufficient and the most economical way to resolve the problem.
3. Root causes are those states that depend on management and management has control to fix them. Analysts should avoid using general cause classifications such as operator error, equipment failure or external factor. Such causes are not specific enough to allow management to make effective changes. Management needs to know exactly why a failure occurred before action can be taken to prevent recurrence. It is also important to be identified a root cause that management can influence.
4. Root causes are those for which effective recommendations can be generated. Recommendations should directly address the root causes identified during the investigation. If the analysts arrive at vague recommendations such as, "Improve adherence to written policies and procedures," then they probably have not found a basic and specific enough cause and need to expend more effort in the analysis process.

The RCA is a four-step process involving the following:

1. Data collection.
2. Causal factor charting.
3. Root cause identification.
4. Recommendation generation and implementation.

1. Step one - Data collection. The first step in the analysis is to gather data. Without complete information and an understanding of the event, the causal factors and root causes associated with the event cannot be identified. The majority of time spent analyzing an event is spent in gathering data.

2. Step two - Causal factor charting. Causal factor charting provides a structure for investigators to organize and analyze the information gathered during the investigation and identify gaps and deficiencies in knowledge as the investigation progresses. The causal factor chart is simply a sequence diagram with logic tests that describes the events leading up to an occurrence, plus the conditions surrounding these events. Preparation of the causal factor chart should begin as soon as investigators start to collect information about the occurrence. They begin with a fishbone chart that is modified as more relevant facts are uncovered. The causal factor chart should drive the data collection process by identifying data needs. Data collection continues until the investigators are satisfied with the thoroughness of the chart (and hence are satisfied with the thoroughness of the investigation). When the entire occurrence has been charted out, the investigators are in a good position to identify the major contributors to the incident, called causal factors. Causal factors are those contributors (human errors and component failures) that, if eliminated, would have either prevented the occurrence or reduced its severity. In many traditional analyses, the most visible causal factor is given all the attention. Rarely, however, is there just one causal factor; events are usually the result of a combination of contributors. When only one obvious causal factor is addressed, the list of recommendations will likely not be complete. Consequently, the occurrence may repeat itself because the organization did not learn all that it could from the event.

3. Step three - Root cause identification. After all the causal factors have been identified, the investigators begin root cause identification. This step involves the use of a decision diagram to identify the underlying reason or reasons for each causal factor. The diagram structures the reasoning process of the investigators by helping them answer questions about why particular causal factors exist or occurred. The identification of root causes helps the investigator determine the reasons the event occurred so the problems surrounding the occurrence can be addressed.

4. Step four - Recommendation generation and implementation. The next step is the generation of recommendations. Following identification of the root causes for a particular causal factor, achievable recommendations for preventing its recurrence are then generated. The root cause analyst is often not responsible for the implementation of recommendations generated by the analysis. However, if the recommendations are not implemented, the effort expended in performing the analysis is wasted. In addition, the events that triggered the analysis should be expected to recur. Organizations need to ensure that recommendations are tracked to completion. The important step in resolving any issue is assembling appropriate team of specialist that will with synergetic effect contribute to the final resolution. According to Lee et al. (2010), in the team shouldn't be the individuals who have one or more the following characteristics:

1. People too close to the incident
2. People who do not have sufficient time to participate in the RCA process
3. People who "already know the answer"
4. People positioned too high up in the management

Andersen and Fagerhaug (2009) state that beneath every problems lies a cause for that problem. Therefore, when trying to resolve the problem, the simple approach should be taken:

1. Identification of the root cause(s) of the problem and
2. Implement effective corrective action that will eliminate identified root cause(s) of the problem.

This two-step approach may appear deceptively simple but people frequently underestimate the effort that is needed to find the real root cause of the problem. This is the major obstacle in

successful root cause analysis and corrective action process since the incorrect root cause(s) may mislead the team to implement inadequate corrective action(s) and not to achieve the effect that is needed, so the problem will appear again and again.

According to Performance Review Institute (2006) the Root cause analysis represents the squared part of the following flow chart for the entire root cause corrective action process:

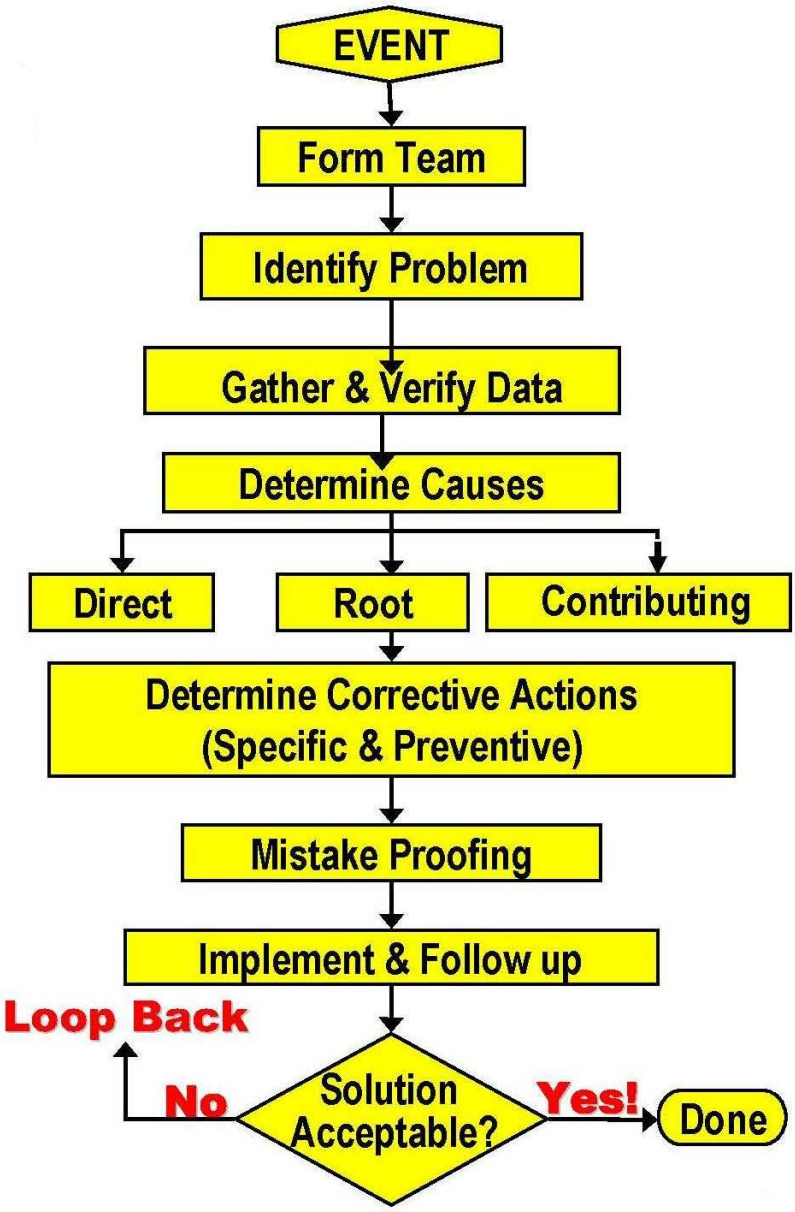

Figure 1: Flow Chart of the Root Cause Analysis and Corrective Action process (Performance Review Institute, 2006)

3. CORRECTIVE ACTION

Corrective action (CA) is a simply solution meant to reduce or eliminate an identified problem. Corrective Action is defined as an action that organization should take to eliminate the root cause of nonconformities in order to prevent recurrence.

Corrective Action can also be thought of as sustaining, as you can not prevent the event at this juncture, it has already happened. Actions taken now are to prevent recurrence of the event. They

focus on breaking the cause chain completely by fixing the contributing causes and the root cause. A contributing cause, if not addressed, could be a future root cause. Corrective Action is a series of actions that positively change or modify system performance. It focuses on the systemic change and the places in the process where the potential for failure exists. Corrective Action does not focus on individual mistakes or personnel shortcomings.

In determining solutions it is necessary to consider the following:

1. Feasibility: The solutions need to be within the company's resources and schedule;
2. Effectiveness: The solutions need to have a reasonable probability of solving the problem;
3. Budget: Solution costs must be within the budget of the company and appropriate for the extent of the problem;
4. Employee Involvement: The departments and personnel affected by the problem need to be involved in creating the solution;
5. Focus on Systems: The solutions should be focused on systemic issues;
6. Contingency Planning: All solutions are developed with a certain expectation of success.

Effective corrective action according to Beecroft et al. (2003) includes the selection of one solution until several alternatives have been proposed. Having a standard with which to compare the characteristics of the final solution is not the same as defining the desired result. A standard allows evaluating the different intended results offered by alternatives. When it's tried to build toward desired results, it's very difficult to collect good information about the process. Considering multiple alternatives can significantly enhance the value of final solution. Once the team has decided the "what should be" model, this target standard becomes the basis for developing a road map for investigating alternatives. Brainstorming and team problem-solving techniques are both useful tools in this stage of problem solving. Many alternative solutions should be generated before evaluating any of them. A common mistake in problem solving is that alternatives are evaluated as they are proposed, so the first acceptable solution is chosen, even if it's not the best fit. If we focus on trying to get the wanted results it is missed the potential for learning something new that will allow for real improvement. Skilled problem solvers use a series of considerations when selecting the best alternative. They consider the extent to which:

- A particular alternative will solve the problem without causing other unanticipated problems;
- All the individuals involved will accept the alternative;
- Implementation of the alternative is likely;
- The alternative fits within the organizational constraints.

Managers or team leaders may be called upon to order the solution to be implemented by others, "sell" the solution to others or facilitate the implementation by involving the efforts of others. The most effective approach, by far, has been to involve others in the implementation as a way of minimizing resistance to subsequent changes. Feedback channels must be built into the implementation of the solution, to produce continuous monitoring and testing of actual events against expectations. Problem solving, and the techniques used to derive elucidation, can only be effective in an organization if the solution remains in place and is updated to respond to future changes.

4. CONCLUSION

Root cause corrective action for non-conformances has long been a requirement in any industry. It is a process of determining the causes that led to a nonconformance or event, and implementing corrective actions to prevent a recurrence of the event. The requirements for corrective action have been imposed by industry standards for decades and while not new, may not have been

aggressively enforced. In order to be successful in this process, it is necessary to implement the following steps:

- Establishment and maintenance of documented procedures for implementing corrective and preventive action;
- Corrective or preventive action taken to eliminate the causes of actual or potential nonconformities to a degree appropriate to the magnitude of the problems and commensurate with the risks encountered;
- Implementation and recording of changes to the documented procedures resulting from corrective and preventive action;
- Effective handling of customer complaints and reports of product nonconformities.
- Investigation of the cause of nonconformities relating to product, process and quality system, and recording the results of the investigation;
- Determination of the corrective action needed to eliminate the cause of nonconformities;
- Application of controls to ensure that corrective action is taken and that it is effective.

Effectiveness of RCCA process must demonstrate compliance with each of these requirements. Following the process described herein and documenting these steps will allow demonstrating this compliance. All of these requirements are met within a root cause corrective action process that addresses:

- Containment actions;
- Problem definition;
- Root Cause Analysis;
- Possible Solutions and the selection of the right one(s);
- Assessment and Effectiveness of the RCCA process.

Root Cause Analysis and Corrective Action process are absolutely essential for the improvement of the quality management system and increasing the quality of the final product or service.

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Session A: STRATEGIC MANAGEMENT

Papers (pp. 51-128):

ORGANIZATIONAL OUTCOMES OF THE FITTING BETWEEN ORGANIZATIONAL STRUCTURE AND HOFSTEDE'S NATIONAL CULTURE INDICES

Milena Nedeljković*
University of Novi Sad, Faculty of Sciences, Serbia
e-mail: milena.nedeljkovic3@gmail.com

ABSTRACT

In this paper we investigated the fitting between organizational structure and national culture dimensions of an IT organization in Serbia and its organizational outcomes such as internal entrepreneurship, job satisfaction and internal motivation. The organization under investigation is a very competitive one on the global computer technology market and has long-lasting and successful business relationships with many world famous companies. The values of national culture indices of employees in this organization are similar to the values of national cultural indices of employees in USA. Organic and matrix organizational structure of the organization has a good fitting with national culture indices (low power distance index, high individuality index, low uncertainty avoidance index) which has organizational outcomes such as high levels of internal entrepreneurship, job satisfaction and internal motivation.

Key words: matrix organizational structure, organic organizational structure, entrepreneurship, supervisor support, job satisfaction, internal motivation.

1. INTRODUCTION

One of the focal issues in comparative management theory is the impact of culture on management (Hofstede, 1980, 1983, 2001). Culture, which might be described in terms of a "collective mental programming of people who share a similar environment" (Hofstede, 2001), is often difficult to alter: it changes slowly and only under the pressure of dramatic environmental shifts. In keeping with such a definition, it has been observed that business practices vary extensively as a function of culture, that management is culture-specific, and that managerial techniques must be tailored to fit local conditions. Recent dynamic changes in many countries in the transition, including Serbia, have altered hierarchies of values, needs, and norms of the society. Hence, it is important for foreing managers in Serbia to know about current preferences and perceptions of Serbian workers in order to adjust organizational culture and structure with work values of domestic work forces. This „fitting" (adjustment) may help to managers of Serbian organizations to achieve two of the most important gooals for every organization: a high level of job satisfaction of employees and a high level of performance.

2. ORGANIZATIONAL STRUCTURE

There are many different definitions of the notion of organizational structure (Robbins, Judge, 2007). Organizational structure in one sense is the arrangement of duties used for the work to be done. Research has demonstrated that organizational structure interacts with a variety of factors to influence organizational performance. These factors include environmental change, organizational size, organizational production technology, organizational strategy and cultural values of employees (Robbins, Judge, 2007.)

Fundamental dimensions of organization structure are

- **specialization** - the division of labor within the organization, the distribution of official duties among a number of positions,
- **standardization** - procedures that occur regularly, are legitimized by the organization, have rules that cover circumstances, and apply invariably,
- **formalization** - the extent to which rules, procedures, instructions, and communications are written,
- **centralization** - „place" where the authority to make legitimate decisions that affect the organization is located.

The most prevalent distinction for describing fundamental differences in organizational structure is that of mechanistic and organic structural forms. Mechanistic structures are characterized as rigid, tight, and traditional bureaucracies. In mechanistic settings, power is centralized, communications follow rigid hierarchical channels, managerial styles and job descriptions are uniform, and formal rules and regulations predominate decision making. By contrast, organic organizations are characterized by flexible, loose, decentralized structures. Formal lines of authority are less clear, power is decentralized, communication channels are open and more flexible, and formal rules and regulations take a back seat to adaptability in helping employees accomplish goals. There is also the following typology of organizational structures:

- The **functional structure** is characterized by grouping people based on their expertise and skills.
- In the **divisional structure**, the divisions are formed based on an organization's product range, the specific markets the organization caters to, or the geographic locations in which it operates.
- The **matrix organization** tries to integrate the desired features of both the functional and divisional structures. In this structure, an employee reports simultaneously to two different supervisors. One of these supervisors represents a functional department and the other represents the division, product and market.

Matrix management is a technique of managing an organization (or, more commonly, part of an organization) through a series of dual-reporting relationships instead of a more traditional linear management structure. In contrast to most other organizational structures, which arrange managers and employees by function or product, matrix management combines functional and product departments in a dual authority system. In its simplest form, a matrix configuration may be known as a cross-functional work team, which brings together individuals who report to different parts of the company in order to complete a particular project or task. The term "matrix" is derived from the representative diagram of a matrix management system, which resembles a rectangular array or grid of functions and product/project groups.

The first organization to design and implement a formal matrix structure was the National Aeronautics and Space Administration (NASA). NASA developed a matrix management system for its space program because it needed to simultaneously emphasize several different functions and projects, none of which could be stressed at the expense of another. The practice of matrix organizational structure is most associated with highly collaborative and complex projects but is also widely used in many product/project management situations. Even when a company does not label its structure as a matrix system or represent it as such on an organization chart, there may be an implicit matrix structure any time employees are grouped into work teams that are headed by someone other than their primary supervisor.

Within the matrix, each of the product groups would intersect with each of the functional groups, signifying a direct relationship between product teams and administrative divisions. In other words, each team of people assigned to manage a product group might have an individual(s) who also belonged to each of the functional departments, and vice-versa. Theoretically, managers of project groups and managers of functional groups have roughly equal authority within the company. Matrix structures are flatter and more responsive than other types of structures because they permit more efficient exchanges of information. Because people from different departments are cooperating so closely, they are eager to share data that will help them achieve common goals. In effect, the entire organization becomes an information web; data is channeled both vertically and horizontally as people exchange technical

knowledge, marketing data, product ideas, financial information to make decisions. In addition to speed and flexibility, matrix organization may result in a more efficient use of resources than other organic structures. This occurs because highly specialized employees and equipment are shared by departments. For example, if the expertise of a computer programmer is needed in another department, he or she can move to that department to solve its problems, rather than languishing on tasks of low priority as might happen in a nonmatrix setting.

What determines organizational structure? Classics in the field of organization theory represent many different schools. Some believe that certain factor, such as size, environment, or technology, determine organizational structure. They argue that these factors impose economic or other constrains on organizations that force them to choose certain structure over others. Some authors (Gibson, 1994; Krokosz-Krynke, 1998) investigated also the influence of the national culture on the organizational structure. Gibson (1994) considered four possible relationships between national culture and structure:

- Organizational structure as rational adoption of cultural rules.
- Organizational structure as manifestation of cultural values.
- Organizational structure as reflection of cultural enactment.
- Organizational structure as product of distal cultural moderators (associated with historical cultural systems).

Each of the perspectives concerning relationship between culture and structure can mutually coexists without negating one another. According to Hofstede the most influence on the organizational structure have two cultural dimensions: power distance and uncertainty avoidance.

3. HOFSTEDE CULTURAL DIMENSIONS

Hofstede's cultural dimensions originally introduced four cultural dimensions: Power Distance (PDI), Uncertainty Avoidance (UAI), Individualism (IND), and Masculinity (MAS). These dimensions, as pertaining to people outside IBM, have been proven reliable by correlating them with those of other researchers. Many research results based on Hofstede's ideas are published in the last two decades

Power distance is defined by Hofstede as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally". The level of power distance cultural dimension has some organizational implications (which means “in most of the organizations”). Power distance low**:** less centralization, flatter organization pyramids (examples: Australia, Denmark, Sweden). Power distance high**:** member of the organization being subordinates much easier accept the power of decision making of their superiors, tall organization pyramids, more supervisory (examples: Mexico, Venezuela, India).

By Hofstede **uncertainty** is "the extent to which the members of a culture feel threatened by uncertain or unknown situations." In societies where there is a need for structure it is because there is a fear of uncertainty. Countries characterized by weak uncertainty (such as the United Kingdom) do not perceive something different to be dangerous. Conversely, in strong uncertainty avoidance societies people will seek to reduce uncertainty and limit risk by imposing rules and systems to bring about order and coherence. This may be seen in organization structures: for example, where there is a need for rules and dependence there will be a pyramidal organizational structure. Some organizational implications of uncertainty cultural dimension are the following:

Uncertainty avoidance low: less structuring of activities, fewer written rules, greater willingness to take risks (examples: Denmark, Britain, USA): Uncertainty avoidance high: more structuring of activities, more written rules, less willingness to take risks, more ritualistic behavior (examples: Greece, Portugal, Japan, France).

By Hofstede "**masculinity** pertains to societies in which social gender roles are clearly distinct; femininity pertains to societies in which social gender roles overlap." In a masculine society (Hofstede gives the United Kingdom as an example) there is a division of labour where the more assertive tasks are given to men. There is a stress on academic success, competition and achievement in careers. In a

feminine society such as France (according to Hofstede) there is a stress on relationships, compromise, life skills and social performance. The last 10-15 years have seen enormous changes - a `feminisation' process - to the behaviour of Western democracies. It has been said that the emergence of developing countries is as much about feminisation as it is about harder business and economic realities. Organizational implications of femininity and masculinity cultural dimensions are the following:

Femininity high: gender roles minimized, more women in more qualified jobs, soft, yielding, intuitive skills rewarded, life quality important (examples: Thailand, Scandinavia). Masculinity high: gender roles clearly differentiated, fewer women in more qualified jobs, aggressiveness, competitiveness, decisiveness rewarded, stress on careers (examples: Japan, Italy, Mexico).

Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. **Collectivism** as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive in groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty." Organizational implications of individualism and collectivism cultural dimensions are the following: Collectivism high: organization as family, organization defends employee interests, practices based on loyalty, sense of duty, group participation (examples: Venezuela, Taiwan, Greece). Individualism high: organizations more impersonal, practices encourage individual initiative, task prevails over relationships (examples: USA, Britain, Netherlands).

Thirty years ago Hofstede investigated cultural dimension in former Yugoslavia and Serbia and obtained the following results (the possible ranges are from 1 to 100): former Yugoslavia: PD-76, UA-88, IND-27, MAS-21, Serbia: PD-86, UA-92, IND-25, MAS-43. Hence, at that time Serbian culture was characterized by high power distance (PD), high uncertainty avoidance (UA), low individuality (IND) and low masculinity (MAS).

4. METHODS

In this paper we investigate connections between indices of cultural dimensions of employees, supervisor support (as one of the proxy of the organic organizational structure), job satisfaction and internal motivation of employees in the organization under investigation. Internal entrepreneurship, job satisfaction and internal motivation are increasingly becoming extremely important ideas to understand, in order to achieve high level of the competitiveness on the global market. This is especially important for IT market which changes very fast. There is a consensus in the literature that internal entrepreneurship, job satisfaction and internal motivation are among essential elements to organizational success. In this paper we tested the hypothesis:

H: The perception of supervisor support is a moderator for the correlation between job satisfaction and internal motivation of the employees.

4.1 Sample

The organization under investigation is located in Vojvodina (the north province of Serbia) which is the most developed part of Serbia. It is a very competitive organization on the global computer technology market and has long-lasting and successful business relationships with many world famous companies. Organizational structure is of the matrix type. By interviewing employees and top management we conclude that some of the characteristics of the organization are: high rate of new product introduction, continuous production improvement, risk-taking and active opportunity search. Rapid growth is a dominant goal. By setting up a structure in which failure is tolerated and risk taking is encouraged, the company took a big step toward becoming a learning organization. The organization is highly oriented to internal entrepreneurship.

1. ***Organizational size***: the number of full-time, paid members of the organization is 160.
2. ***Formalization*** The organization has a very small number of written rules and policies. A "rules and procedures" manual does not exist. A complete written job description for most jobs in this organization and a formal orientation program for most new members of the organization also do not exist.

3. ***Centralization****:* This organization can be characterized as lowly centralized.
Hence, the organization under investigation has an organic organizational structure.
Sample data were obtained from 130 employees which are male and 90% of them are younger then 40 years of age. The employees are experts from the field of computer science.

4.2 Measures

Indices of cultural dimensions are measured by Hofstede questionnaire (VSM 94) (http://www.geerthofstede.nl/research--vsm.aspx). General job satisfaction is measured by an item: generally, how are you satisfied with your job (Lickert scale from 1-very dissatisfied to 6-very satisfied). Inner motivation is measured by the questionnaire introduced by T. Amabile. Items are: I enjoy to find solutions to complex problems, I enjoy to present new ideas connected with our products, I enjoy to be active in the analytical thinking, I enjoy to create new procedures in solving work tasks, I enjoy to introduce innovations in the current products (Lickert scale from 1-strongly disagree to 5-strongly agree). Cronbachs alpha is 0,782. One of the possible proxy for the estimation of the presence of the organic organizational structure can be the level of supervisor support of employees. Namely, in organic organizations the supervisor takes into consideration the ideas of the employees which open the doors to create teamwork among employees. Supervisor support is measured by Downs and Hazen communication satisfaction questionnaire. Some items are: supervisor trusts me, supervisor is open to ideas, supervisor listens and pays attention to me (Lickert scale from 1-strongly disagree to 10-strongly agree).. Cronbachs alpha is 0,939. In the continuation of our study we use the following notations: M is the level of inner motivation, JS is the level of general job satisfaction, SS is the level of supervisor support.

5. FINDINGS

The values of cultural indices are the following:

$$PDI \approx 56,\ IDV \approx 93,\ UAI \approx 63,\ MAS \approx 47.$$

The correlation between M and JS in the sample is 0,282 and it is statisticaly significantly different from zero. We investigated the moderator influence of the variable SS on the correlation between the variables M and JS. The methods for investigation of the moderator effect of one variable (in this case SS) and on the correlation between two variables (in this case M and JS) based on the following procedure. First, two subsamples are formed based on the values of the potential moderator variable (for example, in the first of the subsamples the values of the variable SS are over the average value and in the second one the values of the variable SS are below the average value) and then correlation coefficients are compared between M and JS in the two subsamples. If these coefficients are statisticaly significantly different then SS is the moderator. We obtain that in the first subsample the correlation coefficient is 0,332 and is statisticaly significantly different from zero, and in the second subsample is 0,127 and it is not statisticaly significantly different from zero. This proves that SS moderates the correlation between job satisfaction and intrinsic motivation in the sample.

6. DISCUSSION

An explanation for the moderator effect of the variable SS on the correlation between variables M and JS may be that a high level of individualism and a low level of power distance may be causing a high level of expectation from suppervisor support by creative staff of the organization. If the an employee perceives a lack of suppervisor support this may produce a constrain for the development of a high level of intrinsic motivation. In this case the rise in the level of job satisfaction is not followed by the rise of the level of intrinsic motivation in a significant way. A low level of uncertainty avoidance has a good fitting with the matrix and organic organizational structure (Robbins, Judge, 2007). According to the theory of person-organization this may influence high levels of job satisfaction and internal motivation, which is the case in this organization. High level of individualism foster corporate entrepreneurship (Moris, Davis, Allen, 1994) which is one of the most important characteristics of the organization under investigation. On the other hand a high level of femininity foster good relationships between employees which enhance team work in the organization. The obtained results may help to the

management of the organization to pay a greater attention to the supervisor support of the staff, which may produce better results by the organization in the future.

6. CONCLUSION

"The key is to balance the need for individual initiative with the spirit of cooperation and group ownership of innovation. This balance occurs over the entrepreneurial process, not all at once, and as micro-level innovation evolves into macro-level organizational change. Individuals are needed to provide the vision, unwavering commitment, and internal salesmanship without which nothing would be accomplished. But as the process unfolds, the entrepreneur requires teams of people with unique skills and resources (Morris, Davis, Allen, 1994)". Hence, it seems that one of the main reasons for the competitiveness of the organization under investigation is its matrix and organic organizational structure, which has a good balance between a high level of individualism, a high level of femininity and the orientation to an internal entrepreneurship. It would be interesting to investigate individual level of the perception of internal entrepreneurship and its correlation with job satisfaction and internal motivation of employees in different parts of Serbia.

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EFFECT SYMBOLIC LANGUAGE LEADERS ON EMOTIONS OF EMPLOYEES

dr Snezana Mihajlov*
Higher School of Professional Studies – Blace
snezanavujovic@hotmail.com
Nenad Mihajlov
Higher School of Professional Studies – Blace

ABSTRACT

Formulating and articulating a vision assumes one of the basic techniques of leadership in inspiring followers. However, it is not enough to simply state where the organization is located in the future or what are its global aspirations. Rhetorical skills of leader and symbolic content of his message, as opposed to just defining organizational goals and standards, exercised a strong influence over its followers. Communication of positive messages and encouragement that spreads enthusiasm and optimism in the ability to fulfill the goals of the organization, the leader actually express strong confidence in the knowledge and skills of their employees. See others as good, capable and persistent and it communicate to them encourages a strong sense of self confidence and self esteem. Pleasant emotions that employees feel not only toward the outside world, but also to contribute to greater self-motivation, self-efficacy and ultimately achieving organizational goals.

Key words: leadership, transformational leadership, inspirational communication, motivation of followers, emotions.

1. INTRODUCTION

The leadership has written many articles and given many definitions, but often not very clear and precise use of the term. Leadership and management of many perceived as synonyms, and so they represent. If the leadership means initiative, a major role, precedence, the concept of management could not be equated with the concept of leadership. Instead of a formal position in an organization as the characteristics of managers, the leadership is a behavior and relationships, the characteristics and strengths of personality, on the impact. In some definitions the emphasis is on leadership as a center of the group process, are highlighted in other personality traits, behavior in third, fourth relations of power, the fifth aspect of the craft, then leadership as a transformational process, and so on. However, for most by a perception that the leadership can be defined as a person's ability to influence other people so that they cooperate and contribute to efforts aimed at achieving the objectives of the organization.

Northouse (Northouse, 2010) points out that the definition of leadership bit the following elements:
a) leadership is a process,
b) leadership is exercised influence,
c) leadership occurs in the context of the group,
d) assumed leadership in achieving the goal.

Based on these elements can be derived the following definition: Leadership is a process in which one realizes the impact on the group to achieve a common goal. The point is, therefore, the impact of leaders on followers, with a more common sense of purpose or objective of this influence. The leader has to itself, but in interaction with the group so that it accepts and follows the group in achieving goals. The new paradigm of leadership as the concept of transformational leadership has recognized the important role that the leader accepts. An individual is considered a

transformational leader to the degree to which exerts its influence on attitudes and behavior, and development of followers as a whole, enabling them to participate in the transformation of the organization. Consequently, the final results of changes in individuals are referred to as performance indicators of transformational leadership. The aim is achieved by the general consent of the organizations goals and ways of their implementation, creating enthusiasm and optimism in the organization, as well as cooperation and trust among all, by encouraging flexibility in decision making, establishing and maintaining a meaningful identity of the organization.Transformational leader who has adapted to contemporary business is focused on the organizational vision that realizes mobilization and synchronization of emotional energy associates. Practice has shown that transformational leadership style effective long term because of the prevailing emotional component that creates a strong bond between leaders and followers. The dominance of emotional skills leaders in relation to the cognitive capacity to recognize the behaviors: idealized influence over its followers, inspirational motivation, intellectual stimulation and individualized approach to members of the organization.

Thanks to its first self-confidence and personal charisma, respect of business and high moral standards, as expressed responsibility for their own actions, respect for the achievements of associates, transformational leaders receive boundless trust and respect from those they lead. Become a role model to his followers in everything they do, encouraging in them a strong sense of pride in belonging to the organization.Motivation and inspiration and mobilization of their own positive emotions transformational leaders encourage followers to action, activating them motivational element to work constantly achieve more than the set targets. Emotional connection, rather than co-operation based on the material forms of stimulation, the followers are much more easily directed towards the realization of organizational vision. The driving force in the form of emotions that can be transmitted through verbal or nonverbal is an important prerequisite motivation of self and others. Transformational leadership affects followers including the development of creative and intelligent thinking. Positive organizational climate influence on creativity and different thinking, and followers are able to accumulate new ideas, creating innovative and competitive solutions for the organization. Respect for individuals through an individual approach to each of them, acceptance and appreciation of their abilities and achievements, the main feature of transformational leadership. Strong communications skills, leadership, adaptability, and empathy are preconditions for understanding the behavior of their associates, which is considered inevitable for their orientation towards the achievement of organizational goals. Focusing exclusively on the skills of transformational leaders to motivate and inspire followers, the paper will be presented to the leaders of communication skills which are nice organizational climate and encourage positive feelings among followers that contribute to achieving the strategic goals of the organization.

2. INSPIRATIONAL MOTIVATION TRANSFORMATION LEADERS

Inspirational motivation transformational leadership refers to the fact the communication ability of a leader in defining and articulating the strategic orientation of organizations in the future. The creator of transformational leadership approaches, Bass (Bass, 1985), inspirational motivation defined as the ability of transformational leaders to motivate and inspire followers at the same time respecting their knowledge and skills ... Transformational leader spreading enthusiasm and optimism about a possible meeting the goals of the organization, demonstrates commitment to goals and shared vision, eventually involving followers in predicting the future state of stating expectations that want to meet "(Hinkin, Tracey, 1999, p.110).

The definition of inspirational motivation suggests Bass attempt to summarize the three important roles of leaders. In the first place leader provides the strategic direction of the organization. Second, communication of positive messages and encouragement that spreads enthusiasm and optimism in the ability to fulfill the goals of the organization, the leader expressed strong confidence in the knowledge and skills of their employees, which affects their self-perception (sense of self-

confidence, self-evaluation) and self-efficacy (Shamir, House, Arthur, 1993) . Finally the leader creates a sense of collective identity among employees. Interests, values and beliefs of employees, on the one hand and the activities, goals and ideology of the leaders of the other become congruent and complementary. The main goal of leaders is to involve employees in the prediction of a common future. All three roles within the transformational leadership inspirational motivation are concentrated around the vision and its formulation and it is a basic technology leader in inspiring his followers (Awamleh, Gardner, 1999).

The concept of vision and the manner of its articulation is also a fundamental idea of visionary leadership. House and Shamir (House, Shamir, 1993) viewed transformational and visionary leadership as essentially the same models, because they emphasize the strong influence of the symbolic leader behavior on followers' emotional states and encouraging their motivation. The term "inspired" Yukl (Yukl, 1981) even explained as "the degree to which communication with the followers of the leader stimulates enthusiasm among them and expressed confidence in the ability to achieve common objectives." Inspirational motivation transformational leaders assumed, in accordance with the above, the ability of a leader to inspire and motivate followers to achieve organizational vision just communicating feelings of optimism and enthusiasm, and strong confidence in the abilities of their followers. Despite Bass (Bass, 1985) belief in the concept of inspirational motivation unidimensionality transformational leadership, the results of a number of studies confirm that the leader of communications organizational vision based on two elements, and the different effects of exercise on the behavior of followers. The analysis of statements used in the evaluation of followers inspirational motivation transformational leaders (Hinkin, Tracey, 1999), reveals the use of a number of messages ("vision", "expectations", "standard", "performance") leader said that the final goals of the organization, standards or results. The so-called concept-based communication according to which only the leader instructs followers, and said the final goals or standards to ensure the strategic orientation of organizations in the future affect only the intellect, inspiring followers second element of communication is based on the symbolic language of leadership that encourages a strong feeling among the followers. Image-based communications leader involves actually symbolic, figurative use of words that create clear ideas, visions and images in the minds of followers (Densten, 2002).

A conceptual framework for understanding communication leader in the inspiration and motivation of followers represent Conger (Conger, 1991) "language of leadership" based on different categories of communication skills of leaders. One category assumes a process of defining the purpose or goal of the organization in a significant way, while others suggest the ability of the leaders in the use of symbolic language and emotional security forces with their messages. Also, as an attempt of interpretation inspirational communication leaders serve motivational theory of language (Sullivan, 1988), which the existing theories of motivation expanded to include other motivational functions of communication leaders. According to one of them, ignored in existing theories, the motivation of followers is achieve the ability leaders to communicate their own confidence in the completeness and importance of the tasks associated with the followers (meaning-making language).

3. SYMBOLIC LANGUAGE LEADERS

"The language of leadership" (Conger, 1991) includes two separate categories of communication ability of a leader in inspiring followers. The first category assumes the ability of the leaders in defining and formulating a vision for the organization. That is the message that emphasizes the meaning of the leaders of the future direction of the organization. In creating the framework for the organizational vision, values and beliefs are essential components, particularly those that reinforce commitment and provide guidance for daily action. Values are the goals that the organization wants to achieve in the future, while beliefs on the other ideas that are related to those factors that support or prevent the concrete actions to achieve desired conditions. The vision is the future strategic objective of the organization whose importance and needs of the organization to encourage the

efficient implementation of the road to success. Accordingly, the formulation of a "frame", says Conger, a leader's interpretation of the aims and objectives of the organization accompanied with the values and beliefs, it is a good chance of motivation and a convincing leader appealing to the changes and transformations in the organization. In other words, formulating a vision and set a "framework" for achieving future goals refers to the ability of the leaders in the reduction of the uncertain future of the organization. The ability of leaders in the use of symbolic language represents a different process of communication in management. By Conger, it is a "rhetorical skills" leader. While the message leaders provide a sense (meaning) of the new direction of the organization in the future, the rhetoric intensifies its motivational appeal and determine the importance of the impact of these appeals to everyday decision-making in the organization. Emphasizes the importance of symbolic words when inspiration follower in relation to the process of defining the future objectives of the organization. The author assumes that in addition to appealing to the emotions and ideals, inspiring leaders use a variety of rhetorical techniques (metaphors, analogies, organizational stories) which exercised a strong influence of the symbolic content of their messages to followers. The power of metaphors and analogies derived from their ability to promote and illustrate the experience of reality simultaneous attack on different feelings the listener. Field of communication research suggests that the use of words in a special way encourages the imagination of listeners and creates a state of permanent attention tone, concentricity and ease of interaction. The listener is not a passive recipient of information, but by interfacing their own situations and events from the stories constantly in a state of active thinking. Social psychologists rhetorical technique adapted as convincing and effective means of communicating ideas, for causing emotional connections with the speaker. Therefore, it is not surprising as metaphors, slogans, analogies and other inspiring "tools" of symbolic language, the ability to more clearly explain and encourage emotions in others, a key means of inspiring the language in the speeches of political leaders. Motivational theory of language (Motivating Language Theory, MLT; Sullivan, 1988) is based on the fundamental idea that communication is the leader directly associated with significant results of the employees, including performance, absenteeism, loyalty and job satisfaction. Theory predicts that the key results of employees under the strong positive influence of the leader's motivational state induced by using three basic linguistic groups. One kind of speech the leader reduces the uncertainty of followers in the future and increases their awareness, other means of communication leader implicitly sense of self-evaluation among the followers. Creation of certain cognitive maps based on which determine efficient behavior of followers is the essence of the third kind of verbal communication leaders.

Existing theories of motivation based solely on communication leaders that decreases the uncertainty of followers in the future, expand the conscious use of symbolic language that emphasizes the role of followers as a significant representative of organizational beliefs, values and goals over time. In interaction with followers in a short informal talks, storytelling, using metaphors, the leader points to the importance of the role assigned by the followers in the organization, thus developing a mental map that govern their behavior at work. "The leader of the unconscious uses this type of communication to inspire followers, but what a leader is to consciously develop the ability to assume the role of" creator of importance, "says Sullivan.

4. INSPIRATIONAL COMMUNICATION LEADERS AND EMOTIONS OF EMPLOYEES

In accordance with "the language of leadership" and motivational theory of communication to other factors, inspirational motivation (image-based communication) serve to motivate followers. Symbolic language, rhetorical skills leader, or transfer messages by using stories, metaphors, analogies, appeals to the emotions of followers, for mental images and emotions are closely linked (Emrich, Brower, Feldman, Garland, 2001; Skinner, 1957). Words in communication with ease to stimulate mental images have a greater intensity of emotional meaning. Individuals without express stronger emotional responses to messages transmitted symbols. The statement says that the messages and reported the symbolic language, the leaders encourage strong emotional reactions among followers, increasing their willingness to embrace the vision.

The motivation of followers is the core leader and inspirational communication can be defined as the process of starting an activity aimed at achieving specific goals. The term motivation comes from the latin word mover, move, motus, move. Similar to the root of the word emotion is from the latin word emovere, move. Emotions run so the individual to a specific activity or they are inhibited and passive (Milivojevic, 2007). Psychologists actually believe that the pleasant (positive) sense signal to the outside world happened to something that suits the individual's values, desires, or to how he imagines that the world should look like. At pleasant feelings, adaptive behavior of individuals is one that tends to stabilize or to increase the external change that is the reason for such feeling. In general, pleasant feelings are associated with the behavior of approaching or re-acquisition of a stimulus situation that caused them. Pleasant feelings are associated with quality of life, while unpleasant (negative) feelings associated with survival.

Motivate followers to achieve a given strategic objective of the organization in the future would be as leader of this style of communication of vision that would immediately arouse pleasant (positive) feelings between them. Using symbolic language leader's followers an opportunity to bring ourselves into the future and understand that their potential would be in it. The optimistic forecasts of the leaders in the success of joint forces, allows followers to create a positive image of the outside world, but more importantly about them. Especially it relates to encourage feelings of self-esteem and confidence, which ultimately lead to self-efficacy and motivation to achieve organizational goals.

In the psychological literature states that believe in you, be confident and self assured means to feel that feeling of what is called the confidence or self-confidence (Milivojevic, 2007). A person who believes in himself is confident that a good, capable and persistent. As confidence in the second and the confidence is a feeling directed towards the future or to the unknown. Confident a person feels that he can achieve an important goal that has set itself and because it does not waste energy in parallel with oneself, which normally is a person who doubts himself. Confident people are focused on achieving goals and therefore have more power to achieve it. It is the realization of goals that are special in that they are difficult or remote, those objectives which are close to the border of the subject's power where it makes sense assertive when it comes to the important goal. Self-confident person has a positive definition of themselves as self is seen as a good, capable and steadfast. Self-esteem individual feels when he considers that a quality that I so highly. Self-esteem is not a relationship to itself, but to only some aspects of being. Coopersmith (Coopersmith, 1967) states that under this term implies the evaluation which the individual does not reflect the attitude / acceptance of self, which indicates the degree of belief in their individual capacity, relevance, effectiveness or value. According to Maslow's theory of motivation (Maslow, 1954), needs and motivations of individuals are hierarchically organized into five levels, so you can meet the needs of the lower level, there is a need to satisfy those with a higher level. At the fourth level is the need for self-esteem, and consists of two components: the need for competence (the desire to be adequate, the desire for achievement, power, independence, freedom) and the need for prestige (desire for recognition, recognition, prestige, status, validity). These needs bring a pleasant feeling of self-esteem, values, strengths and competencies.

They found that people self-confidence significantly affect their ability to achieve goals, and thus the motivation (Vesic, 2009). Confidence of employee can achieve the goal of increasing his motivation, and thus the likelihood that the target will be achieved. In contrast, research shows that one of the reasons leading to the occurrence of mental disorders among employees incurred in the workplace and reduce the motivation is associated with a sense of personal worth. Namely, it is believed that problems arise when an individual for their work, not getting enough recognition, because it diminishes his sense of personal worth (Cajringer, 2003).

5. CONCLUSION

Internalized (saved) the leader's confidence is the basis for the development of what might be called "trust yourself" or self-confidence of followers. Transformational leader has the ability to motivate followers to achieve organizational vision. Encourage feelings of optimism and enthusiasm leads to survival pleasant feelings among followers, because we believe in mutual success. Inspirational motivation of the leaders in this regard can be seen only as the application of communication skills that affect the emotions of followers. This means that the communication of vision to be reduced to the use of words such as rhetorical techniques, stories, metaphors create enthusiasm and excitement among followers. It is not enough to expose where the organization is located in the future or what are its global aspirations. The concrete representation of the object is only driving force for activities directed towards its achievement. The vision must be clear and colorful, it is the future driving force has a duty to convey the importance of the potential role of followers, and that fosters a motivational process that will help them to identify with something that can be achieved. Communication of organizational vision must confirm the leader's confidence in the ability, responsibility and perseverance of its associates, from which to build confidence in them and confirm personal value. In this respect, motivate employees clearly put before the leaders of the task of successful implementation of a transformational model of behavior in which positive emotions, express enthusiasm and optimism in the mutual success occupy a dominant position.

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ACTIVITY OF MANAGEMENT IN A COMPANY IN CRISIS

Andras Kicsi*
Subotica Tech-College of Applied Sciences, Subotica, Serbia
E-mail: andras.kicsi@rs.atb-motorscom

ABSTRACT

The paper deals with the necessary activities of management companies that are in crisis. They state the basis of the methodology for resolving the crisis, the gradual improvement of the functioning and performance. Emphasis is made on solving the crisis in the manufacturing plant. Certain elements of the company are referred to the necessary activities, potential difficulties and ways to resolve them.
It is specially referred to the tasks in the field of human resources, products, means of production and organization. Particular emphasis is placed on the synergy of these actions. The goal is the establishment of a harmonious model of action in crisis management that will contribute to overcoming the crisis.
Some recommendations are given for behavior management in crisis, priorities are established and limitations of action are given. They point the essential management characteristics required to ensure effectiveness in resolving the crisis.

Key words: crisis, human resources, product, means of production, organization

1. COMPANY IN CRISIS

The most part of professional literature is engaged in company problems which are functioning under normal market conditions, which functions are totally created and where cash-flow is solved under acceptable level. It seems that company in crisis is something exceptional, something which is appeared very rare. But, on the other hand, it can be concluded that in our conditions, most of companies are exposed to the influence of the crisis. As these conditions have very negative influence to the company functioning, for most part of them it can be said that conditions themselves are in crisis.

What are really criterions for saying that company is in crisis? If we want to simplify this problem then we can say that there are such long- term, or at least several months problems in functioning, which aren't enable functioning of all functions in the company freely. Particularly as al other problems are refining in this segment of business.

Company in crisis has to fight for survival. The question is how to increase possibility for success of this fight. This paper wants to give for surely some answers to this question. The answers are practically concentrated to the case of manufacturing companies.

2. COMPANY MANAGEMENT

Company management includes close managers which manage and administer in the company. Depending on legal form of company organizing, there can be board of directors which makes strategic and managing decisions, but the managers are responsible for carrying out of these decisions and they are in position to make operative decision as well as strategic ones which are entering into managing decisions, which are made by board of directors. But, board of directors cannot exist at all legal forms of company organization. In any case, holders of the managing and administering are company management.

Management imposes style of managing and administering in the company. Style of administering according to one approach can be offensive or defensive. Offensive one wants to go toward problems, and it wishes to solve them during its appearing, i.e. generally it wants to eliminate problems appearing. Defensive one wants to escape the problems, firstly not to observe them as far as it possible, but if it has to be done, defensive style solves the problems by evading them if it is possible.

Both styles have its disadvantages and advantages, but any style of managing for management applying has to interrogate its activities frequently. It is essential where the management sees source of problems: In world crisis, domestic market or in itself. Management has to be patient but persistent in its operation. Figuratively speaking it can be said that it necessary to have management capable "in the long run" by rhythm which corresponds to "the sprinters in the short run". It means that management has to be permanently watchful to prevent influence of any essential change to the control loss over company system.

Management has to be capable to notice the problems, to recognize important ones from less important and from non- important things. It has to watch them suddenly and see at many sides. In the scope of this paper there is no possibility to show the solutions in details, but some important moments will be clarified and through them, it will be come to some assistant things for improvement of the work.

3. COMPANY CRISIS – MANAGEMENT FAILURE

There can be question, what are the real indicators of crisis existence? When we can say that the company is in crisis? In spite that the answer can be relatively simple, however it can be defined with some relatively global limits, at least. Probably the most important indicator of crisis existence is stated negative business result. If the loss is bigger, there is bigger crisis. But this will be very simple like complete answer. The things are more completive. It can be said that negative business result is in any case the indicator of the crisis. But there are usually some other crisis indicators, before or parallel with appearance of loss like the other indicators. Very often there is crisis of product marketing which can be the result of market closing, success of offensive competition, stoppage in own product development, i.e. development in wrong direction or less effective development.

There can be financing crisis. Beginning impulse for crisis is late collectability of outstanding claims and because of its breath of liquidity can be lost and deeply it can cause the problems like higher debts toward suppliers, employees, and/or government. For appearance of above mentioned crisis indicators it is necessary to say that in any case it can be weakness of management. It can be direct mistake; for example, given decisions have problems appearance like direct consequence. It can be the case when the product is developing in a wrong direction, and when after development realization there is less demand for product in the market. But given and realized decision cannot be the reason for crisis. It is possible that shortage of decision causes the crisis, and it can be said that it is more frequent occurrence. In that case we can say that management is "slept" and didn't follow enough what's going on the market and in business. This mistake is difficult in the same way like previous one. Without activity the good result cannot be achieved. Market economy imposes the need to the management which always has to be totally watchful and ready for actions. If mistake of any kind occurred, it is important for management to find the solution and start from the beginning. It is not similar that the management has to be changed in its structure, and new staff has to be present because of achievement of the necessary and useful from the aspect of the future results, still it is possible to renew the existing management. The question is, could the existing management learn from own mistakes or it is impossible. If it is able to renew, it has to be done suddenly like Phoenix bird from the ashes.

4. MANAGEMENT FIELDS OF INFLUENCE

Solution for resolving the crisis can be very different. Usually it has to find one or more main reasons which can be very different too. For example, as it is already said, crisis reason can be old-fashioned product which lost position on the market, and because of it, it is necessary to have innovation of the product. It can be irrational engagement of company means, where it can be irrational level of stock, non-efficient, recovery of debts from the buyers or doesn't have relation with suppliers under control. There are more reasons, usually. Then it is not enough to find only one main reason, but it is necessary to find all of them or, at least the most part of them. They have to be checked in details and after it, activity plan has to be placed, which will remove the reasons for crisis.

If the crisis is in progress and it is not possible to turn it back to the beginning without big sacrifice, it is necessary to find the methods for reorganization and they will enable rehabilitation of the situation and achievement of reviewed effective dealings. With reorganization it has to be included organizational structure, but the work procedures in all fields have to be rationalized. In such situation it is necessary to sacrifice. Those sacrifices can make the company weaken, but they have to provide the conditions for recovery, so new developing cycle can be started.

Often it has to be adapted to the needs of employees structure. Truly, rather complex legal procedures have been defined and they have to be observed completely during dismissing of surplus employees, but it can be achieved relatively easy. Of course, choice of employees which have to stay in the company is very responsible task. New organization which will start after reorganization has to be defined in details as well as functioning of this organization, too. It is not the same which percentage of decreasing has to be done. The decision will be made after detailed work on the project for company restructuring. The next possibility is rationalization of all material flows, from supplying, storage through production to products delivery. By decreasing of engaged material, financial assets can be released because of the other purposes, i.e. there is possibility to increase scope of production. As the production activities are relatively limited very often, it is possible that some fixed assets are out of function, and rationalization can be done by selling or at least by leasing of fixed assets.

Rationalization can be often done with structure area of production programs customers' requests completely. By products development, it can be achieved repeated interest of the market for company products. Criterion for product development has to be achievement of that aim.

In the end, but not the less important thing is rationalization of company financial flows. Irrationality cannot be tolerated, cash-flow has to be provided and it will enable "breathing" of the company, it has to be provided for company to satisfy all its duties on time, and it can be achieved only by rational engagement of available financial assets. Further, these individual management areas of functioning will be prepared, but they have their own problems, and these areas are mutually connected and together they make system of conditions which have to b satisfy to get out from crisis.

5. EMPLOYEES – CONDITION AND OBSTACLE FOR SUCCESS

Employees are usually the most important capital of the company, which is not however officially account like book keeping value, although during practical valuation of the company it takes into consideration indeed. If the crisis appeared, usually it faces with large number of employees. To decrease expenses, it is necessary to decrease number of employees. Because of it, there is program for resolving of surplus employees. This program has legally defined procedures. It is important to satisfy these conditions as in the contrary, work inspector can cancel the whole program, or perhaps worse can be when dismissed employees, through the court, get back into the company to their ex working places (which, according to new organization are usually not exist), and all outstanding

earnings which have to be paid like in case when employees didn't leave their working places, have to be realized. As the company has to work in the future too, it is very important to know which structure of employees will be left to work in the company. It can be the option just to "thin" personnel structure. In that case rationalizations will be projected and they will give contribution to increase of business profitability by savings of labor expenses of relatively equalized proportion in the whole company.

There can be the case when the part of production programs is canceled because of unprofitability. In that case, in principle, all employees which are engaged at the working places can be proclaimed for surplus labors. But it isn't simple too, as the personnel which will leave the company, will be done according to the legally regulated results valuation of the employees previous year, at least. During choice of the employees which will stay in the company, it has to have in mind satisfaction of requirements which are appearing from new structure of production programs, from technological flows according to the new organization, as well as from available assets for production, when reminded employees have to be qualified for rational usage.

6. PRODUCTS – CAUSE OF FAILURE AND GUARANTY OF SUCCESS

Product is such company element according to which company on the market finds need confirmation of its existence. Even when the products of the company are needed on the market under given conditions, usually there are not significant problems in company function. During the crisis, problems on the market are appearing very often, and it is usually in connection with the product.

Truly but rarely, the case when the product virtue is unchangeable can be appeared. It has stable quality and it is always requested on the market. In this case, it is not necessary to think about product development but only about keeping of production stability. It is more often case when there is need for permanent development of the products. It is particularly dominant at some technical products, for example at computers, mobile phones etc. Here the months are significant period in development, not to mention the years. Inadequate products development can cause significant problems for a very short period of time. If there is not very quick reaction, if some important acts of competition are neglected, easy and quickly market participation will be decreased, even the market can be completely lost.

What to do in such situation? Surely it is easy to prevent appearance of that situation but to turn back lost positions. But, if the crisis already appeared, the solutions have to be projected and activities have to be done by plan on the basis of accepted project for going out from the crisis. For successful realization the activities of all necessary resources have to be planned: labor, necessary technical means and certain financial assets to provide possibility for carrying out the necessary actions. Any kind of defectiveness at these resources can frustrate successful development of the products. But if it condition for successful exceeding of the crisis in the dealings, then the achievement of the main aim will be frustrated.

7. MEANS OF PRODUCTION

The most significant thing at means of production is to use them rationally and because of it, it is necessary to release from all those means which are not really indispensable. It concerns production means as well as raw material and semi-finished and finished products which are produced which are produced during production process. Stock has to be decreased to the rational and certain measure and slow – moving stock has to be sold. Work resources, machines and devices have to be subject of detailed analyses. If there are unnecessary means, they have to be sold as soon as it possible because of excessed expenses and to get additional financial assets which are always necessary during the crisis.

It is easier to make decision if the production of some products is canceled. Then all fixed assets which have been used for production of those products become surplus assets: like machines and buildings too. It can be apply to the means which have been used by employees which are indirectly (so called overhead) employees, and there is no need for their work anymore. For bigger decrease ratio of employees number there is regrouping of employees, certain premises are emptied and buildings, equipment, furniture, computers and other means can be sold. It is valid for the buildings too, which can be emptied but in case that can be rented. It is important according to the project for coming out from the crisis, and it can be named only like reorganization project, to provide all necessary means, but all unnecessary means have to be converted into cash and include in flows which provide effective support for production preparation and production of the products which will be in company production program in the future too.

It is very important in the scope of the complete action for business rehabilitation, to provide short – term financing. In the contrary, it can be occurred that the company stay without "breath" and that in spite of well performed actions, the company can "die" because of "air lack". Just like a patient who is successfully cured, but didn't get the air for five minutes. This function in the company can be provided by qualitatively cash- flow plan. It has to be provided income of assets for unavoidable obligations. It is one of the most difficult tasks for the company in crisis. Surviving of the worst times in the company, very often is connected with intensive difficulties of payment. But for economic state stabilization it is necessary to solve this task successfully. If it is succeeded during several months, there is hope for company boat which will flow in the calm water very soon.

8. ORGANIZATION

Any act for improvement of business results cannot be completed without organizational changes and solutions which enable positive changes during working process and communication. Companies in crisis need reorganization. This reorganization like an idea can cover different activities. The simplest thing is to think about change of an organizational structure of the company. It is totally logic, after taking of some significant changes, decreasing numbers of employees, machines and devices, buildings, changes in production programs structure, buyers replacement and/or replacement of buyers and suppliers structure, that everything cannot stay like before in the company. Primary there is approach to simplification of the organizational structure. There is smaller number of hierarchy managing levels, there is increased number of organizational units, and there is increased number of managers. Working places which became excessive are canceled and new ones which unite many jobs are opened. Everything is done thoughtfully, planned in spite that official appearance of the new company has to be after some bigger changes (for example after realization or program for surplus employees), projecting of this solution has been done earlier of course, but immediately after outlining of solution and organizationally-technical actions have been planned very carefully, as well as legal steps which have to be satisfied. Beside of it, all necessary technological treatments, flows of materials and information according to new organization have been defined as well as preparation of big scope of documentation which will define the work under changed conditions.

During this act, increasing of company "slimness" is regularly achieved. This is very witty comparison and it is really like fat removing from overweight man. But, just like at human being, there is a question how fast and how much it is healthy to lose the weight. However, there is essential difference regarding to our example. Man has already defined conditions for optimal functioning of the organism. It is known how optimal body weight can be defined. The main things here are height, body structure, age, sex etc. With company it is not so simple but, if some starting parameters have been adopted, it can be approached to one, not exactly defined but estimated optimum. This estimated optimum is certainly in such area that increased effects can provide for a long period the most stable functioning of the company. But, reorganization can include the other, wider activities, not only mentioned here. For example, with bankruptcy low all changes in the

company are treated by reorganization, as they have mention above as well as restructuring of the assets in the manner of possibility defining and realization of obligation satisfaction toward creditors.Any expanse of an idea used like reorganization has to bring and provide essential changes in company functioning, as well as to create the conditions for simpler, more effective and chipper work together with bigger labor output and improvement of business results.

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A DECISION MODEL FOR OUTSOURCING BUSINESS ACTIVITIES BASED ON THE ANALYTIC HIERARCHY PROCESS

Aleksandra Marcikić*
Faculty of Economics Subotica, Serbia
amarcikic@ef.uns.ac.rs
Boris Radovanov
Faculty of Economics Subotica, Serbia
radovanovb@ef.uns.ac.rs

ABSTRACT

In nowadays competitive economic environment firms tend to exploit outsourcing for those business activities deemed to be outside the company's core competence. Since the information technology (IT) function is multifaceted and complex, but it is often not a core function, IT outsourcing is an ever-increasing trend in today's firms. In this paper, a model has been developed for making the IT outsourcing decision based on the Analytic Hierarchy Process (AHP). The model has been tested by applying it to an outsourcing decision made by a Serbian firm that organize social and cultural activities. We suggested a set of three factors for selecting activities for outsourcing from a group. These factors are criticality, stability and simplicity and they cover main aspects of outsourcing. Presented model can be a valuable support for decision makers because it allows complete and comprehensive insight to decision alternatives altogether and by factors. Finally, potential issues for future research are presented.

Key words: Outsourcing activity, information technology outsourcing, AHP technique

1. INTRODUCTION

Innovation and necessity of prompt responses to changes in business environment require a high degree of adaptability and flexibility of the company, which naturally affects firm's resources management. Recently there is a trend of focusing solely on companies' core competencies - the activities that they perform best and which are the core of their business, while the other business tasks are performed by temporary workers or experts outside the company (outsourcing). Business process outsourcing is defined as the movement of business processes from inside the organization to an external service provider. Outsourcing has emerged as one of the leading business and economic issues of our time. Term outsourcing is related to several different meanings depending on the point of view. For potential and existing users of this concept, it may include the connotation of loss of control and fear that external partners could overtake the duties and responsibilities that have so far been inside the company. On the other hand, outsourcing may be seen as an additional task of human resources management to control and manage resources that are outside the parent organization. Backsourcing is a process in which the company re-assumes responsibility for the functions that have previously been the subject of outsourcing and returns those function within their own organizations. This process must not be the result of conflicts between users and suppliers and it is often caused by the change in company's philosophy of outsourcing.

2. IT OUTSOURCING

In today's business environment, the precipitous rates of technological change have outpaced the ability of many organizations to support the IT function. These organizations are faced with the challenge to maintain an IT function and to simultaneously manage in an environment of brisk change and perpetual uncertainty. All of this, however, in addition to the vagaries of risk and its effects, makes managing the IT function an exceptionally challenging task for many managers. As a result, these managers and the organizations they represent succumb by using outsourcing as an opportunity to de-focus from the IT function, something that

is, commonly, also not an activity of core competence. Information systems (IT) outsourcing can be defined as "a significant contribution by external vendors in the physical and/or human resources associated with the entire or specific components of the IS infrastructure in the user organization"(Tho, 2005). Since the Eastman Kodak deals of 1989, Information Technology Outsourcing (ITO) has received considerable attention from the researchers. In the 1980s and early 1990s, the companies, lacking in-house IT expertise and technology, usually outsourced their IT activities.

3.THE ANALYTIC HIERARCHY PROCESS (AHP)

The AHP, developed by Saaty (1980), is a technique for considering data or information about a decision in a systematic manner. The AHP mainly addresses how to solve decision problems with uncertainty and with multiple criteria characteristics. AHP consists of four major steps.(Camm, Evans, 1996):

1. Modeling the decision problem by breaking it down into a hierarchy of interrelated decision elements: decision criteria and decision alternatives.
2. Developing judgmental preferences of the decision alternatives for each criterion and judgmental importance of the decision criteria by pairwise comparisons.
3. Computing relative priorities for each of the decision elements through a set of numerical calculations and consistency testing.
4. Aggregating the relative priorities to arrive at a priority ranking of the decision alternatives.

Modelling the decision problem

AHP requires breaking down a complex multicriteria decision problem into a hierarchy of levels. The top level corresponds to the overall objective of the decision process. The second level represents the major criteria (which may be further broken down into subcriteria at the next level). The last level corresponds to the decision alternatives.

Preference and importance comparison

After the decision problem is modelled in this hierarchical fashion, the decision maker must develop a set of judgment matrices that numerically define the relative preferences of each decision alternative with respect to each criterion, and also the relative importance of each criterion. The judgment matrix presents the situation of the comparative weightiness of this layer's relative factors, aiming at some factors of the upper layer. Supposing that the factors A_k of A layer have relation to the next layer $B_1,B_2,\ldots,B_n$, constitutes the judgment matrix as follows (figure 1).

A_k	B_1	B_2	$\cdots$	B_n
B_1	b_{11}	b_{12}	$\cdots$	b_{1n}
B_2	b_{21}	b_{22}	$\cdots$	b_{2n}
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
B_n	b_{n1}	b_{n2}	$\cdots$	b_{nn}

Figure 1 – The judgment matrix

In the figure b_{ij} presents the weight indicator of comparative weightiness of B_i to B_j, relative to factor A_k. It's crucial to determine this weight and usually two methods are used: expert decision and individually subjective decision. This paper adopts the first method which let the experts give their determination to the mutually important degree of indicator system's each layer. AHP adopts the 1-9 marking method, brought forward by Saaty, to constitute the judging matrix. The marking value of b_{ij} is indicated in the following table:

Table 1 – Marking values and definitions

Marking value	Definition
1	Alternatives B_i and B_j are equally important or preferred
3	B_i is slightly important than B_j
5	B_i is clearly important than B_j
7	B_i is very important than B_j
9	B_i is extremely important than B_j
2,4,6,8	The intermediate valve of the above two adjacent judgment.

Obviously, relative to the judging matrix, there have:

$$b_{ii} = 1 \; ; \; b_{ij} = \frac{1}{b_{ji}} . \qquad (1)$$

Computing relative priorities and consistency testing

The next step in the AHP analysis is to perform various calculations to determine the priority of each of the decision elements using the pairwise comparison information. The single hierarchy sort computes the weighted value of this layer's factors' weightiness, according to some of the upper layer's factors. The single hierarchy sort can come down to compute the eigenvector and eigenvalue of judging matrix B. That is to compute the eigenvector and eigenvalue which can satisfy the formula

$$BW=\lambda_{max}W. \qquad (2)$$

There into, $\lambda_{max}$is the maximum of eigenvalue of B. W is the normalized eigenvector corresponding to λ_{max}. Adopting the square root method, compute it as:

$$w_i = \frac{\sqrt[n]{\prod_{j=1}^{n} b_{ij}}}{\sum_{i=1}^{n} \sqrt[n]{\prod_{j=1}^{n} b_{ij}}} \qquad (3)$$

where i,j=1,2,…,n.
Now, when the normalized eigenvector is computed the maximum of eigenvalue of B can be determined:

$$\lambda_{\max} = \frac{1}{n} \sum_{i=1}^{n} \frac{(Bw)_i}{w_i} \qquad (4)$$

Furthermore, the maximum of eigenvalue (λ_{max}) is used for consistency testing. Each judgment has difficulty to reach a complete consistency because of the complexity of objective and diversity of individual's subjective judgment. In order to make the result of AHP method basically reasonable it is important to test the consistency of each judging matrix using the following formulas:

$$CR = \frac{CI}{RI} \qquad (5)$$

$$CI = \frac{(\lambda_{\max} - n)}{(n-1)} \qquad (6)$$

CR is the random consistent proportion of judging matrix. RI is the averagely random consistent indicator of judging matrix and n is the number of ranks of judging matrix. The 1-10 ranks matrix's RI is as the following table:

Table 2 – The averagely random consistent indicator of judging matrix

Number of ranks (n)	3	4	5	6	7	8
RI	0,58	0,90	1,12	1,24	1,32	1,41

Priority ranking of the decision alternatives

The final step in the AHP is ranking the decision alternatives, taking into account all the decision elements of the hierarchy The number 0,1 is the accepted upper limit for CR. If the final consistency ratio exceeds the number, the evaluation procedure has to be repeated to improve consistency. The measurement of consistency can be used to evaluate the consistency of decision makers as well as the consistency of all the hierarchy. The whole hierarchy sort is to compute the weighted value of all factors' weightiness in this layer according to the upper layer by taking advantage of all results of the single hierarchy sort in the same layer. The single hierarchy sort is just the whole hierarchy sort for the top layer. Similarly, when CR< 0,10 the result of the whole hierarchy sort has satisfying consistency. Otherwise, we should adjust each judging matrix of this layer to obtain the satisfying consistency.

4.DECISION MODEL FOR OUTSOURCING BUSINESS ACTIVITIES

Company "X" is founded 10 years ago and deals with the organization of concerts, events and various forms of social activity. It employs about 20 employees from various fields. The IT sector employs two computer experts who have been successfully provided support to all business activities, but in the future significant expansion of business tasks is expected. The company plans to establish a foundation which would help young academics to acquire new experiences at the international level in science, culture and sport, through various forms of scholarships and projects. Management of the Foundation has been already formed and the plans for employment of new personnel are made, but the IT department will remain the same. Management believes that better results would be achieved if some business activities in IT sector are organized through external partners and outsourcing. It is necessary to make the decision about which business activities will be carried out within the organization and which will be the subject of outsourcing. There are four important activities that should be performed by IT department:

- Design of promotional material
- Development of a web site
- Development of accounting software
- Development of software for selection and recruitment of new workers

An outsourcing decision making process starts by an assessment of the in-house IT capabilities and after that the analytic hierarchy process will be applied for determining key capabilities of a company. Management suggested a set of three factors for selecting activities for outsourcing from a group. These factors are criticality, stability and simplicity. These three factors cover important aspects of IT outsourcing. The criticality captures importance of an activity to business positioning and importance of an activity to business process. In other words, criticality includes strategic importance of an activity as well as its importance to the business processes in general. The stability factor captures the IT related issues such as volatility of an activity. This is an external factor influencing the choice of activities to be outsourced due to rapid changes in IT. The complexity takes care of the capabilities of the firm. Simplicity (or complexity) is a relative term and depending on the capabilities of a firm, an activity gets rated on a scale of 1 (simple) to 9 (complex). In the decision hierarchy, at level one, we have the focus which is to outsource an activity. At level two, we have criticality, stability and simplicity. At level three, we have shown four activities to choose from to outsource. In practice, a company may have even more activities at this level. A pairwise comparison matrix, as shown in the following tables, is filled up by 8 managers and 2 IT experts during the decision making process. The three aspects of an activity are compared pairwise. The decision makers answer questions like: given our present business position and strength of our IT department, which attribute of an activity is more important to us in deciding whether we want to outsource it or not? Then, the decision makers are required to compare each IT activity pair on the criteria of criticality, stability and simplicity. Thus, three judgment matrixes are formed and they are shown in the following tables, together with the important parameters.

Table 3 - Criteria judgment matrix and corresponding parameters

Criteria	Criticality	Simplicity	Stability	Normalized eigenvector (W)
Criticality	1	7	6	0,7603
Simplicity	0,1428	1	2	0,1440
Stability	0,1666	0,5	1	0,0955
			CR	0,0692

Table 3 presents the criteria judgment matrix and corresponding normalized eigenvector. Elements of the normalized eigenvector are weighted values for every criterion, so we can see from the table that criticality is the most important criterion (0,76), then simplicity (0,14) and the least important for actual company's business situation is stability (0,096). Random consistent proportion (CR) for criteria judging matrix is 0,069, which is less than accepted upper limit of 0,1, thus the level of consistency is acceptable.

Table 4 presents the judgment matrix and corresponding normalized eigenvector on criticality. The most critical business activity (0,56) is development of software for selection and recruitment, then development of accounting software (0,28), then development of the web site (0,11) and the least critical activity is design of promotional material (0,05). Random consistent proportion (CR) for this judging matrix is 0,11, which approximately equal to the accepted upper limit of 0,1, thus the level of consistency is acceptable.

Table 4 - Criticality judgment matrix and corresponding parameters

Criticality	Design of promotional material	Development of a web site	Development of accounting software	Development of software for selection and recruitment	Normalized eigenvector (W)
Design of promotional material	1	0,2	0,25	0,1111	0,0458
Development of a web site	5	1	0,25	0,1428	0,1091
Development of accounting software	4	4	1	0,5	0,2824
Development of software for selection and recruitment	9	7	2	1	0,5625
				CR	0,1064

Table 5 - Simplicity judgment matrix and corresponding parameters

Simplicity	Design of promotional material	Development of a web site	Development of accounting software	Development of software for selection and recruitment	Normalized eigenvector (W)
Design of promotional material	1	2	7	9	0,5217
Development of a web site	0,5	1	6	9	0,3550
Development of accounting software	0,1428	0,1667	1	4	0,0865
Development of software for selection and recruitment	0,1111	0,1111	0,25	1	0,0367
				CR	0,0711

Table 5 presents the judgment matrix and corresponding normalized eigenvector on simplicity. The simplest business activity (0,52) is a design of promotional material, then development of the web site (0,36), then development of accounting software (0,09) and the most complex activity is development of software for selection and recruitment (0,04). Random consistent proportion (CR) for this judging matrix is 0,07, which is less than accepted upper limit of 0,1, thus the level of consistency is acceptable.

Table 6 - Stability judgment matrix and corresponding parameters

Stability	Design of promotional material	Development of a web site	Development of accounting software	Development of software for selection and recruitment	Normalized eigenvector (W)
Design of promotional material	1	0,5	0,1111	0,1428	0,0436
Development of a web site	2	1	0,1111	0,1428	0,0617
Development of accounting software	9	9	1	4	0,6208
Development of software for selection and recruitment	7	7	0,25	1	0,2737
				CR	0,0834

Table 6 presents the judgment matrix and corresponding normalized eigenvector on stability. Development of accounting software is characterized as the most stable business activity (0,62), followed by a development of software for selection and recruitment (0,27). Development of the web site (0,06) and design of promotional material (0,04) are the most unstable activities. Random consistent proportion (CR) for this judging matrix is 0,08, which is less than accepted upper limit of 0,1, thus the level of consistency is acceptable. Finally it is necessary to aggregate the relative priorities and to arrive at a priority ranking of the decision alternatives. Relative priorities of the business activities are computed as sumproduct of weighted values of every criterion and corresponding elements of normalized eigenvectors for single business activity. Business activities that have high relative priorities are critical and important factors for company's competitive advantage and they should be completed inside organization, while activities with lower priority are suitable for outsourcing. Results are given in the next table:

Table 7 – Ranking the decision alternatives

Activity	Weighted values			Relative priority $\sum_j w_{ij} w_j$	Rank
	Criticality w_1=0,7603	Simplicity w_2=0,1440	Stability w_3=0,0955		
Design of promotional material	w_{11}=0,0458	w_{12}=0,5218	w_{13}=0,0437	0,1142	4
Development of a web site	w_{21}=0,1092	w_{22}=0,3550	w_{23}=0,0618	0,1400	3
Development of accounting software	w_{31}=0,2824	w_{32}=0,0865	w_{33}=0,6208	0,2865	2
Development of software for selection and recruitment	w_{41}=0,5626	w_{42}=0,0367	w_{43}=0,2738	0,4592	1

Presented results show that the most critical business activity is development of software for the selection and recruitment, which is quite logical concerning the plan for employment of new workers. Also accounting software is very important for organization and it should be developed inside. The most serious candidates for outsourcing are design of promotional material and development of a web site.

5.CONCLUSION

Application of AHP model provides a systematic basis for decision making in multicriteria problems, thus presented analysis can be a valuable support for construction of a complex multicritera model. Modelling provides valuable support for decision making process in nowadays turbulent business world, so harmonization and integration of dynamic quantitative analysis and theoretical, qualitative management concepts is absolutely necessary and unavoidable. In the presented practical example the company should decide which of four business activities are the most suited for outsourcing and which would be preformed within the organization. The results obtained by AHP methods are guidelines to management of the company, so the most complex, critical and stable activities should be done within the organization such as development of software for the selection and recruitment and accounting software. These two activities are the most demanding, so the management should decide whether the existing IT staff in the company will succeed in completing those tasks or it will be necessary to hire new experts in this field. Design of promotional materials and web site development activities are proposed for outsourcing, and whether the company decide to do so, it primarily depends on the management decisions and the other factors that significantly affect the operations of the company.

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APPLYING BENCHMARKING METHOD IN COMPANY AD ALPRO,VLASENICA

Jelenka Vitomir, Msc*
AD ALPRO, ALUMIL Group , Bosna and Hercegovina
j.vitomir@alpro-vl.com
Vladan Nastic, Msc
BH Aluminium, ALUMIL Group , Bosna and Hercegovina
v.nastic@alumil.com

ABSTRACT:

Any organization that has the vision and desire for improvement can be achieved directly benefit from benchmarking. He can run changes in the system and help company in different segments. Benchmarking is a method, discipline and a tool that helps us to be involved in competition game with a realistic basis and then systemic build a better position. In this papers described the use of external benchmarking in company ALPRO AD. External benchmarking is a comparison with competitors in the same industry, or the techniques of comparative analysis of their own business operations with the best organization. The main goal of benchmarking was to significantly increase sales by improving the architectural system of aluminium profiles, elements of the marketing mix, as well as repeater Alumil brand in the market of Bosnia and Herzegovina. Based on analysis of past activities of the company AD ALPRO and activities of the competition was proposed activities that are necessary to realize, with an explanation of the effects of each of these activities.

Key words: benchmarking, market researching, aluminium extrusion, aluminium profiles .

INTRODUCTION

Aluminium is now utilised for a host of application in building and construction and it is the material of choice for curtain wall, window frames and others glazed structures. It is used for rolling blinds, doors, external cladding and roofing, suspended ceilings, wall panels, partitions, solar shading devices, etc. Aluminium profiles are obtained through the extrusion process, which consist of pushing a hot cylindrical billet of aluminium through a shaped die. Aluminium building products are made from alloys that are weatherproof, corrosion- resistant and resistant to harmful effects of UV rays.

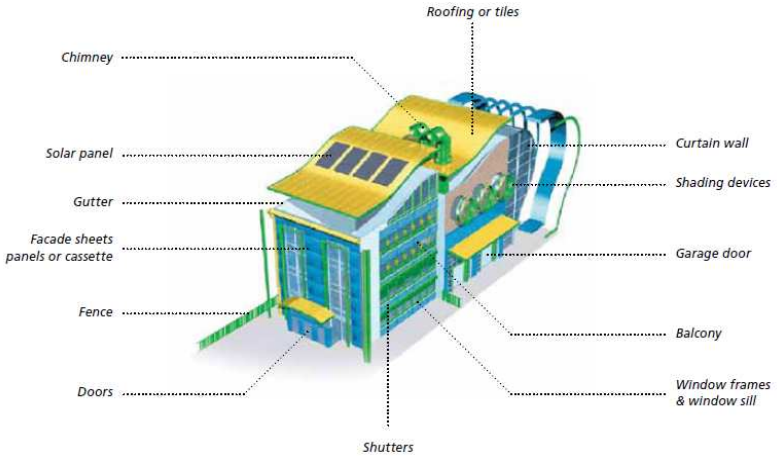

Figure1: Aluminium building products (http://www.eaa.net/upl/4/)

Aluminum provides a high degree of prefabrication, which significantly reduces the work on the site. Aluminum structures are extremely stable, durable and thermally efficient. During 2009.year, work on drafting new laws, regulations and standards for construction and building products, with the aim of creating a united European market, is intensified. Introduced the CE marking for building products requires from manufacturers of aluminum windows, doors and curtain walling to use the certificated systems of architectural profiles. Aluminium system companies design and test complete window and curtain wall solutions in accordance with European and International Standards.

Today's market situation is characterized by strong competition and the numerous changes in the environment. What is the fact in the modern business environment is that it will succeed only those companies that have learned how to quickly and successfully adapt and change to new situations dictated by the market.

EXTERNAL BENCHMARKING

When you know yourself and others, you will never be in danger; when you know yourself but not others, you have a half chances for victory, and when you do not know yourself or others you are in danger in every battle.
Sun Tzu, *The Art of War*

Benchmarking is a continuous process of identifying, understanding and adaptation of products, services, equipment and procedures of companies with best practices to improve their own business (Adamovic & Sajfert, 2009).

The objective of benchmarking is to understand and evaluate the current position of a business or organisation in relation to "best practice" and to identify areas and means of performance improvement. Benchmarking provides many benefits and substantially helps in the design business goals and management. Basic principle of this process is to see what market leaders are working to improve their business and try out collected data from their business processes and to integrate everything that can to improving their business. Benchmarking is not a substitute for a strategy, it is no improvement of business, but it is the most effective way of achieving a personal goal - business success.
Benchmarking process consists of:
- Comparison of the organization and its parts with the best;
- Comparison of production and other activities of the organization with competitors;
- Comparison of products with products of competitors;
- Comparison of technical solutions in order to select the best equipment;
- Implementation of best business processes;
- Planning and actively adapting to new trends.

The essence of benchmarking is to gain knowledge, to adapt them to their own needs, to upgrade, improve and put into operation a successful business in their own organization. There are several types of benchmarking processes, each defined goals and objectives to be investigated. According Besic, HC, (2006), they can be divided into the following processes:

- Internal benchmarking;
- External benchmarking;
- Competitive benchmarking;
- Functional benchmarking;
- Generic benchmarking.

External benchmarking involves analyzing of other organisation that are known to be best in class. External benchmarking provides opportunities of learning from those who are at the "leading edge". This type of benchmarking can take up significant time and resource to ensure the comparability of data and information, the credibility of the findings and the development of sound recommendations.

External benchmarking, also, can be:
- Competitive – compare their own business with direct competitor in the sector, preferably the best in the sector;
- Functional - compare their own operations with the operations of companies from different types of industries that have the best functional operations, the goal is to determine the ideal behavior;
- Generic - the emphasis is on fundamental business processes, and the partners are from different economic sectors related willingness to introduce changes, the goal is to discover innovative processes;
- Strategic-focus on the adoption of strategies of top companies and refers to general social objectives.

Application of benchmarking involves four key steps (Adamovic, Z., Sajfert, Z., 2009):
1. Planning - indicates the direction of movement, destination and how to arrive there. The essential steps are those of any plan development: what, who and how.
2. Analysis– in this step is important to provide support for strategic management.The analysis phase must involve a careful understanding of your current process and practices, as well as those of the organizations being benchmarked. What is desired is an understanding of internal performance on which to assess strengths and weaknesses.
3. Data collection (visits, observations and interviews and secondary data);
4. Data processing and determination of the gap that exists between their own process and the best process, making the action plan, implementation of action plan and monitoring process.

Benchmarking is not expensive method for the implementation in the company. Some of the basic costs that can be expected are the following:
* Travel costs – already is noted that the most effective way of benchmarking to send teams to study the production processes or services of other company. Learning new ways, certainly, is not possible in a few days so the cost of accommodation, travel and other travel expenses must be counted as part of the preparation phase of implementation of benchmarking in the company.
* Spent time - teams consist of people who will be able to acquire new knowledge and technology easy. Depending on the industries in which it carries out benchmarking, it is evident that the company will send an experienced training managers, analysts, engineers, who will be able to transfer news to others employees in the company. Use the creative talents of the people who actually perform work tasks to determine how the findings can be incorporated into the work processes.These people in mean time should be replaced by people who are mature enough for their tasks in the company.
* Database - a company that introduced benchmarking usually create a database that serves as the theoretical support of good practice from companies that are observed.

APPLYING EXTERNAL BENCHMARKING METHOD IN THE AD ALPRO Vlasenica

Decrease in sales in 2007. year compared to sales achieved in 2006.by 9%, was the main indication that has come time for change.

The main aims of the application of benchmarking were to significantly increase sales of architectural series of profiles by improving elements of the marketing mix, creation and promotion of Alumil brand in Bosnia and Herzegovina. In addition, the aim was to improve relationships with

clients to achieve success of company and clients. Benchmarking team was formed. Team consisted of six members:
- Project Management-Marketing Director
- Preparation and Analysis- Technical Support Manager
- Organization of visits- Sales Manager
- The team on-site- Regional Sales Managers (Sarajevo, Vlasenica and Banja Luka area).

According to the benchmarking plan, products, distribution and promotional activities are subjected to the benchmarking process. Information about products, distribution and promotional activities are collected from customers who work with competing companies, followed by visits to project offices, architectural and engineering colleges, the review of specialist magazines for the construction and architecture, through internet visiting web pages of competitors, from interviews with consultants and distributors of windows and doors accessories.

Analysis of environment identified the needs of existing costumers and needs of potential customers of aluminium profiles on Bosnia and Herzegovina market. Comparison of the distribution was done with The Alukönigstahl Company. The KÖNIG Group is an international trading concern dealing in construction sections, hollow steel sections, shaped and oval tubes. The main focus of their business operations is on the expanding markets of eastern and south-eastern Europe. It offers to partners a comprehensive range of products and services at all stages of their construction projects. The spectrum ranges from advising on the choice of materials to planning, design, applications engineering and assistance with implementing each construction project. This approach - taking the visions of both architects and owners into account whilst at the same time working in close cooperation with processing companies - enables them to realize constructions that are both futuristic and economical.

The products were compared with the products of the company SCHUCO. SCHUCO is a company that is not owned production facilities for aluminum extrusion, but it is the world's largest company that develops and sells aluminum extrusion profile obtained. Production program includes products for the entire facade of the building, whether it be on residential construction or large industrial and commercial building.

SHUECO all activities focused on continuous product development. The company is able to create customer needs. Customers are offered by an attractive solution for saving energy and using renewable energy sources, combining them, with emphasis on automation, with safety and good design. The company works closely with architects and developers.

All products have the necessary certificates of authorized institutes. In addition, these products meet also, noncommercial purposes, such as status, comfort and style. SHUECO technological level of products is above average and is associated with constant innovation, which allows relatively high sale price. The company is focused on controlling and developing key products, and uses his position to shape the needs of clients. Technological strategy of the company is always associate products and architecture. Long-term investment strategy of the company is to improve the architecture.

By analysing the gathered information, company identified the deficiencies in the existing production program, which affect on the functional and aesthetic characteristics of the product. Deficiencies are classified into several groups, bearing in mind the place and cause of their occurrence:
• Production process- appearance of the profile surface, irregularities in the profiles, poor quality of anodized profiles, inadequate geometry of the profiles;
• Packaging- uneven packaging of profiles, inadequate packaging of accessories that produced in company;

• Incomplete offers of accessories and supporting materials and tools. Proposed activities are directed towards finding solutions for better packaging of profiles and accessories. In this activity, special attention was on the design and functionality of packaging.
• Products - the development of new architectural system, the elimination of deficiencies in existing systems and their partial redesign and innovation, finding new use of existing systems and profiles; Analysis of customers' demands and competitors' offer, in the product range have been introduced following system profiles from Alumil production:
- Lightweight system without thermal break for doors and windows,
- Lightweight system for doors and windows with thermal break,
- Sliding system with thermal break,
- Accordion system without thermal break and
- Accordion system with a thermal break.

The introduction of these systems filled the market segment that prefers a cheaper solution than to allow existing systems (systems with lightweight profiles for doors and windows with or without thermal break), and in addition they offered to the market systems that have a new application. Following the trend of constructing energy efficient buildings in the product range introduced new high isolated architectural systems with thermal break.

This approach would have a significant tool in the conduct of a very strong strategy of introducing new products on the market that give results. The concept itself provides that the minimum cost (costs are reduced mainly to the cost of tools) get a whole range of new systems that with adequate promotion, bring very positive effects.

- Distribution-Taking into account the action of competition, the experience in distribution and efforts to expand markets, Alpro was suggested to proceed with the development of distributive networks.
- Promotion-Promotional activities would be significantly strengthened. The concept of promotional activities was on highlighting the changes and new features in offer and promotion of ALUMIL brand. Promotional activities implemented in four fields:
    - Promotion activities aimed at manufacturers of doors and windows,
    - Promotion activities aimed at consulting company,
    - Promotion activities aimed at the larger construction companies and
    - Promotion activities aimed at strengthening the Alumil brand

Promotion was carried through: fairs, printed product brochures, printed promotional materials, special issue of publications, advertising in specialized magazines, creating specific campaigns and presentations. It is necessary to develop a strategy of appearances in the case of large projects. In addition, it is necessary to develop a strategy and approach to architectural project offices as well as for larger construction companies

CONCLUSION

Proposed activities have led to changes in the organization itself. Company established a trading enterprise BH Aluminium, with logistic services, sales and technical support. Warehousing service, operational activities in sales are separate from creative works of sales, thus avoiding hiring sales staff on operational matters. Warehouses and operational jobs are in logistics service. Sales team became carrier of animating customers activity, establishing contacts, negotiating, customer information, conducting research. Department for technical support through training of clients, providing technical assistance in the design, preparation and execution of works, providing certificates, tender documents, technical documentation and instructions provided a complete service to customers. Technical support has become a source of information and the department responsible for upgrading of existing systems as well as the source of information for the development of new systems. New forms of cooperation which enabled the development of

information technology, enabling react in a very short period of time and perfect fulfill the needs of final users of goods and services - at the same time keeping in mind their personal involvement in creating the product, and the interaction of business partners to create products at the moment when need for them appear. The results were increased sales in 2008 compared to the sales achieved in 2007 by 61%. The trend of sales growth continued in 2010. There has been an increase of 29% compared to 2009.year. In 2009. relationship between the old architecture system to the new systems was 1:2.73 kg, in, 2010, the relationship was 1:5,37 kg.

Benchmarking is a method to support management and decision making that is based on a strategy to improve quality, only permanent (PR) evaluation and improvement of their activity, a means of learning and development. Therefore, the benchmark continues to apply.

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BENCHMARKING: APPLICATION, VALIDITY OF APPLICATION AND BUSINESS ETHICS

József Poór*
Szent István University, Gödöllő, Hungary, e-mail: poorjf@t-online.hu

ABSTRACT

Every company should apply benchmarking if it aims at reaching a high international level, competitiveness, and to prosper in global economy, and above all, if it wants to survive. In absence of benchmarking, a company will never get to know what its business looks like with respect to the competition and internationally recognized companies. Benchmarking poses new ways of thinking necessary to stimulate development and it facilitates measurement of the efficiency of our work procedures. The disadvantages of benchmarking are often neglected, as well as its ethical aspects. The paper directly analyses the validity of benchmarking application and business ethics in benchmarking. This problems can be overcome in the largest part by appropriate application of benchmarking. That is why it is important to bear in mind the negative consequences of benchmarking so that they can be mitigated.

Keywords: Benchmarking, Application, Validity of application, Business Ethics.

1. INTRODUCTION

The present-day situation on the world market is characterised by the presence of very strong competition, and numerous and fast changes in the setting. In the new millennium, one fact is crystal clear – only those companies which have got used to changing and adapting quickly, which means to learning fast, will succeed.

The modern management has developed numerous techniques for achieving better business results in order to live with the changes. This is how the techniques like Canban, Just in Time, Re-Engineering, TQM, and others were originally developed. During the 1980s, managerial techniques were completed with benchmarking, which is now a widely acknowledged and verified tool of modern management. This technique implies that the objectives and methods of their accomplishment are defined by following the practice of the best companies worldwide. Benchmarking, as a part of strategic management, offers a company guidelines for enhancing its business processes, technical solutions and functions.

Benchmarking represents a useful management tool, which is now to a large degree confirmed in both theory and practice. Although benchmarking is a very efficient means which can generate changes and improvements, it would not be fair to emphasize only the benefits which arise by its application, but also potential dangers and traps in badly-measured application of benchmarking should be considered. They can result in very negative consequences for the company, especially if the company starts relying too much on benchmarking. It can happen that the company starts losing its recognizability in respect to other organizations and individuals. Also, unselective and badly-measured application of benchmarking could lead to modifications and application of the one and same ideas and procedures. In this way, it would restrain creativity and coming to new ideas.

2. BENCHMARKING AND ITS APPLICATION

The term ‘benchmarking’ has been reported and defined in widely different ways. For instance, Venetucci (1992) defined benchmarking as a process of gathering standards for improvement and insights which may lead the organization to better performance. McNair and Leibfried (1992) described benchmarking as an external focus on internal activities in order to obtain continuous improvement. According to (Camp, 1995), benchmarking is a continuous process of evaluation of production process, products, and services with reference to those of the strongest competitors, known as best practice.

There is a significant number of different approaches to the methods of organising, i.e., carrying out benchmarking research. Most of these researches have in common that certain parametres (relevant for the observed process) are in a certain way quantified, and then compared with the best practice. The data are usually compiled by surveying, and are then statistically processed and compared. A similar approach is present in many reference as in, for example (Alshawaf et al., 2005; Bouchereau and Rowlands, 2000; Garg and Ma, 2005; Koh et al., 2005; Ungan, 2004).

Performance measurement and benchmarking are the main techniques that have been used by many leading researches on improving companies’ performance (Camp, 1989; Gunasekaran et al., 2001; Zairi, 1998). Neely (1998) suggested that measuring performance of companies would enable areas of improvement to be prioritised and actions to be taken.

However, despite its great potentials, quantitative approach is still insufficiently present in benchmarking. This particularly refers to the application of benchmarking in real-life conditions in Serbia (and the majority of countries in transition). Benchmarking is very rarely practiced in Serbian companies. Among other things, problems arise because of the lack of concrete, practical, simple, and defined quantitative method which would enable obtaining applicable and useful results. This method is to a considerable extent adapted to the conditions in Serbian economy, and would represent encouragement and incentive for a wider application of benchmarking.

The reference (Nikolić, Nikolić, Vukonjaski, 2007) offers some suggestions as to how to use quantitative approach when comparing a company with its competitors, selecting a competent benchmarking partner and choosing the optimal strategic action. The same reference also presents a two-criteria selection of the benchmarking partner, which is based on the partner’s quality, and also on the possibilities of the company which performs benchmarking. This procedure originated as a reply to the current situation in Serbia. In other words, benchmarking is still not studied and accepted in Serbian economy. Most companies in Serbia hardly apply this technique at all, or if they do, they do it in some sort of improvised form. The reasons for this situation (together with the above-mentioned) can be found in considerable technological underdevelopment and very poor financial potentials. Despite all this, there is a rising awareness that the application of quality and systematic benchmarking is a necessary prerequisite for the development and survival of Serbian companies on the increasingly demanding international market. There is also a view that Serbian companies ought not to aim at maximising their performance by following the ‘Best in Practice’ model. The highest aspirations are still unachievable, which does not mean that benchmarking should be given up. On the contrary, its application should be intensified, but with somewhat more modest objectives. Once these objectives have been achieved, it is possible to aim at achieving a higher level. Such an approach could be characterised as setting targets in steps, which is one of the possibilities set out in (Walsh, 2000).

3. VALIDITY OF BENCHMARKING APPLICATION

According to Harrington (1996), by correct carrying out of benchmarking all possible traps will be overcome, but there will still remain three which should be highlighted:

1. Companies which are leaders in a certain area are constantly in danger of their positions being overtaken by other companies. For example, out of ten celebrities in Fortune Magazine in 1989, only two remained on the same list in 1995. Xerox, which made fame with the benchmarking process, is one of these companies. Companies must not exclusively or too much rely on benchmarking. Benchmarking itself is not sufficient to enable one to get into the company of the best ones and stay there.
2. Some companies which have not applied the process of benchmarking and observed the business operations of their competitors, have not achieved a more substantial competitive advantage. The reason is in that many companies today make exponential progress, whereas some other companies, despite enhancing their business, lag behind them. If today a company copies the best 'in the class', it usually takes more time (18–30 months) to apply the best solution. This solution will be outdated at the moment of application, and the company will not reach the comparative advantage it has been looking for.
3. Efficiency of benchmarking process significantly varies depending on the degree of the company's maturity. It can also have a negative influence on organizations which do not do business well. This claim is based on the report of an international study of quality of the best, and the report was compiled by Ernst and Young LLP and American Foundation for Quality in 1992.

Elmuti, Kathawala and Lloyd cite the following limitations and disadvantages of benchmarking: (Elmuti, Kathawala and Lloyed, 1997)

- Focusing on figures. Many financial managers have 'sunk' in figures, but the value of the benchmarking process is in understanding the process which offers valuable data and formulating the ways for the company to accept them.
- Lack of clarity of sources of data. Lack of understanding of the data can lead to errors in comparison.
- Loss of focus on consumers and employees. Benchmarking can cause a company to lose focus on consumers and employees, because the companies which are aiming at achieving good numerical results can cause 'burning out' of workforce and mistakes in work. In order to achieve a particular goal, a company can also hurry up or postpone payments.
- Resistance to changes by the employees. Ford Motor Company emphasizes that one of the impediments to carrying out changes was the resistance by the employees. Some employees are always opposing the new company policy.
- Lack of appropriate application. One example is non-involvement of the employees in the process itself.
- Benchmarking should not be viewed as a one-time procedure, but as a continuous process.
- Some companies do not apply benchmarking because it exposes their weaknesses.
- Benchmarking is, according to some views, too expensive. Its costs vary significantly. They are usually travelling expenses and indirect costs and expenses. These costs and expenses can be reduced to minimum by careful planning.
- A company gives too much quality information about its business by benchmarking. The employees who provide information should bear in mind not to give away the 'heart and soul' of the company.

On the basis of the above-mentioned, the most important disadvantages of benchmarking can be observed, as well as possible methods of their elimination:

- The best solution can become dated during the implementation period. When a company reaches the desired position (competitor's position for a moment), the competitor can be far ahead of the observed company. An important rule is that competitors must not be simply copied. Managers should not only watch what the best ones are doing today, but also what they will be doing in the future. People who apply benchmarking are also required to have a certain

dose of intuition and ability to notice processes and ways of becoming the best, and not only to notice the final results of the best companies.

- The time period required for benchmarking is sometimes longer than the period available for a company to solve a certain problem. Indeed, benchmarking requires a relatively long period of time necessary to come to a solution to a problem. It was earlier explained that this leads to the solutions becoming dated, and sometimes it is not the question of becoming dated, but there is simply no time for implementation. I such cases it is necessary to simplify and shorten the benchmarking process, apply already existing solutions or apply some other method. Therefore, benchmarking is in some situations good, and in some it is not, but this can not be taken as its disadvantage. It simply should be applied in situations in which it is useful.
- Benchmarking requires certain expenses, which are sometimes high, for implementation. This disadvantage is particularly serious with less rich companies. However, there is no success without investment. It is always necessary to bring to a relationship total costs and possible use of the whole process and apply benchmarking if the benefits are greater that the costs. It should also be remembered what is being lost if benchmarking is not applied (lack of information, ideas, lagging behind the competition and the like). For the start, internal benchmarking could be performed, as well as benchmarking with the companies from the immediate environment.
- Once benchmarking which has given positive results has been carried out, a company begins to apply it more or regularly even there where it is not necessary. In that case a fall in creativity of the employees and unnecessary expenses may occur. Benchmarking should be applied only in those segments where it is necessary and possible, while in other situations, priority should be given to the creativity of the people in one's own company.
- Great concentration of a company on benchmarking can lead to the loss of basic and original contact with customers. In other words, benchmarking as a management tool has a focus on competition and comparison with it. If too much time and attention is dedicated to the ambition of continually 'chasing' the competition, real consumers' needs, which change with time, may be neglected. This disadvantage is different from others which are most easily and most efficiently solved by appropriate application of benchmarking. Appropriate application is of significant help also here, but it seems that this disadvantage stems from the very philosophy of benchmarking.
- Reliability of the information obtained from the benchmarking partner. This disadvantage can hardly be influenced, and it is most pronounced in the case of external competition benchmarking.

4. BENCHMARKING AND BUSINESS ETHICS

Weichrich and Koontz (1993) define ethics as a 'discipline which deals with the good and the bad, as well as moral duties and obligations'. Business ethics refers to the truthfulness and fairness and contains many aspects like (Walton, 1977): society's expectations, fair competition, advertising, public relationships, social responsibility, customers' independence, conduct of companies at home and abroad.

Business ethics implies that personal interests are not put above the company's. In his study of business ethics within a company, Booz Allen et al. came to the conclusion that the problem of business ethics is greatest in the units where relationships are insufficiently defined by regulations (management board and marketing personnel), and least in the units where the relationships are clearly defined by regulations (production, accounting).

Many unethical activities are set practice in a large number of companies. Why is that so? One of the answers to this question stems from the fact that companies often reward the conduct by which ethical standards are infringed. However, companies which insist on their unethical conduct very soon realize that this conduct will not pay off in the long run. Although the impression has lately been that companies tend to care more of ethicality of their conduct, it is still not easy to establish the extent of such trends.

Benchmarking implies the need for collecting information and study of positive (but also negative) experiences of others in order to enhance one's own business. From this stems the link of benchmarking with the notions of business ethics and industrial espionage. Collecting information on competitors has its limitations: limitation of business ethics (good business practice), limitations of professional ethics, legal restrictions.

In the business world, there is much talk about business ethics, on the limits to business, what is moral and what is not, what is on the limits of the lawful, and in the so-called grey areas of business, etc. There is also the European association of public opinion researchers and marketing which regulates the methods of collecting information on competition, on exclusivity of information and the like. The dominant question today is: Can one stay competitive and still do business in a human and ethical way? Efforts to make decisions in a human and ethical way are ever more expressed lately. There also exist ethical codices in many world companies, but most of them are inefficient and inadequate. Ethical codex does not refer only to the company's business, but also to the conduct of the individual in everyday life.

Every manager can help his or her company in creating a positive and productive environment, which will foster healthy ethical decision making and conduct. Every employee must follow the highest standards of honesty, faultlessness and fairness in every action, especially in relationships with the competition, customers, suppliers and other employees. It is to be expected that no employees in the company will undertake any activity which is wrong, illegal, immoral or in any way endangers the interests of the company and its customers.

Is benchmarking ethical? Business Week described it in 1993 as a euphemism for legal pilferage of other people's ideas (Sajfert and Adamović, 2004). Some of the general rules for appropriate (and with it ethical) implementation of benchmarking: laws should be respected, the information offered should be returned, privacy respected, trust should not be abused, information used internally, nothing should be done without authorization, no blackmailing, etc.

To verify ethicality in benchmarking, the answers to the following three questions can be used:

1. 'Is the thing I have doubts about legal?' A business decision can lead to violation of civil laws or company's ethical codices. It is important to highlight that every employee in the company is responsible for honesty and consequences of his or her conduct. In case of negative answer to the first question, the other two questions should not be taken into account.
2. 'Is there a balance of relationships?' Is it fair and just to all the participants? This group of questions should prevent making a decision which would favour only one side.
3. 'How will I feel after that?' The third question speaks most about the attitude to morality. This question should arouse consciousness with the people who perform benchmarking and bring business decisions. In solving this problem, a secondary question of the type: 'Would I like my family to get to know for this?' can be helpful.

5. CONCLUSION

Analysis of disadvantages of benchmarking has shown that these disadvantages are above all the consequence of inadequate application of benchmarking. Disadvantages of benchmarking can be minimized by adequate use which, among other things implies: quality, creativity, intuition, objectivity and expertise of the people who apply it, the right way of application, application in the right situations, etc. Real disadvantages of benchmarking are: possible neglecting real consumers' needs due to a high concentration on the competition and reliability of the information obtained in the case of external competition benchmarking.

As well as in the analysis of disadvantages, a similar conclusion can also be drawn when ethical aspects of benchmarking are in question: benchmarking is ethical when it is carried out

appropriately. Benchmarking can not be an excuse for unethical conduct, industrial espionage and the like.

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BPR CONCEPT AS THE FACTOR OF SUCCESSFUL ELECTRONIC BUSINESS OF A MODERN COMPANIES

M.Sc. Dejan Stojkovic*
Railways of Republic of Srpska S.C. Doboj, 71, Svetog Save Street, Doboj, RS - Bosnia and Herzegovina
magistardejo@gmail.com
Ph.D. Ratko Djuricic
Traffic faculty Doboj, 52, Vojvode Misica Street, Doboj, RS - Bosnia and Herzegovina
ratko.djuricic@stfdoboj.net

ABSTRACT

We exist in the Internet age, of ever faster, dramatic, complex and unpredictable changes, which have various names: age of information, the age of third informatics revolution, new economy, digital economy, digital revolution, web economy, economy of knowledge, information economy, etc. Internet requires new ways of modern business, and the concept of Business Process Reengineering (BPR) is a tool that can be achieved. If the company had not applied the concept of BPR and hasn't strong reengineered business processes its electronic business will be a nightmare, not a perfect ideal.

Key words: BPR concept, information technology, Internet, electronic business, CRM concept

1. INTRODUCTION

Anybody knows that we are existing in the era of the Internet. The Internet brings with it ubiquitous connectivity, real-time access, and a simple universal interface provided by Web browsers. Traditional enterprises are transforming themselves into electronic business (e-businesses) by reinventing the way they carry out their business processes to take full advantage of the capabilities of the Internet. It is hard to recall any other innovation that has received as much press or as much hype. Yet businesses will only be able to harness the true power of the Internet if they realize that it too must be tied to BPR concept.

What's so different about e-business projects? Many e-business projects require BPR to succeed (adapted by: Yourdon, 2001):

- We had the same experience a two decades ago, when client/server technology was introduced,
- BPR guru Michael Hammer concluded that 80% of BPR projects were failures,
- Many e-business projects were launched with no "business model" for identifying benefits, revenues, customers, or rationale for success,
- Many e-business projects are "re-paving old cowpaths," using Internet/web to carry out the same old business processes with new technology, but no fundamental improvements,
- Thus, e-business project managers must realize that part of their role is be the BPR "champion" or "facilitator",
- But there is a big risk: most project managers lack the authority or political power to impose BPR upon user departments.

2. INTRODUCTION TO BPR CONCEPT

Hammer (1990) and Davenport and Short (1990) were the first to report on more or less systematic approaches to generate radical performance improvement of entire business processes. Their major vehicles were the application of information technology on the one hand and the restructuring of the business process in question on the other. This approach was coined with the terms "Business Process Reengineering" by Hammer (1990) and "Business Process Redesign" by Davenport and Short (1990), to both of which we will refer to as BPR concept.

BPR concept was embraced by industry in the early nineties. Despite great successes and failures, high acclaim and sharp criticism, "process-thinking" and BPR concept by now have become main-stream thinking in industry (Sharp and McDermott, 2001) and have permanently influenced management and computer sciences (Heusinkveld and Benders, 2001).

Why is BPR concept held in such ill repute in some circles? A few opinions are that what occurred was an inevitable backlash to the excessive enthusiasm with which the press and business public first embraced BPR concept. In the early 1990s, there was scarcely a business magazine that did not run a cover story on BPR concept, and, likewise, there was scarcely a corporation that did not start a BPR concept effort. More than a touch of hysteria permeated this phenomenon. Through the 1980s, US firms had been searching desperately, and in vain, for some way to permanently improve their operations. Everything they tried either did not work or produced positive results only fleetingly.

Then BPR concept, which already had a successful track record, became more widespread. The experiences of Ford, Kodak, Union Carbide, and the numerous other firms cited in books, in other publications, and in the early press reports, made it clear that BPR concept was not a hypothesis: It actually worked.

The emphasis on processes as a focus for improving an organization's performance has gone through a number of phases shown in Figure 1. Roots of BPR concept go back approximately 30 years (Yerex, 2002):

- Total Quality Management (TQM) phase led by the Japanese - Continuous incremental improvement. Reduction of variability and defects in process outputs,
- Early (First - Wave) BPR - Blow it all up and start over. Obliteration of old task-oriented processes and replacement with radically innovated business processes,
- Second - Wave BPR:
  - Time - based competition - Transformation of process flows and organization to be fast, focused, and flexible,
  - Web-enabled electronic business - Cross-enterprise Internet processes with suppliers, customers, and partners,
  - Knowledge management - Expanding the knowledge creation capacity of business processes.

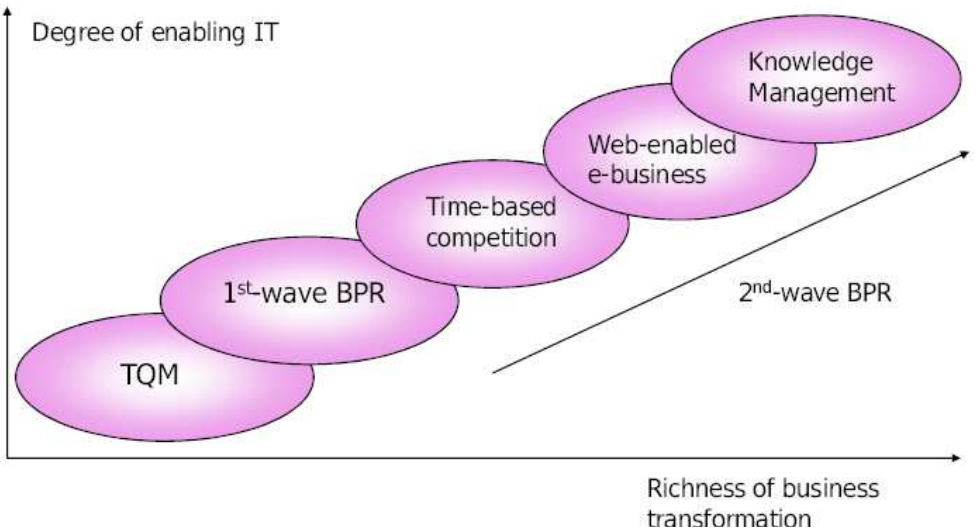

Figure 1: Evolution of BPR (Jarvis, 1999)

Why does BPR happen (Yourdon, 2001):

- Primarily because of extreme pressure for improvement
- "Extreme pressure" is usually initiated externally
- Typical factors
  - intense competition in global markets

    - radical opportunities caused by new technologies (e-business)
    - social/political change (e.g., privatizing of public enterprises)
- Typical private sector example: discovering your competitor generates same revenue with much less people
- Another example: discovering your competitor has a process with "cycle time" much faster than yours (e.g., processing time for a mortgage application in a bank, or response time for customer service inquiry)
- Typical public sector example: taxpayer revolt that leads to 50% reduction in budget for a government agency - or politician's promise of "e-government"

"Reengineering," properly, is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed (Hammer & Champy, 2002). This definition contains four key words.

In the 1st place, key word is *fundamental.* In doing BPR, businesspeople must ask the most basic questions about their firms and how they operate: Why do we do what we do? And why do we do it the way we do? Asking these fundamental questions forces people to look at the tacit rules and assumptions that underlie the way they conduct their businesses. Often, these rules turn out to be obsolete, erroneous, or inappropriate. BPR concept takes nothing for granted. It ignores what *is* and concentrates on what *should be.* In the 2nd place, key word in BPR concept definition is *radical* meaning "root." Radical redesign means getting to the root of things: not making superficial changes or fiddling with what is already in place, but throwing away the old. In BPR concept, radical redesign means disregarding all existing structures and procedures and inventing completely new ways of accomplishing work. BPR concept is about business *reinvention* - not business improvement, business enhancement, or business modification. In the 3rd place, key word is *dramatic.* BPR concept isn't about making marginal or incremental improvements but about achieving quantum leaps in performance. BPR concept should be brought in only when a need exists for heavy blasting. Marginal improvement requires fine-tuning; dramatic improvement demands blowing up the old and replacing it with something new.
Hammer and Champy (1993) recognized three types of companies that undertake BPR:
- Companies that find themselves in deep trouble - they have no choice,
- Companies that are not yet in trouble but whose management has the foresight to see trouble coming,
- Companies that are in peak condition - they have no discernible difficulties, either now or on the horizon, but their managements are ambitious and aggressive.

In the 4th place, key word is *processes.* Although this word is the most important in BPR concept definition, it is also the one that gives most corporate managers the greatest difficulty. Business process is a collection of activities that takes one or more types of input and creates an output that is of value to the customer. Most businesspeople are not process-oriented; they are focused on tasks, on jobs, on people, on structures, but not on processes.

BPR concept is in essence a performance improvement philosophy that aims to achieve quantum improvements by primarily rethinking and redesigning the way that business processes are carried out. This performance improvement philosophy can be better understood by examining the implicit assumptions surrounding the B, the P and the R in BPR:
- P: A primary focus on essential processes that deliver outcomes is the signature of all variants of BPR.
- B: The BPR perspective defines the boundaries of a process in a way that makes sense in terms of business value.
- R: Assumptions:
    - Search for quantum improvements,
    - Use of IT to enable the process to be done in new ways that are qualitatively different,
    - Maximize value-added content of a process,
    - Value can be measured,
    - Environment will have to be concurrently changed (Yerex, 2002).

3. BPR CONCEPT FOR SUCCESSFUL E- BUSINESS

We exist in the Internet age, of ever faster, dramatic, complex and unpredictable changes, which have various names: age of information, the age of third informatics revolution, new economy, digital economy, digital revolution, web economy, economy of knowledge, information economy, etc. The Internet brings with it ubiquitous connectivity, real-time access, and a simple universal interface provided by Web browsers. Traditional enterprises are transforming themselves into electronic business (e-businesses) by reinventing the way they carry out their business processes to take full advantage of the capabilities of the Internet. The Internet allows an enterprise to communicate instantly with customers, suppliers, and partners. It changes the way information can move across enterprises, the way business transactions are carried out, and the way relationships are nurtured and maintained. These new conditions enable new ways of creating value that take advantage of the effects of realtime network connectivity.

The two concepts e-business and electronic commerce (e-commerce) are often mixed up. E-business can be understood as the ability of a firm to electronically connect, in multiple ways, many organizations, both internally and externally, for many different purposes (Fahey et al., 2001). This rather broad definition is further refined (Gloor, 2000), who distinguishes e-business from e-commerce. E-business covers the application of Internet technology (Internet, intranet, extranet) in all aspects of the business world. This includes, apart from e-commerce processes, for example Internet and service providers, and providers of market places and reversed auctions. Additionally, Gloor defines the term e-commerce for the activities related to marketing, buying and selling of products and services on the Internet. Therefore, e-business is much more than electronic commerce. E-business involves changing the way a traditional enterprise operates, the way its physical and electronic business processes are handled, and the way people work.

Electronic business (e-business, defined as business activities conducted over the Internet) has been one of the most remarkable information technology (IT) innovations in the last decade (Zhu et al., 2003). Firms such as Dell, Wal-Mart, Charles Schwab, and Capital One have achieved tangible improvements in operational efficiency and customer intimacy by integrating e-business into their business models.

E-business is using the network and distributed information technology, knowledge management, and trust mechanisms to transform key business processes and relationships with customers, employees, suppliers, business partners, regulatory parties, and communities (Craig and Jutla, 2000). E-business is about changing business models to create new or increase value for the customer.

What is BPR for e-Business? *BPR for e-business involves rethinking and redesigning business processes at both the enterprise and supply chain level to take advantage of Internet connectivity and new ways of creating value (Yerex, 2002).*

BPR is carried out within the larger context of organizational change (Yerex, 2002):
- Process - centric,
- People,
- Technologies,
- Organizational form & structure.

BPR as well as successful organisational change needs a balance of all these elements in a viable combination (Jarvis, 1999).

The Leavitt diamond shown in Figure 2. is an intuitive conceptual framework that shows how we can think of the dynamics of this balance. The Leavitt diamond shows four sets of organizational variables: information technology use, organizational form, requisite people skills, and business processes. When any one of those is changed, the other three need to be adjusted accordingly so that the diamond remains in functional harmony.

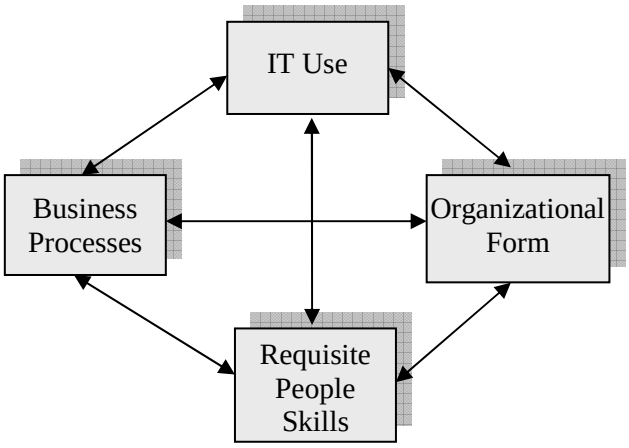

Figure 2: A conceptual framework for evaluating & balancing IT-enabled change (Jarvis, 1999)

Different perspectives of organizational change emphasize one of four sets of variables:
- IT Driven perspectives emphasise importance of integrated IT architecture,
- Organizational design perspectives focus on finding new organisational form,
- Human resource perspective emphasise empowerment, rewards systems and training,
- BPR perspectives focus primarily on business processes.

IBM, for instance, reengineered most of its processes in the mid-1990s, but has just embarked on it again, this time to "Web-enable" these same processes for electronic commerce (Hammer and Champy, 2002). *Business Week* recognized the relationship between the Internet and reengineering in its first special report on electronic business: It dubbed the implementation of e-commerce "e-engineering".

In the 1990s, BPR focused on internal benefits such as cost reduction, company downsizing and operational efficiency, which are more tactically than strategically focused. Nowadays, e-business renovation strategies focus on the processes between business partners and the applications supporting these processes. These strategies are designed to address different types of processes with the emphasis on different aspects (Kalakota and Robinson, 2001):
- Customer Relationship Management (CRM),
- Supply Chain Management (SCM),
- Selling-Chain Management,
- Enterprise Resource Planning (ERP).

As the business environment moved further toward customer-centricity and a service-based business model, the CRM process became a critical enterprise process to be redesigned and improved. CRM is the customer life cycle process of identifying, securing, nurturing, and keeping customers. e-CRM is a new phenomenon that come out from the Internet and web technology to facilitate the implementation of e-CRM. It focuses on Internet- or web-based interaction between customer and service provider (Chang et al., 2005). CRM concept allows different ways of managing knowledge around front-office processes and thus enables BPR of these processes. As opportunities for creating value in e-business settings continue to grow around capturing customer knowledge and redesigning customer interaction processes, CRM may become the driving backbone of enterprise IT architecture. BPR driven by e-business should not be based solely on the radical redesign of intra-organizational processes, but should be extended to the entire business network (internal and external). An enhancement geared to include inter-organizational processes is called Business Network Redesign (Alt et al., 2000). Business Network Redesign (BNR) is driven by global information connectivity and e-commerce. It identifies inter-organizational processes to redesign and extend the strengths of BPR to networking among business partners.

4. CONCLUSIONS

The BPR concept and electronic business have a symbiotic relationship (adapted by: Hammer and Champy, 2002): Without BPR concept, e-business delivers little payoff; without e-business, little BPR concept can be done. Successful application of the BPR concept for e-business is much more than Web-enabling. It involves redesigning enterprise processes across entire supply chains, whether they be front-office processes that interface with the customer or back-office processes or how back-office and front-office processes are connected together. Electronic business-enabled BPR concept of a modern companies must comprise rethinking and redesigning business processes at both the enterprise and supply chain level to take advantage of Internet connectivity and new ways of creating value. Customer Relationship Management concept allows different ways of managing knowledge around front-office processes that interface with the customer and hence enables BPR of these processes.

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HUMAN RESOURCE MANAGEMENT IN FUNCTION OF CREATING THE STRATEGIC COMPETITIVE ADVANTAGES

Nemanja Berber MA*
Research Associate, PhD Candidate
Higher School of Professional Business Studies, Novi Sad, Serbia
berber_nemanja@yahoo.com

ABSTRACT

Contemporary understanding of the market success of companies is linked to the concept of strategic competitiveness. Although often mentioned, strategic competitiveness for many managers is still a concept that is very complex with a spectacular question of "how to get it". Namely, it is necessary to determine the manner in which the company becomes competitive and becomes the first and best on the market, and provides self – survival, growth and development. There are a growing number of managers who achieve competitive advantage due to human resources instead of using a particular technology, the availability of financial capital and the like. Therefore, today more and more attention is paid to the nature and characteristics of these resources. The aim of this study was to research the impact of human resource management on the competitiveness of modern enterprises through the analysis of all management activities which includes that concept. Special emphasis is placed on the importance of learning and knowledge held by human resources and which, according to many authors in this area, are considered as the most important factors of competitive advantage. In fact, the way a man can be a source of competitive advantage is the permanent development of human capital that provides the company a unique ability and willingness to accept permanent and inevitable changes in business environment.

Key words: Management, human resources, competitive advantage, human resources strategies, learning, development, changes

INTRODUCTION

Changes in the world and economy have imposed the human resources as key factors for making and maintaining competitive advantage. The new economy has become largely dependent on the skills and knowledge of employees, much more than traditional industrial economy. The basic feature of the new economy is that the intangible resources have become holders of corporate performances, with the creation of their activity related exclusively to human resources. They give to an organization a competitive advantage over the other with their knowledge and skills, and with the way they use them.

This important role of human resource management in gaining competitive advantages is well – known in developed economies. But, when developing and less – developed countries are taken into consideration, according to present practice in enterprises, it seems that this concept is still not understood enough. Because of that kind of misunderstanding, main goal of this paper was to point out the importance and value of human resources with its management approach for competitive advantages and by that, for organizational success, growth and development.

THEORETHICAL APPROACH TO THE IMPORTANCE OF HUMAN RESOURCES FOR CONTEMPORARY ORGANIZATIONS AND COMPETITIVE ADVANTAGE

Human resources are one of the most important resources for creation of value and competitive advantage in modern enterprises. Employees with their knowledge, expertise, motivation, loyalty and dedication to the company essentially determine the performances and market position of a company. Also, employees viewed as the human capital of the company have the ability to create other forms of intellectual capital that will have a growing strategic importance for the company in long run. They create patent inventions, brands, processes, databases, information systems, training programs and organizational culture (Vemić – Đurković, 2009).

As a creative and innovative part of every company, people play a leading role in creating and maintaining its competitive advantage. Only highly trained, properly motivated employees, with constant and continuous learning new business skills, can meet these challenges imposed by the new business environment that is characterized by risk and uncertainty. Namely, one society survives as good as their companies are successful in providing goods and services for modern industrial and post – industrial state (Štangl Šušnjar and Zimanji, 2006, pp. 7).

The importance of human resources was delivered trough many scientific researches deducted around the world. Researches as Mayo, McGregor, Argyris, Likert, Maslow, etc. insist on the importance of human resources for the success of the company. Likert was explicitly about human resources as a key organizational resource. He developed the concept of "human resource accounting" in order to point out the need for an enterprise to take into account the costs and losses which is due to negative attitudes, low motivation, dissatisfied employees and similar elusive, subjective variables that are not taken into account, and profit from their improvements (Bahijarević-Šiber, 1999, pp. 43).

Torrington, Hall, Taylor, Beardwell, Holden, Claydon and Dessler gave their contribution to understanding human resources as a factor for competitive advantage. Beside them, many authors researched and wrote about management and human resources, for example Weihrich and Koontz emphasized the importance of staffing and human resources function (1998, pp. 356). Also, Schultz believed that investment in human resources has several times the effects of investment in material resources. If companies are not investing in human resources at least as much as invests in other resources it will have little chance for success (Schultz, 1985, pp.70). New employment and the introduction of new staff in the structure of the business or other organizational system, according to the rules of theory and practice of the organization, is focused on further development, improvement of efficiency and effectiveness in achieving the objectives of programmed business system or other social organizations (Vučenović and Leković, 1998, pp. 300).

HUMAN RESOURCE MANAGEMENT IN FUNCTION OF CREATING COMPETITIVE ADVANTAGE

Human resource management implies a process containing several activities such as: design of scope of work, planning, staffing, training and development, performance evaluation, compensation system, relations with employee's unions, etc. Each of these activities is important for successful human resources management. For example, planning of human resources is tightly connected to strategic and business planning in company (Berber, 2011). The goal of human resource management is as efficient as possible usage of them and achieving the highest possible economic effects (Miner, J., Crane, pp.6). The importance of human resource management for the modern business enterprise, and the principles by witch modern management is guided determines the philosophy that man is the most valuable resource in the organization. This resource is perceived as a potential and total power (competitive advantage) of the company. In this paper, author analyzed two important field connected with human resources and related to competitive advantage: changes and new business environment and value creation.

Role of human resource management in new business environment (changes and learning)

Growing uncertainty brings companies changes and requests for successful adoption of those changes. In modern organizations drivers of changes are linked as: informational revolution, technology and globalization. Main implications derived from these drivers are continuous changes, decrease in physical assets, overcoming of spatial and temporal restrictions and risk exposure. As a successful response to all this changes, Coulter (2008, pp. 57) gave tree critical factors which are of crucial means in new business environment: capability for accepting of changes, capability for creativity and innovation and capability that organization reaches world level. Clearly, for meeting all these needs and factors, it is important to point out the importance of human resources of the enterprise. A good example how human resources can influence on changes is given in figure 1 (Ćosić and Maksimović, 2011).

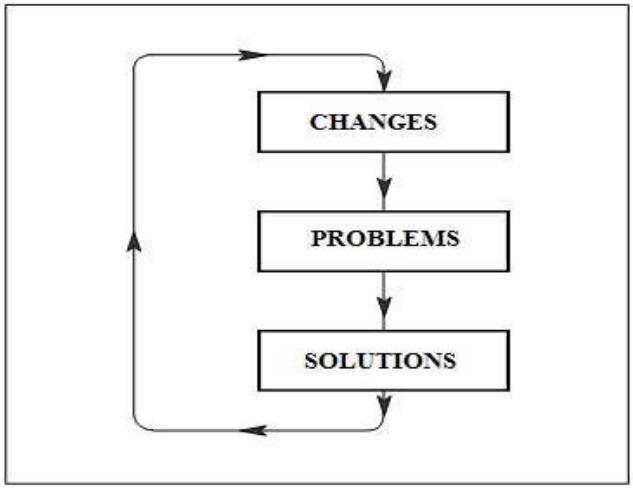

Figure 1: Influence of changes on contemporary organization

From the figure 1 it is obvious that every change that happens in environment can be seen as a problem searching for solution. Solution is usually something new for organization, an innovation that, again, creates changes. Now, change can be start for new problems and so on. Although some authors claim that changes mean problems, they can be described in other way. Namely, changes can be seen as chances for an organization to improve its business processes, resource usage and develop its business strategy, faced with human resources that are capable to understand changes, think about solution, innovate and create appropriate solution.

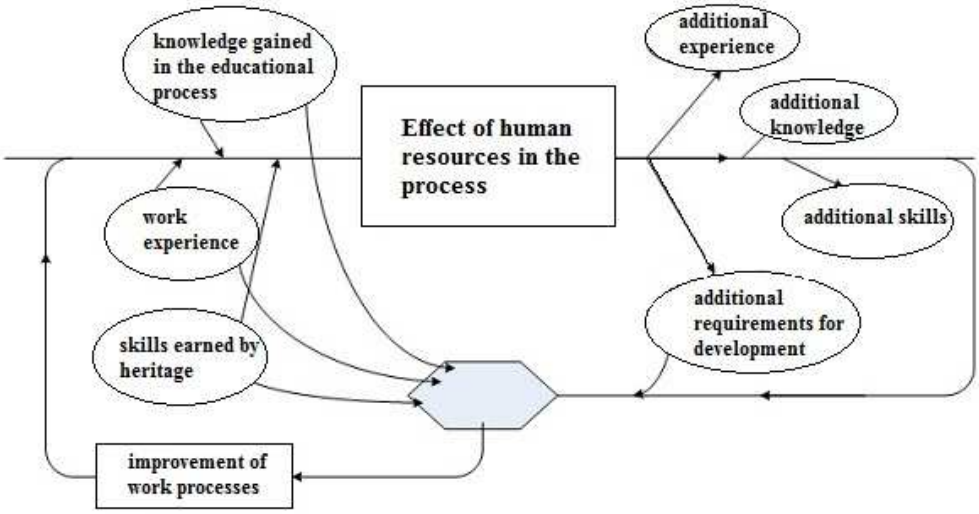

Figure 2: Effects of human resources in working processes

In contemporary conditions, characterized by strengthening and global economic competition, faster and shorter economic changes, as well as shorter time of activities in relation to the lifespan, the 'normal' growth of unemployment, structural unemployment, all point to the conclusion that the classic way of education is not enough for managing the cited tensions (Leković and Štangl Šušnjar, 2010, pp. 53). This can include the view that continuity of learning and acquiring knowledge, experience and skills must always be greater than the rate of change and the effects of unforeseen influences. Ćosić and Tešić (2009) claimed that the basis for the development of enterprise are human resources that have independent thinking, are likely to reflective effect, they have aspirations beyond their possibilities, have the courage for action, not afraid of possible mistakes, able to act between the established and innovative prediction of uncertainty and which operate between the known and unknown. They showed the influences of human resources in business processes (figure 2).

Role of human resource management in performance improvement and value creation

A common and very good indicator of human capital development and success in correlation with performance, especially shareholder value is *human capital index*. The Watson Wyatt Human Capital Index (HCI) shows a clear relationship between the effectiveness of a company's human capital and the creation of superior shareholder returns. In the first HCI study, conducted in 1999, Watson Wyatt surveyed more than 400 U.S. and Canada-based companies that were publicly traded, had at least three years of shareholder returns. A wide range of questions about how the organizations carried out their human resources practices, including pay, people development, and communications and staffing have been analyzed. Responses were matched to objective financial measures, including market value, three and five-year total returns to shareholders (TRS), and Tobin's Q, an economist's ratio that measures an organization's ability to create value beyond its physical assets.

To investigate the relationship between human capital practices and value creation, a series of multiple regression analyses were conducted. 30 key HR practices were associated with a *30 percent increase in market value*. Summary HCI scores were created for individual organizations so that results could be expressed on a scale of 0 to 100. An HCI score of 0 represents the poorest human capital management, while a score of 100 is ideal(http://www.oswego.edu/~friedman/human_cap_index.pdf preuzeto 27.04.2011.). In early 2001, the HCI research was conducted again, this time including responses from more than 500 North American companies. The conclusion was the same: Higher HCI companies create substantially more shareholder value. When looking at five-year TRS, the results are striking. High HCI companies have provided significantly more TRS than low HCI companies (http://www.oswego.edu/~friedman/human_cap_index.pdf ,27.04.2011.).

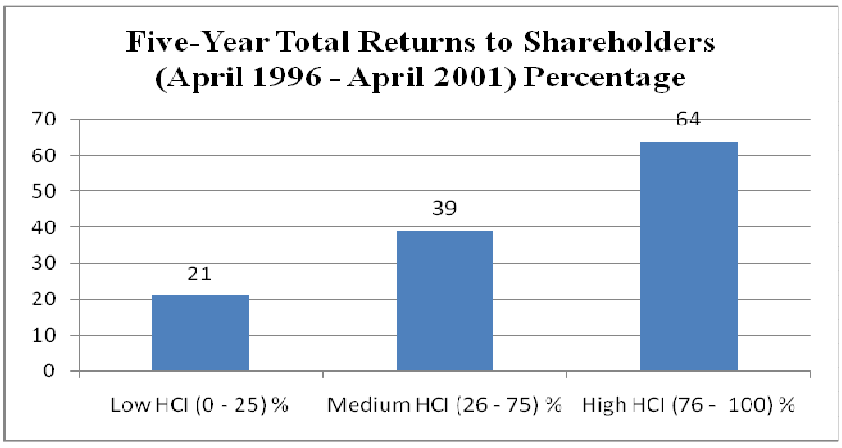

Figure 3: Total returns to Shareholders in correlation with HCI

These practices can be grouped into five dimensions: recruiting excellence, clear rewards and accountability, a collegial and flexible workplace, communications integrity and prudent use of resources. Prevalence in an organization of the first four dimensions is associated with increased economic value. The fifth dimension is associated with lower market value.

Table 1: Expected Change in Market Value Associated with a Significant Improvement in HCI Dimension (1999)

HCI Dimension	Expected Change in Market Value Associated with a Significant Improvement in HCI Dimension
Recruiting excellence	10,1 %
Clear rewards and accountability	9,2 %
Collegial, flexible workplace	7,8 %
Communications integrity	4,0 %
Prudent use of resources	-10, 0 %

Source: *http://www.vault.com/wps/portal/usa/vcm/detail/Career-Advice/Workplace-Issues/Linking-Human-Capital-and-Shareholder-Value:-Watson-Wyatts-North-American-Human-Capital-Index?id=511, last visited 26.04.2011.*

According data from survey in 2001, it is also concluded that human resources are significantly important for value creation, and this can be presented by Table1. Significant improvement in 43 key HR practices is associated with an *increase of 47 % in market value.*

Table 2: Expected Change in Market Value Associated with a Significant Improvement in HCI Dimension (2001)

HCI Dimension	Expected Change in Market Value Associated with a Significant Improvement in HCI Dimension
Total Rewards and Accountability	16.5%
Collegial, Flexible Workplace	9.0%
Recruiting and Retention Excellence	7.9%
Communications Integrity	7.1%
Focused HR Service Technologies	6.5%
Total	**47.0%**

Source: http://www.watsonwyatt.com/render.asp?catid=1&id=9047, last visited 26.04.2011.

INSTEAD OF CONCLUSION

Contemporary enterprises are driven by market pressures in sense of need to include in their goals improved quality and productivity, greater flexibility, continuous innovation, and the ability to change to respond rapidly to market needs and demands. Effective HRM is vital for the attainment of these goals. Improved quality and productivity linked to motivation can be achieved through training, employee involvement and extrinsic and intrinsic rewards.

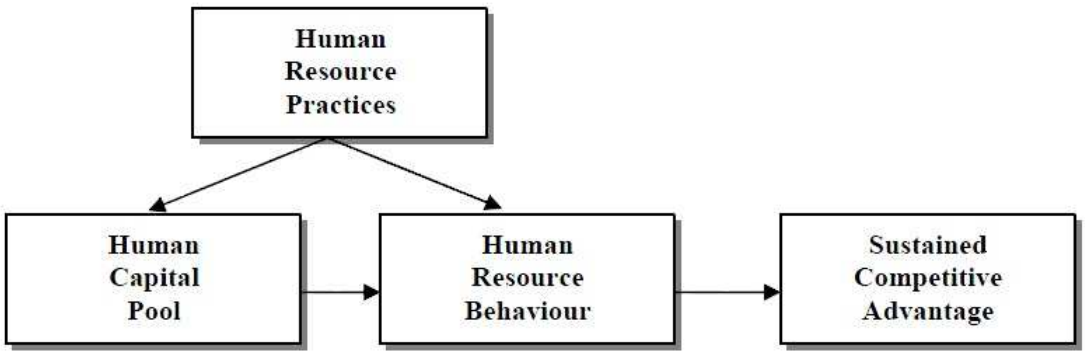

Figure 4: A Model of Human Resources as a Source of Sustained Competitive Advantage (Wright et al., 1994)

From figure 4, firstly, managers should develop the human capital pool by utilizing HR practices such as the development of selection, appraisal, training, and compensation systems to attract, identify, and retain high quality employees. Secondly, HR programs such as extensive recruitment systems and attractive compensation packages can be used to attract and retain employees with the highest ability,

quality and best organizational-fit. Thirdly, training programs aimed at increasing and developing individual's skills and competencies provide continuing skill development of a firm's human capital pool (Wright et al., 1994). After all theoretical and empirical evidences (measurement of HCI), the aim of this paper to point out the importance of human resources, was reached. Namely, human resources are important and critical factor for gaining competitive advantage only if they are properly managed. Recommendations for a future are further researches in area of human resource management linked to competitive advantage and strategic success of Serbian enterprises.

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MANAGERS' SOCIAL CLASSES IN THE REPUBLIC OF SRPSKA

Milomir Stankovic, M.Sc*
Business-Technical Faculty in Doboj, Bosnia and Herzegovina
Zivko Erceg, M.Sc
Director of the Small and Medium Enterprise Agency in Doboj, Bosnia and Herzegovina
Milorad Živković, M.Sc
Aktaplan, Brčko

ABSTRACT

Sociology is one of the key factors which can influence the appropriate strategy of human resources management and in this sense it has been the subject of our research. The key values of the employees have been analyzed which take part in making strategy, as a feedback effect that it has on realizing numerous management processes. In this paper we have presented the results of research concerning problems of social stratification of the modern society which is rather complex and goes through a period of change. We have used the questionnaire consisting of 32 questions and formed 10 tables based on answers that we got. In choosing an enterprise for making this research, we have used the Business Address Book. We have also used the Statistical Package for the Social Sciences (SPSS) which is intended for statistical analyses of both quantitative and qualitative data in social research. We carried out the poll in the period from May to October in 2010 and from January to March in 2011.

Key words: managers' social classes, prestigious managers, social contacts.

1. INTRODUCTION

Studying variables that influence social stratificaton of the modern society in the Republic of Srpska is rather complex since it is going through a period of change. These changes have particularly been interesting for the last two decades and have become the subject of research for many research workers from the perspective of both social structure and social awareness changes. These changes significantly influence uderstanding of social stratification as well as a particular position and role of the managers in the social structure. Sociology deals with the society's structure and its development regulations that we want to set within the scope of stratification of managers' social classes in the Republic of Srpska. Sociology tends to analyse all the aspects of society and its focus is on interaction between certain social phenomena, such as this research. There is relatively small number of research on the managers' social classes from the aspect of social structure change.

The research workers dealing with sociology and management are more and more exploring the consequences that managers have on sociology (O. Hadžić, N. Majstorović, M. Nedeljković, 2009). Managers used to be related to political and state bureaucracy and nowadays they are more oriented towards the ranks of either private or high-educated experts. Recently there has been an increasing number of papers in social and organizational psyhology researching moderate influence of one variable on the correlation between the two others. In this sense, managers have always been treated as part of high social rank. Social classes perspective will here be used as a theoretical scope for researching managers' social class.

2. MANAGERS' SOCIAL CLASSES

In the tradition of research on social stratification through class belonging, the position of some social groups in the social structure was determined by its objective position according to the means of production. In the tradition research on social stratification through social ranks, other citeria were used: social group's awareness of belonging to a particular class, prestige that some class has, behaviour patterns, interests and values related to a given social group (Philips, A. S., & Bedeian, A. G. 1994). We shall use another approach in this paper.

A social class that managers belong to is determined in the following three ways:

1. according to the managers' answers about the social class they belong to.
2. according to the assessment of prestige that managers have in the society.
3. according to the social network the managers are part of, or the position of social division of friends who the managers have social contacts with.

Managers' awareness of their position in social stratification is the main criterion for determining the social class they belong to. However, this criterion is considerably limited in terms of people's perception of themselves since some people consider that they belong to higher social rank than they in fact do. Since this particulary relates to lower social classes, we believe that this limited criterion is not of the crucial importance.

Table 1: Managers' answers to the question: 'What social class do you belong to?

Answers	Frequency	Percentage	Valid percentage	Cumulative percentage
UPPER upper	49	12,1	12,3	12,3
Lower UPPER	91	22,4	22,9	35,2
UPPER middle	208	51,2	52,3	87,4
Lower middle	45	11,1	11,3	98,7
Upper LOWER	4	1,0	1,0	99,7
Lower	1	0,2	0,3	100,0
	8	2,0	missing	
TOTAL	406	100,0	100,0	100,0

Table 1 shows that most interviewed managers consider themselves to belong to the upper middle class (52,3%). It can also be noticed that most managers think themsleves to be members of the upper class. More than a third of managers (35%) think that they belong to the upper class (whether lower upper or upper upper). 87% of managers think themselves to be part of the upper middle class. This result partially differs from all other research that has been done so far which showed that managers mostly belonged to the upper classes.

As another criterion of managers' social class, we have used the data of managers' education and their workplace as well as the persons they are friends with. These data show us what circles of people the managers move in as well as the social structure they make their contacts with. It is assumed that people make social contacts with the social class they themselves belong to. This is how managers' social class can be determined.

Table 2: Managers' answers to the previous questions

Answers	Frequency	Percentage	Valid percentage	Cumulative percentage
Primary school	1	0,2	0,3	0,3
Secondary school	27	6,7	6,8	7,1
Junior college	37	9,1	9,3	16,4
Faculty	277	68,2	69,9	86,4
Master	20	4,9	5,1	91,4
Doctor of Philosophy	34	8,4	8,6	100,0
	10	2,5	Missing	
TOTAL	406	100,0	100,0	100,0

As can be seen, the managers usually move in the circes of the people with university degrees. Most interviewed managers' friends have university diplomas. One can also conclude that the high-educated managers are usually friends with people who are on the same educational level.

3. SOCIAL ORIGIN

Managers' social origins are classified into four main cathegories: working origin, agrarian origin, clerical origin, and those whose parents are high-educated (this last group includes all kinds of intellecuals). This kind of classification gives us the limited yet significant results.

Table 3: Managers'social origin

Origin	Frequency	Percentage	Valid percentage	Cumulative percentage
Agrarian	116	28,6	28,9	28,9
Working	119	29,3	29,7	58,6
Clerical	105	25,9	26,2	84,8
High-educated parents	61	15,0	15,2	100,0
	5	1,2	Missing	
TOTAL	406	100,0	100,0	100,0

As can be seen, the managers mainly originate from other social classes which implies noticable social mobility in our society. The fact that managers come from the rural and working class (58,8%) can easily be explained by the dominance of these social structures in Serbia so it does not come as a surprise that managers mostly come from these classes. However, the influence of the system's factors should not be neglected. The social-political system has stimulated and favoured such social mobility which has led to the shift from the agrarian and working class to the managerial class. However, regardless of the cause, one can conclude that the vertical mobility of this class has been high in the Serbian society for the last several years. Only 15% of managers originate from the social class which is almost equally positioned in the social structure. The fact that many managers actually come from the lower classes has significant influence on thier behaviour and systems of values.

Table 4: The managers' age of different social origins

Age	Agrarian origin	Working origin	Clerical origin	High-educated parents
To 35 years	24	5,9	6,1	6,1
36 – 45 years	169	41,6	42,7	48,7
45 – 55 years	116	28,6	29,3	78,0
55 and more	83	20,4	21,0	99,0
Average age	4	1,0	1,0	100,0
The most common age	10	2,5	missing	

Out of these data, it can be noticed that the average managers' age is getting smaller as their origin is being changed. The most common age differs in each group. The managers of agrarian origin are mostly 53 years old, the managers of working origin are 44, the managers of clerical origin are usually 40, and finally the managers whose parents have university degrees are mostly 37 years old. The first group of managers is of the rural and working origin. They are older and usually friends with their colleagues- directors. The second group is comprised of younger managers of clerical origin or whose parents have university degrees. They usually move in the circles of the experts- non-directors. The third and most numerous group of the managers includes the managers originating from different social classes and various age groups and they also move in the circles of the experts- non-directors. All three groups have rather the same attitudes towards the managers' position in society and the social class they belong to.

The results of our analysis are consistent to the already mentioned changes in the social structure of the managerial class. As can be seen, the older managers are mainly of agrarian and working origins while the younger managers usually come from clerical or intellectual origins. The most numerous group of the managers of different origins is somewhere between these two groups. It is also easy to notice that the managers of agrarian and working origins are far more oriented towards directors than the managers of clerical origins are. There are many reasons for this trend. The first reason can be a geographical position. Namely, we can set hypothesis that many managers of agrarian and working origins have come from villages which prevents them from keeping their friendships from youth. Therefore it is quite logical that they are more oriented towards their colleagues-directors. This is not the case with the managers of clerical origins that have jobs in the places they were born in. They can keep their friendships from youth and are not colleagues-directors oriented. Since the managers of agrarian and working origins belong to the older generation, it can be assumed that they moved up the social ladder at the time when individuals' contacts and acquaintances were very significant and necessary for their personal development and maintenance in the social structure. That is why it was of a great importance for them to have their colleagues-directors as friends. After all, the age of the managers of agrarian and working origins can be the reason why they tend to make contacts with their colleagues-managers. As they are growing older, people tend to narrow the circle of their friends on those they spend most time with such as their colleagues- managers.

Finally, the managers' attitudes towards private property are an important element in terms of social stratification. Although all of the managers give almost the same answers to the questions about privatization, it is still possible to assume the causal relationship concerning social status, age group and attitudes towards private property. The managers who belong to different age and social groups are differently present in the social, state-owned enterprises and mixed enterprises with major social capital on one hand and in the private enterprises and mixed enterprises with major private capital on the other. Statistically speaking there is an important connection between the

social origin and the age group on one hand and the presence in the enterprises with different ownership status on the other. The managers of agrarian and working origins are more present in the social, state-owned enterprises and mixed enterprises with major social capital. The managers whose parents are clerks or high-educated people are more present in the private enterprises and mixed enterprises with major private capital. In average, the managers in private enterprises are younger than those in social enterprises.

Table 5: Managers' age in the private and state-owned enterprises

	To 35 years	35-45 Years	46-55 Years	55 and more	Average age	The most common age
State-owned	58,10%	69,90%	73,50%	70,80%	46,1	53
Private	41,90%	30,10%	26,50%	29,20%	44,8	42
	100,00%	100,00%	100,00%	100,00%		

Table 6: Managers' social origins in the private and state-owned enterprises

	Peasants	Workers	Clerks	High-educated
State-owned	79,10%	69,60%	68,00%	57,90%
Private	18,30%	30,40%	32,00%	42,10%
	100,00%	100,00%	100,00%	100,00%

The reason for this can be found in different systems of values that the managers who belong to different social and age groups have. We should assume that the older managers of agrarian and working origins value collectivism and authoritarianism which make it even less possible for them to work in the private enterprises. They are more related to the countryside where such values are still preferable. The managers of clerical and intellectual origins are younger and can easily give up on collectivism, egalitarianism and authoritarianism. Besides, they also live near the cities where such values are less expressed.

4. CONCLUSION

The changing process of the social structure and social awareness significantly influence understanding of social stratification as well as managers' position and role in the social structure. Managers were earlier related to political and social bureaucracy while nowadays they are getting closer to either the class of owners of private sector or high-educated experts. The criteria used in social stratification are: life style, class belonging awareness, income that is to say life standard, behavior patterns, the culture of living, etc. According to the results of our research, most managers believe that they belong to the upper middle class. The interviewed managers expect they will make even more progress in the social structure. They argue that the managerial profession will eventually become even more important which will automatically lead to the managers' climbing the social ladder. According to the answers that the managers gave, one can conclude that they consider this profession to be one of the most prestigious in the society.

The social origins of Serbian managers are shifting from agrarian and working classes to clerical and intellectual classes. The managerial class is becoming more and more capable of self-reproduction. The managers of agrarian and working origins are more present in the social, state-owned enterprises and mixed enterprises with major social capital. The managers whose parents are clerks or high-educated people are mainly present in the private enterprises and mixed enterprises

with major private capital. The managers in the private sector are younger than those in the social sector.

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BUILDING PROJECT TEAMS FOR THE CREATING AND REALIZING OF INNOVATIONS

Nebojsa Zakic*
Faculty for entrepreneurial business, Beograd, Serbia
nebojsa.z@fpb.edu.rs
Milan Stamatovic
Metropolitan university,Serbia
stamatovic.m@sbb.rs

ABSTRACT

Organisations which do not introduce innovations in today's complex and turbulent environment will be lagging behind more and more in the market competition. Every organization needs to develop abilities to manage innovations. A disadvantage of the approach to organising innovation in certain organizational units would be an isolation of those units and difficulties in establishing cooperation with the rest of the organisation, possible conflicts during transfers, limitation of the number of information available to the organisation, standing out of innovations out of frames of existing strategies etc. The paper analyses the modern alternative approach, combined project team consisting of a dedicated team and shared staff. This team needs to be carefully established for each specific innovative initiative.Building adequate project teams for innovative initiatives is an important ability that an organisation needs to master in order to realise innovations successfully, while at the same time, realizing tasks in regular busness.

Key words: Innovations, organization, project teams

INTRODUCTION

Innovations are an integral part of success of business. Competitive pressure and constant changes make organizations innovate in order to keep profitable growth. In order to be able to keep pace with the changes in the surroundings, to be active and make progress in the competition, to be able to offer advantages to clients continually, organizations must innovate and build abilities in order to be able to do so. One of the key abilities is the design of the organization and building project teams able to successfully do the activity of creation and realization of innovations.

Practically, within each organization which is willing to innovate, there is a fundamental tension between the need for stability and the need for creativeness and changes. On one hand, companies need stability and routine to fulfill their everyday tasks efficiently and quickly. This enables the organization to compete and make results in modern day. On the other hand, companies need to develop new ideas, new products and processes in order to be competitive in the future. It requires establishing creative environment where ideas can be developed and tested. This creates one of the fundamental problems for the management today, how to build a successful organization for regular business and, at the same time, be successful in innovations. Traditionally, organizations have tried to build a dual structure, one for innovations, other for operational business. Another approach that is analyzed in this paper, the combined organizations model, relies on partnership, with the aim to tie both entities into one, combined project team which will be tailored for each innovations initiative.

TRADITIONAL APPROACH – DOUBLE ORGANISATION

The theory of a ambidextrous organization suggests that the organization should promote innovations and operations through different units. There are two parallel structures, one dealing with innovations business and other dealing with operations business (operative part of "performance engine"). In this way, the innovators are kept separate from the staff which is doing regular business. These units usually have different aims, priorities, structures and control systems (Duncan, 1976).

According to Petkovic & al. (2009), the innovations part consists of experts from different profiles, whose basic task is to create new ideas, build innovative solutions and solve other specific tasks. The innovative part is market oriented and goes in favour of efficacy, while the operations part bears the operations activities and it also goes in favour of efficiency. The organizational structure of the innovative part is based on project teams (matrix), and the operations part is divisional and functional.

The separation of structure, even location, protects innovations projects. The innovation teams are allowed to work in isolation of the company and its usual business routine, i.e the project teams are allowed to function in unlimited corporative restrictions. Different rules and culture for this unit is established, in order to encourage creativity and innovations. Being isolated from regular business, allows and encourages teams to break usual rules and create their own, and what is more important, protects from power in the organization which would block innovations (Davila et al., 2006).

The separation from the rest of the organization can however bring to isolation from all aspects of the organization, meaning, both the good ones, as well as blockers of innovations. Separate units have processes and patterns which are not fully integrated with the existing processes of regular business, and ideas which create and realize innovations units are not integrated in the company culture. Between the innovations units and divisions which do regular business there are problems of adequate cooperation, as well as possible conflicts due to transfer of innovations to operations units (Zakic, 2002).

According to Davila et al. (2006) by separating innovations from the rest of the organization, the number of information could be significantly limited. Other than that, there may be lack of connection between innovations and the perception of what is really needed. The number and type of innovations need to be matched with the business strategy. Without a clear plan and matching different parts of the strategy, there is no success in innovations. If the mismatch of innovations with the strategy is a result of the separation of the organization, it would significantly decrease the return of innovations investment and could threaten the sustainability of the innovations in long term for the company.

ALTERNATIVE MODERN APPROACH – COMBINED ORGANIZATIONAL APPROACH

The negative side of the previous method of organizing point out the necessity to bridge the fundamental problem of incompatibility. Business organizations are built for efficiency, not innovation. Constant operations are repetitive and routine, while innovations are unique and not routine. Constant operations are predictable, while innovations, generally, lot less predictable and unspecific. This means that innovations and constant operations are in inevitable conflict.

The fundamental incompatibility of innovations and constant operations requires understanding on behalf of the manager. People who are innovators within their organizations, as well as innovations managers, often criticize the organization which does regular business as a bureaucratic machine, as a creation which annuls innovation, and on the other hand, there is a deep lack of understanding and distrust towards innovation. Still, the partnership between these two organizational categories is one of the keys to success of the innovations initiative.

The combined organizations model is a different approach with regard to the ambidextrous organization. As the heading quotes, it is a combination of two fundamentally different organizational parts, i.e it presents project teams which consist of a (Govindarajan and Trimble, 2010):

- dedicated team and
- shared staff

The dedicated team is a specific team which is created when needed, and as the heading says, it is dedicated to innovations initiative. Members of the dedicated team are usually full-time employed on the innovations project. The shared staff is a part of the organization which does regular business. This staff does different given tasks related to a specific innovations initiative. Members of this staff are usually employed part time on the innovations project, since part of their working hours consists of regular business. Generally, the combined model of organizing innovations initiative is given in figure 1. (Govindarajan and Trimble, 2010):

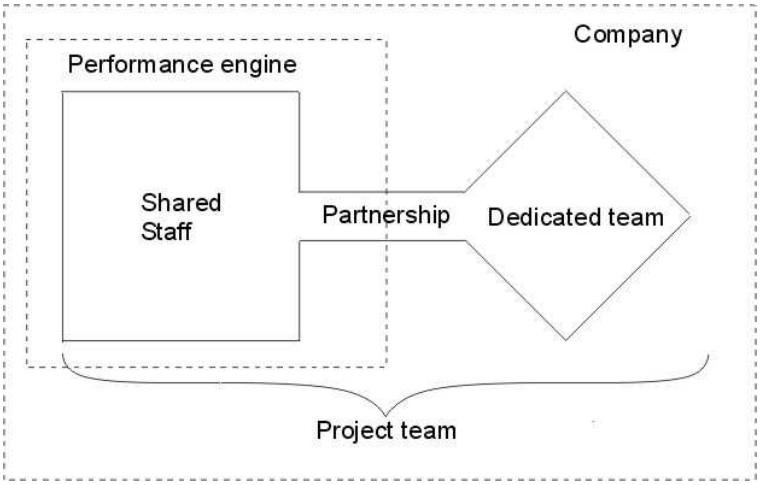

Figure 1: Organizing an innovation initiative

The figure shows that the project team consists of a dedicated team and shared staff. This implies that there is one project plan for all members of the project. Given the specific features of planning of innovations, since they are significantly less predictable and not routine with regard to constant operations, this plan is tuned and updated through a rigorous learning process. In this way, all the stated disadvantages of the isolation of project teams from the rest of the organization are removed, and the challenge of building such project teams stays.

The key to success is establishing and building a project team for each separate innovations initiative. This includes a division of work between the dedicated team and shared staff. It is especially important to manage the partnership where clear expectations from each partner are set, and there is a mediation in inevitable conflicts during the realization of innovations.

ESTABLISHING A PROJECT TEAM FOR INNOVATION INITIATIVE

When establishing a team, it is necessary to pay attention to the fundamental elements of the team so as to achieve the needed team efficiency. According to Katzenbach and Smith (1993) there elements are:

- Complementary skills: these skills fall into three categories: technical or functional expertise, problem-solving and decision-making skills, interpersonal skills.
- Employment of common purpose and aims. The common purpose gives a tone and tendency towards unity. The specific aims are an integral part of the purpose and present its further concretization.
- Development of common approach to work. Members of the team should develop a common approach to work, i.e. how the work is going to be done, and work together in order to achieve the purpose for which the team was established.

- Common responsibility: Teams are focused on both individual and common responsibility. Team responsibility is connected to the promise which team members make to each other, and emphasizes two important aspects of teams: commitment and trust.

The choice of the project leader and members of the dedicated team, as well as employees in the regular structure who will realize its tasks, as shared staff, is one of the key requirements for successful operation of the complete project team.

The influence of the leader is usually based on the single ability to guide a team in order to realize the set objectives. All other factors of team efficiency are under the influence of the team leader. Some of the abilities and features of the project team leader are (Lientz, Rea, 1998):

- Communication – it is necessary to transfer and distribute different information, within and out of the team, it means that they should communicate will, both verbally and in written,
- Problem-solving – they need to identify and understand problems, put them in different perspective and develop and implement solutions,
- Energy – it is necessary for them to have a lot of energy, due to working with problems, risk-taking, long hours
- Initiative – it is necessary for them to be able to take initiative and risk.

The team leader must carefully think out the necessary complementary and other skills of the team members. First, the specific and general skills needed for the team and shared staff are considered, which means know-how, ability and experience specific for innovations initiative. Other than that, each team needs to have general knowledge in innovations including tools and techniques with regard to creativity, innovations and problem-solving. The interpersonal skills are also important. That means that senior managers, who are politically wise and skilled at building partnerships with the shared staff and the rest of the organization, are welcome in the dedicated team.

Once the features of the candidates are identified, it is necessary to look for the best within the organization. The project manager should find out, officially and unofficially, who is good, who is available, who would be willing to participate in the project. According to the needs and capacity, team members may come outside of the organization if it is established that such competences cannot be found within the organization. The team members can go through certain trainings in team work, innovations and different tools and techniques used in the project, if necessary.

BUILDING A PROJECT TEAM FOR INNOVATIONS INITIATIVE

Building of a team is a process of transformation of group of individuals with different expertise, interests, demographic attributes etc into an integrated and efficient business unit which makes results. The building of the team is a process of change, in essence. In this transformational process, the aims and the energy of all team members are united and support the objectives of the team.

As the project teams evolved, the managers in different organizations showed more and more interest in the concept and practice of team building. As a result, many studies were done to research the group dynamics, characteristics of efficient project teams and factors influencing it.

The features of the project teams and performances depend on many factors. Numerous authors state a model by which the following factors influence the performance of project teams (Cleland and Thamhain, 1999, Thamhain, 1998, Verma, 1997):

1. Guides and obstacles
2. Leadership style
3. Team envinronment (organization)
4. External envinronment.

Guides and obstacles. Guides are factors that positively influence the team effectiveness. Some of the factors which have a strong influence on the performance are: professionally interesting and stimulating work, recognition of engagement and realization, good interpersonal relations, adequate team leadership, qualified and professional team members. On the other hand, project teams are faced with different obstacles in their work and there is no way for them to be completely avoided, they are a part of the team life. It is important for them to be identified and to reduce their damaging influence. Strong barriers, unclear purpose and aims, lack of resources, not constructive conflicts and fight for power, lack of involvement of senior management and closure of team within itself etc.

Leadership style. The primary responsibility of the leader is to ensure engagement of team members to fulfill the team purpose and aims. The project leadership requires a vision, engagement achievement, directions and distribution, increase of team performances through motivation of team members and collaborative problem-solving, ability to create support from senior management etc. So the situation which team members face change, they have to evaluate them, and by paying attention to relations and fulfillment of tasks, they should recognize and apply adequate leadership style.

Team envinronment. The effective team leader is a social architect which can understand the interaction between organizational and relations variables. They should ensure availability of resources and total support for the project on behalf of the senior management, through the project life cycle. The organization critically influences the performances of the project team, so that even a well-combined and led team can get into problems. Some of the factors of team envinronment which are important for project success are: support of the higher management, adequate team autonomy, resources needed, organizational culture etc.

External envinronment. The external surrounding can vary with regard to the project scope, innovations type (incremental, radical) etc. Project teams in innovation efforts need cooperation with buyers, delivery, faculties, institutes, external experts, business partners, independent innovators etc. The external envinronment can have an important influence on the success of the innovations initiative. Thus, it is really important to know the external surrounding and develop good relations and understanding of the external stakeholders.

Through the activities of team building, the leader and the corresponding team members, as well as the management of the entire organization, need to pay attention to all these factors so that the innovations initiatives can be successful. These include different activities: constant clearance of the purpose and aims, updating plans through a learning process, solving unconstructive conflicts, introduction of new information and approaches, application of different leadership styles depending on the stages of team development, efficient delegation of tasks, support from senior management, allocation of necessary resources, creation of culture which encourages innovations and risk, team spirit and cooperation etc.

Two very important activities of team building which realize innovations initiatives are diversity in team composition and management with partnership with the performance engine.

According to Stamm (2008) innovations mostly happen when two different bodies of knowledge are tied. If there is no intellectual tension, different options and similar, there is less likelihood that there will be successful innovations. Thus, the team composition is important, and in the process of team building the so called CARE profile can be used. It was developed by Fahden and Namakkal (1995), and it notices individual behaviour and approaches to thinking by using four categories:

- Creator – appreciates working with new ideas, transforms problems and seeks for alternatives, is good at visualizing a wider picture, prefers to focus on the future.
- Advancer – recognizes ideas and new directions early and tries to improve them, when thinking about implementation, prefers to rely on past experience, works within the existing norms and expectations.
- Refiner – likes to challenge concepts and wants to understand the consequences before action, prefers regularities and methodology
- Executor – focuses on high quality and ensures that the implementation process runs smoothly, prefers what has been proved with regard to new and pays attention to details.

CARE profile is based on the theory that those who act together towards achieving a common goal combine their preferences of behaviour and opinion in a certain approach. Identifying individual approaches to team work, clearing out roles, understanding and encouraging innovations and problem solving are components of this model.

One of the keys to success of innovation initiative is the establishment of partnership between the dedicated team and shared staff, especially with the rest of the organization which does regular business. According to Govindarajan and Trimble (2010) the most critical feature of a successful leader of a project team for innovations initiative is to have a positive, convincing and collaborative approach in the interaction of their team with the rest of the organization. Both the leader, as well as the members of the project team and managers in the hierarchy must establish healthy partnership all the time, anticipating, modernizing and mediating in order to solve tension and conflicts which are frequent and inevitable. In order to maintain healthy partnership and solve escalations, the help of the management of senior rank is needed. Maintaining healthy partnership, although difficult due to the incompatibility of the two units, is necessary for success, and the leader and the members of the teams, as well as the managers within the organizational hierarchy need to invest time and effort in the best interest of realization of the innovations initiative.

CONCLUSION

Managing the fundamental problem of lack of compatibility between the operations and innovation presents a difficult task for managers who are aiming for innovative organization, which can make progress in the market competition. The traditional dual organization which consists of operations and innovative part showed numerous disadvantages. One of the alternatives is a combined model which consists of a dedicated team and shared staff and the rest of the organization. A challenge for managers is to develop such teams which are able to successfully realize innovations. By a rigorous approach of establishment of a project team in accordance to each specific innovations initiative and activities of team building, by paying attention to different factors which influence team performances, so that team members can realize necessary tasks and realize adequate relations, interpersonally as well as with the rest of the organization, the organization needs to aim to successfully build its innovations abilities while working and making results in its regular business.

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MANAGEMENT OF INNOVATION PROJECTS IN THE CONTEXT OF THE COMPETITIVENESS OF THE ORGANIZATION

Suzana M. Savić
Faculty of Occupational Safety in Niš, Čarnojevića 10a, 18000 Niš, Serbia
Dejan M. Vasović
Faculty of Occupational Safety in Niš, Čarnojevića 10a, 18000 Niš, Serbia
djnvasovic@gmail.com, CA
Stevan M. Mušicki*
Military Academy, Generala Pavla Jurišića Šturma 33, 11105 Belgrade, Serbia
mustmilenko@yahoo.com

ABSTRACT

The European Commission within the Directorate C - European Research Area: knowledge-based economy (European Commission, Directorate C - European Research Area: Knowledge-based economy), hasdefined the model of the European Research Area. One of the elements of this model is the "triangle of knowledge", which involves the interaction of education, research and innovation. Therefore, management of research and development, necessarily involves the management of innovation. This study analyzes the importance of change management and innovation to achieve and maintain competitive advantage of organization in today's business environment. Innovation management is discussed in the broader context of managing innovation projects.

Key words: Innovation, project management, research and development

1. INTRODUCTION

Modern business environment of the organization, among other things, makes the increasing rate of innovation. Innovations are present in all areas: in engineering, technology, economics, organization and management. But innovation activity should not be understood as a set of innovations, but as the organization's ability for continuous and steady development of human resources, systems of knowledge and education, but also a new culture that will encourage employees creativity and inventiveness. Progress of research-development and improved work contribute to the faster and better transformation of current knowledge and information to new ormodified products, services, processes or technology, or the useful innovations, and in this regard to the ongoing changes. To manage innovation be effectively and efficiently, and thereby contribute to business success of the organization, it must be organized and realized in the form of innovation projects. Following the previous tips in this paper to define the context of change and innovation, and analyzes the importance of change management and innovation in the modern organization, and then reviews the development, structure and processes used by the management of innovation processes.

2. SIGNIFICANCE OF THE CHANGES

Organization is dedicated agreement more than one person in order to achieve specific goals. The organization has three basic characteristics (Robbins, Coulter, 2005):

- purpose, expressed in terms of goals that the organization intends to fulfill
- people or employees who fulfill the goals
- a dedicated structure, developed for employees to perform work and achieve goals

Therefore, the term organization refers to the entity that has a clear purpose, which includes people or members, and who has a kind of special-purpose structures (Robbins, Coulter, 2005). Organizations are now interpreted as a subject that is open and highly interactive with its environment. Rather than just their individual economic interests (anthropological approach), the organization has to respect the interests of the environment which is an integral part of (systemic, holistic approach), which are primarily related to the respect of sustainable development, ethical principles and the development of the social environment.

Changes are inherent factors of development of each organization. Given that development involves a continuous or discontinuous sequence of states, the change can be defined as a transition from existing to new state. This new state may, but need not, involve the improvement of (positive or progressive growth). However, any improvement implies change. Therefore it is widely accepted definition by which changes represent the quality improvement (Ristic , 2003).

Changes imply a rejection of obsolete, abandoning unproductive or, organizational exit, and represent the reality of each organization. Needs for organizational changes are initiated by environmental conditions (state laws and regulations, new technologies, fluctuations in the labor market, economic changes) and internal forces of organization. Internal forces may be the result of external changes and internal enterprise organization (change of structure, changing workforce, the introduction of new equipment).

Process of the change is unique to each individual, organization or company because the contexts in which they place are different. Changes should be implemented in accordance with individual or social needs and in accordance with the specific conditions under which they occur. For the individual, the changes improve the quality of life, for the organization - a way to remain competitive and vital, the company - the ability to join in the global trends of development and to advance. Specificity of conditions is related to environmental factors, management, acceptance of change, level of knowledge, specific risks and so on.

Changes can be quantitative and qualitative. Quantitative changes increase development capacity and effects and create conditions for qualitative change. Qualitative changes are implemented with a view to training for the successful operation in complex and dynamic environment. They can be:

- civilizational changes
- oriented strategic change and
- tactical changes

Civilizational changes are complex changes that involve (Ristic, 2000)

- adoption of new philosophies, concepts, standards, models and solutions for successful functioning in the current world
- changes in attitudes, thinking and behavior in all spheres of life and work of an individual, organization or society
- development and engagement skills and ability to implement changes

Civilizational changes represent a discontinuity and replacement of all that existed with something new, different and significantly changed [1], or discontinuity in which they summarized a large space, time and all matter (Ristic, 2000)

Attempt to understand the current civilizational change requires confronting with the tensions that will follow them in this century (Bel, 1978):

- tension between global and local;
- tension between general and individual;
- tension between tradition and modernity;
- tension between long-and short-term matter
- tension between the need for competition and achieving equality;
- tension between the lightning dissemination of knowledge and people skills to adopt;
- tension between the spiritual and material

Of understanding and ways of overcoming these tensions depends the speed with which individuals, organizations and certain social structures identify, implement and adapt to changes.

Strategically oriented changes are changes that prepare the organization for quality responses and reactions to developments and events in the future outside world (Ristic, 2000). The organization's strategy defines the hierarchical structure of oriented structural changes. This structure is often referred to as strategic change, including all types and levels of changes to be implemented on existing solutions. To ensure the maximum effect it is necessary to implement all the defined changes, regardless of their importance.

Tactical changes are changes in specific situations provided the best results and effects on the solutions that have already been carried out strategically oriented changes (Ristic,2000).

Tactical adjustments are primarily related to changes in the product or service and the organization's activities in specific market conditions.

Effects of the current discontinuities are reflected in organizations.
Organization is confronted with the necessity of implementation of changes, starting from changes in perception of the organization as a relatively independent, encircled manufacturing business totality, through changes in concepts and models of operation, to the change of specific goals and objectives.

3. INNOVATION AND INNOVATION ACTIVITY

Small-scale changes are called innovation. Though it is difficult to define the limit when the innovation turns into a change, among them there are fundamental differences. Changes primarily involve organizational change, while innovation means introducing something new as a result of practical (scientific-technical) winning innovation. Innovation is a new product, process, technology or services with unique features, created using own or others' results of scientific research, discovery and knowledge, through its own concept, idea or method of its creation, which is with the appropriate value placed on the market (Brain, 1991). Considering the areas in which they arise, innovations can be: technical, technological, economic, organizational and managerial.
Set of actions which transform scientific knowledge into new products, services, processes or technologies and their commercialization activities, represents the innovation process. Innovation process can be seen as:

- comparative and continuously carry out scientific and technological activities, investment and marketing;
- life cycle of production;
- investment project.

Key innovation process is the flow of technology and information between people, companies, universities, institutes and other organizations.
Innovative activity is undertaken in order to create new products, technologies, processes and services or to change existing, in accordance with market needs. Innovation activities except the innovation process, includes market research market sales of goods, their consumer properties, competition, and complex technological, managerial and organizational control measures which in its totality leads to innovation, a new approach to information, consulting, social and other types of services. innovation activity should not be viewed as a set of production and technological innovation, but as the ability of the organization and its staff for continuous and steady development of knowledge organization. In the process of innovation activity system of knowledge must be constructed rationally and effectively controlled.
Goal is to create innovative activities of long-term competitive advantages. Primary means of achieving this goal is the innovation strategy. Implementation of innovation strategy requires the formulation of concrete goals that the final result in quantity and quality indicators

4. MANAGING CHANGE & INNOVATION

Its base interest: survival, growth and dynamic development, organizations can achieve only if she implement quality changes in work and behavior, and if she manage them well. Main reasons for deterioration of the organization are, first of all, the non-implementation of change and failure to achieve the required quality in the implementation of changes. Changes may represent chaos and disaster if they are not managed, but also base for survival, growth and development if they are well managed (Ristic, 2000).
For quality change management it has been developed a strategic model of participatory governance. It allows the management of all elements, activities, processes and changes in enterprise. Changes are treated as part of the regular functioning of the enterprise (Bobera, 2003)
Model also allows the definition and implementation of strategic-oriented changes, which means that, first, emphasizes the development of available resources (especially human resources), and then their quality commitment in achieving the objectives of the organization. Emphasizing the importance and evaluation of human resources implies their active participation in proces of decision strategic-oriented decisions (participation in decision-making).
Strategy, as basic document for the implementation of governance, defines (Ristic, 2000):

- system of strategic goals and objectives, which organization wants to achieve
- system strategy-oriented changes or structures necessary, the existing solutions, in order to provide quality response to changes in the outside world and give its full contribution to achieving its own strategic goals and objectives
- specific directions regarding the manner of implementation of major changes in the company

Strategy refers to three categories of change: change in structure, changes in technology and changes in people.

The change in structure. Structure of the organization should enable the achievement of goals. With the regard that the the goals of the organization defines the organization's strategy, structure should follow strategy changes. Restructuring of the organization is conditioned by the dynamics and the uncertainty of surrounding. Global competition, increased product innovation of competitors and increased demands in terms of high quality products and services, are examples of dynamic force environment that require a flexible structure capable of responding to rapidly and uncertain environment changes. Changes in the structure include any change in relations with authorities, coordination mechanisms, giving authority to employees, changes in job descriptions, etc (Robbins, Coulter, 2005).

Technological change. Technological changes include changes in the methods and processes work and the equipment that is used. Technological changes in methods of production of goods and services are initiating technological developments, which in turn contributes to new technological changes. Modern technological changes are most pronounced in information technology, bioengineering, new materials, robotization and computerization . Faster tempo of technological changes promotes the view that the different epochs in the development of human society does not differ in what they produced, but in how they produces. While creating new technology implies uncertainty, high risk, trial and error, and the different alternatives, its materialization as innovation or changes creates opportunities for productivity growth and therefore represents a driver of economic development organizations.

Change in people. Changing men involves changing their attitudes, expectations, perceptions and behavior. Term organizational development, which often refers to all types of changes, basically refers to the techniques and programs for changing people, nature and quality of interpersonal relationships. Employees can be drivers of changes but also to impede and hinder the implementation of changes. Because of this is required preparation of employees for the implementation of changes, and timely resolving the problem of resistance to changes. People often do not accept changes, because changes replace what is known by something that is ambiguous and uncertain. The most common reasons for resistance to changes, besides uncertainty are: habits, ignorance, inertia, fear - concern for the personal loss (position, money, authority, comfort) and the belief to changes are not compatible with the goals and interests of the organization. vercoming the resistance and taking people for changes often represents a long and exhausting process.

Implementation of the strategy depends fundamentally on the quality of engagement of the available current knowledge, information and technology solutions, or the capacity and quality of research and development and improvement work, which it actual knowledge, information and technology solutions transform the current changes. In the structure of intellectual work, the decrease in share of routine duties and tasks, and increasing the participation of analytical, research, development and improvemants operations is evident. This indicates the need for continuous development and improvement of human resources, knowledge systems, conditions for the development of a knowledge base and educational system of the organization. Knowledge is future key competency of the organization and its stable competitive advantages, a source of innovation and changes and a tool of ensuring their high results. Thereby the same importance is given to institutional and non-institutional education, organized and individual education and education and training for solving practical problems (Ristic, 2000).

The way in the organization solves the problems is an organizational culture. More specifically, organizational culture is a system of mutual understanding and belief which members of the organization, to a large extent, determine the actions of employees (Ristic, 2000). The organization must develop a culture that will encourage creativity and inventiveness. Creativity refers to the idea of combining the skills and inventiveness to take creative ideas and turning them into new useful products, services or business methods, or in innovation.

The processes that create conditions for the implementation of changes are related to the processes that (Ristic, 2003):

- enchance results;
- builds capacity to implement changes;
- define the direction of movement;
- evaluates the existing culture and works to develop positive cultural norms;
- determine strategies to accomplish own goals;
- strengthen the internal conditions which contribute to change;
- is monitored, evaluated (valorized) own process, progress, success and development.

Environment that encourages innovation form three groups of parameters that relates to organizational structure, human resources and organizational culture. Modern business environment of the organization is characterized by: globalization of business activities, increasing implementation of information technology, reduction of product life cycle and high rate of innovation. The increasing rate of innovation indicates that it

is a phenomenon that must be planed, organized, managed, coordinated and controled. The process to develop innovation, their commercialization and profitable exploitation have a character of the project (ISO 10006:1997).

5. PROJECT MANAGEMENT

The basic characteristics of innovative organization is the skill to focus creativity into useful outcomes: new or modified products, services, processes or technology. Introduction of innovations effectively and efficiently is realized through innovation projects. The project is a unique process that consists of a set of coordinated and controlled activities with start and end dates, that is executed to achieve the goal that meets specific requirements, including restrictions on time, cost and resources (Nouks, 2005). The project represents a temporary efforts undertaken to create a unique product or service, or to introduce innovations. Basic features of the project are:

- uniqueness (in terms of the specific objectives of the project);
- temporary nature and uniqueness (the project has a clearly defined beginning and end, the end of the project represents a moment when you realize the project goal, or when it becomes clear that the project objective can not be achieved);
- triple limitation (in terms of the limited scope of the project, time and cost of its implementation);
- increased risk (considering that the project is planned and carried out in conditions of uncertainty and risk).

Except that creates a unique product and/or service, the project changes the ways and methods of adapting technology and market conditions. The project provides a modern organizational structure, in which the organization is changing faster and better than in a cumulative process of adaptation.
The need for effective and efficient achievement of project objectives with the existing limitations and the need for simultaneous implementation of several projects in the organization, implies the necessity of project management. Managing the project or project management represents a application of knowledge, skills, tools and techniques to project activities to achieve project requirements (Kerzner, 2004).. Failures in project management reduce the organization's ability to accomplish its mission in an effective and efficient way (ISO 10006:1997). The basis for the development of project management, represents general systems theory. General systems theory provides the basis and prefers a comprehensive understanding and solving problems, in contrast to previously existing views about introducing a whole based on an analysis of its integrative elements. Project management has been arised by management systems and it is considered to be applied management systems. The terms project management and systems management is now used interchangeably (*Systems Engineering Fundamentals*“, Supplementary Text, 2001). Tempo of introduction project management in the organization followed the tempo of technological development. No project-driven organization have based their existence on products and services, but have had very few projects with identified profits and losses (to 1960). Realistically, many do no project-driven organization have become hybrids, because they eventually formed the project-driven sectors (1960 - 1990). Modern project management is still a hybrid, but with a large number of projects and the predominant orientation towards marketing, engineering, research and development, and not only to project-driven sectors. Organizations recognize the benefits of project management and becoming more and more project driven organizations.
Project processes can be divided into six main groups:

- Initialization process - the decision on how to execute the process;
- Planning processes - defining objectives and criteria for project success and development of alternatives for achieving the goal;
- Implementation process - coordination of people and other resources to achieve goals
- The processes of analysis - analysis of the planning and execution of the plan and deciding on the necessity of implementation of corrective measures;
- Control processes - the determination of necessary corrective actions, their coordination, determination and application;
- Project closure processes - ways of the formalization of the project and its final closure.

Framework for the management of the project consists of (ISO 10006:1997) interested parties (persons involved in project activities or interested in their execution: the project sponsor, project team, support staff, customers, etc.);

- areas of knowledge (the necessary knowledge and on that basis, developed competency management)

- tools and techniques (supporting the project realisation, including: gantt, methods and techniques of network planning, analysis of critical path/series, software for project management, etc.)

The basic fields of knowledge of project managers are: managing the project scope, project time management, cost management and quality management project.
Auxiliary fields knowledge, among others, are: human resources management project, managing communication in the project, managing project risk, project supply management, project management integration.
Management of innovation projects should not be considered in isolation, but in a broader organizational context that includes research and development, in order to achieve competitive advantage organization.

6. CONCLUSION

Survival and development of a modern organization depends fundamentally on the level of project management. Some of the benefits that the organization acquires with the introduction of management innovation projects are: new, competitive products, services, processes and/or technology, better control of changes, increased profitability, better collaboration with customers, increased efficiency and effectiveness by developing a new organization culture, higher levels of quality environment, ie. reduced impact on the living environment etc. Therefore it is necessary to create conditions for successful realization of innovation projects. One of the processes that it is contributing to that is the management of innovation projects. Understanding of potential problems by defining features that should be followed (or ignored) and threats to be answered (or accept), developing and controlling the response to potential risks and initiating the need to improve project management plan, management of innovation projects is the best way to contribute to achieving the objectives competitiveness of the organization.

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ECO-EFFICIENCY AND COMPETITIVENESS OF THE ORGANIZATION

Stevan M. Mušicki*
Military Academy, Generala Pavla Jurišića Šturma 33, 11105 Belgrade,Serbia
mustmilenko@yahoo.com
Dejan M. Vasović
Faculty of Occupational Safety in Niš, Čarnojevića 10a, 18000 Niš,Serbia
djnvasovic@gmail.com
Miomir B. Stanković
Faculty of Occupational Safety in Niš,Čarnojevića 10a, 18000 Niš, Serbia

ABSTRACT

This paper analyzes the correlation between the competitiveness of the organization and flow management organizations, with emphasis on sustainable management of resources, ie. eco-efficiency. Particularly analyzed are the so-called direct and hidden material flows in the organization, by creating links with the tendencies of material savings and increased efficiency and effectiveness of basic processes of the organization.

Key words: Eco-efficiency, resource management, enviromental protection

1. INTRODUCTION

The concept of efficient management of material flows of the organization, ie. the concept of eco-efficiency is often interpreted differently terminology. Initially, the term used to indicate the reduction of all the natural resources in general, including a reduction in the level of individual product, then the level of an industry-wide and the entire economy of a country. Some more concise definition of this term implies a reduction of material per unit ofproduct. On the other hand, some authors consider reducing the use of materials at the level of the entire economy. As acceptable, we can adopt the broader definition that includes the reduction of natural resources used in individual products within the organization and the reduction of the level of the entire national economy. To the reduction of the use of materials, ie. commitment of resources at the level of individual products, is often used the term An ecological efficiency, ie. eco-efficiency. Of course, it is important to understand how the reduction use of artificial resources at the level of product and small companies contributes to the management of resources at the level of the entire state economy. It can actually contribute significantly to improvements in individual production in organizations. However, improvements in the manufacture of a product can easily be annulled negative effects in the production of another product of economic growth at the state level. On the other hand, these changes in the structure of the economy can lead to more efficient resource management at the state level (Shütz ,Welfens, 2000).

An effective process of sustainable resource management requires the fulfillment of the following preconditions:

- The current consumer policy in the market must be replaced by a new concept of sustainable production and sustainable consumption;
- They must develop and implement an indoor Industry-cycles;
- The incorporation of environmental policy in the current political and economic conditions;

- Prioritising prevention strategies;
- Stimulation and support of voluntary activities as the main driving force (Host,2005).

Modern examples of increasing the level of eco-efficiency while improving competitiveness may be related to the intensification of intangible services, such as, for example, digital goods. For instance, traditional libraries are being digitized, thus providing better and more accessible services to customers, thereby eliminating the need for further printing of books, and therefore the use of natural resources ie. wood. Eco-efficiency is in its early forms occur in the second half of the twentieth century, with the first conservation movements, which strengthen the development of the first decade after the Second World War. Exploitation, processing and use of natural resources changed over the course of history as it is the base social development, ie. economic base enabled. Stone and wood are the first resources that the man used as building material, a few millennia, until they were replaced with concrete structures that are more efficient. Today, for example, in almost all spheres of production are introduced advanced polymer composite materials and alloys. The above examples show how, throughout history, over a cycle, the shift occurred in the choice of type of materials used in such a way that reduced the volume of material that a man needed to satisfy one of the necessaries, while on the other hand, application value of the new material was not less, or, in most cases, higher than the old material. Studies that emphasize the importance of eco-efficiency must take into consideration life cycle analysis (Life Cycle Assessment), which gives a full picture of the used resources. The mentioned replacement of materials can be inconstant over time, while the range of materials that are used more and more extended because of the introduction of new technology, while changes in many production processes occur faster than changes in the overall structure of the economy. This imposes an alternative way to track trends related to resources, which can be provided long-term studies that need to be divided into cycles (Host, 2005).

2. SUSTAINABLE RESOURCE MANAGEMENT

Modern humans is practically impossible to avoid environmental impact, but therefore he can be minimized adhering to certain principles, chief among which is the minimization of environmental impact, and this is achieved by efficient exploitation of resources. Efficient exploitation of resources, on the one hand, reduces the amount of material that must be extracted from nature, which inevitably made a negative impact on the environment, while taking care of the efficient utilization of resources extracted and the implementation of closed circuit reduces the amount of industrial waste of materials of any kind that be must be deposited. With this are compatible the basic principles of sustainable development (author's choice), which include:

- integration,
- precaution,
- renewability of resources,
- preventive action (Radak et al., 2005).

This is not a list of all the principles of sustainable development, but others are largely derived from them or have them covered. The principle of regeneration is, in fact, often reduced to the natural stock of a resource, whether it comes to energy or raw materials. This principle is contained in a number of activities, from increased efficiency, ie. utilization of resources, increased savings by reducing losses or, say, increasing recyclability. In the EU legislation all the activities of related savings of resources are called eco-efficiency. Reproducibility is, for now, relatively little represented in the EU legislation (whereby the material flow in EU economy is relatively small percent of renewable resources, at the best case 9-11%), probably for two reasons. One is that commercial requirements governing the care of the natural resource-economizing: currently losses in the resources that are not recycled do not burden too many companies. The second reason lies in the fact that today is hard to penalize businesses that do not adhere to the principle of regeneration, given that the entire world economy still relies on a non-renewable resource - fossil fuels. However, it should be noted that the principle of regeneration resources incorporated into the overall EU policy towards the environment and will, sooner or later, be fully implemented.

Sustainable development, as defined in the Brundtland report, includes the environment and resources, economic and social development and other factors of quality of life. Simply put it is on the use, preservation and restoration of all the resources of the earth and the consciousness that the life of future generations depends on what we do and how we behave today. Resources on Earth are enormous, but finite. Sustainability means, at least, the preservation of these resources, ie. state's core capital. Professor Baldwin, 1969. , in his article "Spaceship Earth", compared the planet with a spaceship that has a limited amount of energy and material goods. With the energy situation is much better, because the ship can use solar power, but material goods there are no solutions, except that the ship carries. For the passengers to survive with materials must act very rationally, that is. waste products to be translated into a resource which is reflected in the aspect of sustainable development. In a simplified reducing the environmental protection only to protection of nature ignores the issue of excessive consumption and the need for rational management of resources.. Analysis of a product life cycle (Life Cycle Assessment - LCA) and the balance of material flow leads to some interesting data: (Shütz and Welfens,2000)

- In Germany, over the year from the Earth (nature) is removed 70 tons of materials per capita. This means that 400 million people of developed Europe spends 28 billion tons of natural resources. This makes the composition of one billion and 400 million wagons, 35 million miles long, which can 875 times encircle the Earth around the equator. So, all that is consumed in producing goods and services necessary for life and then discard into the environment, usually in the form of communal solid waste.
- In Austria, every resident annually appropriates 12 metric tons of goods (including structures) which will eventually become waste.
- The production of a personal computer extracts from the earth six tons of materials.

These data indicate the extent to which the care of resources is neglected, and the situation is alarming. Waste management must be linked to the rational management of resources, and thus the competitiveness of organizations. Thanks to the development of technology during the Industrial Revolution, labor productivity is highly increased, while the resources were not particularly worried. Until the industrial revolution, man well tooked care of resources. That is why many have advocated the need for another industrial revolution, which will lead to improved efficiency of resource use. It should be borne in mind that this is not the whim of a high-tech developed countries, but totally necessity, given that we, the current global population growth and increased production and consumption will soon require another planet. Some countries have already developed their overall material and energy balance (Material Flow Account) that supports these conclusions (Nowak et al., 2005).

3. ECO-EFFICIENCY AS AN INTEGRAL PART OF THE STRATEGY FOR SUSTAINABLE DEVELOPMENT

If we adhere to the accepted definition of sustainable development, the continuation of the current trends of production and consumption that exist in industrialized countries, which are gaining acceptance and developing countries, can lead to a collapse of vital functions of the Earth (Radak et al.,2005).

The basis of sustainable development is to link economic, social and environmental objectives and their unification, ie. appreciation of inter-generational justice. Economic prosperity should be achieved on the basis of ecological balance and equal opportunities for present and future generations. Environmental problems are associated with economic activities and economic development. While the Traditional environmental policy was focused on the ultimate effects that directly threaten the environment (wastewater, waste, air pollution, noise ...), more recent approaches emphasize the importance of increased utilization of resources as the basis for solving the problem of environmental pollution. Discussion on sustainable development has directed the research efforts on the quantity of materials and energy that flows through the national economy, since it is indisputable that this is the main cause of pollution of the environment, because, as mentioned, if it does not develop and promote recycling of all material goods when-eventually become waste. The structure of initial and manufactured goods largely determines the intensity of environmental problems - the more technological processes in the transformation of natural resources, the greater the impact on the environment is. However, almost any

change of materials directly causing environmental changes without the need for transformation into a highly negative products. Specifically, the growing flow of materials and energy in the global economy is the primary cause of most environmental problems. It is not possible to use some technology to it in one way or another does not cause changes in the surroundings. Renewable energy sources are by no means exempt, as is their need to cultivate the fields are irrigated, it must be transported and processed. This also means that every recycling, each wind generator and solar collector each has its own particular ecological cost. Examples of possible reduction of energy use (energy efficiency programs), more economic use of water in paper production, households and agriculture, restrictions on industrial pollution, and support products that have a longer life, etc.., leading to a reduction in energy use that is now used to the reduction use of materials that are used in industrial countries. As a result, higher levels of eco-efficiency can be achieved in the next few years.

In some countries there is a perception that this significantly improved eco-efficiency can be realistic and reasonable goal that will ensure sustainability and stability of the economy. As mentioned, it needs a lot of time in order to achieve this goal. In order to divert the current economic development to sustainable development peak flow of the material must be reduced at least of one-half of global level, which is not unattainable due to the fact that about 20% of the world's population live in highly industrialized countries, which use 80% of world's natural resources . In some extreme backward countries in Africa the concept of waste does not exist, everything is used up to the moment until it falls apart and return to its natural state (Haake, 2000).

One generation of a nation can several times to improve eco-efficiency when it comes to energy use, natural resources and other materials. It takes a period of fifty years to is technical, social and economic dynamics of development adapted without major conflict with the needs of economic sustainability. This is much more realistic if the population of post-industrial developed countries take into consideration fact that intangible services, which are highly developed in the tertiary sector of the economy, certainly, though indirectly, the burden on the environment. The new policy of environmental protection in developed countries must be focused on increasing the utilization of resources. Effective environmental policy that takes this into consideration requires a strong commitment to increased utilization of resources and increasing the role of market forces and competition as a strategy for better awareness of the consequences of that neglect of the environment can have. The concept of eco-efficiency provides a basis for long-term economic and environmental development, since it prevents the emergence of environmental problems at the source (Haake, 2000).

Valid data on physical flows materials and energy within the economy of a countries are a precondition for achieving sustainable environmental policies. Currently, only a few countries, consists of annually flow materials statistics: Germany, Japan, the Netherlands and partly the U.S.. Wuppertal Institute in Germany has developed a methodology for calculating the flow of materials (Shütz and Welfens 2000). According to this methodology, the input materials is the ratio of the total flow materials and energy and includes not only materials that are directly used in manufacturing, but also those who were left on the side. This method allows assessment of total resources needed (Total Material Requirement) for a national economy, including all imported and domestic natural resources. This approach focuses on the sources of material and energy flow, which is completely different from measures to reduce the extreme negative effects, that are currently used in environmental policy. TMR is sum of total utilized resources, including hidden or indirect flows of materials. Knowledge of TMR of a national economy gives us an excellent possibility to assess the potential impacts of the environment. TMR is divided into direct flows of resources (Dorect Material Input) and indirect flows of resources (Hidden Flows) (Shütz and Welfens,2000)

- Direct resource flows represent the flow of goods created from the natural resources that enter the industrial economy, for further processing/consumption. This category includes, for example: grains in the process, crude oil which is sent to the refinery, the metals used in the metal industry, etc.. Considering the demand of system standards ISO 9000 direct flows of resources may be linked to basic processes in an organization.
- Indirect flows of resources are part of the total requests for materials that are not by themselves involved in a product, but, in some way involved in the production of that product . Analogous to

the previous case, the notion of hidden streams can be connected with extra and management processes within the organization.

4. STRATEGIES AND INSTRUMENTS OF ECO-EFFICIENCY

Eco-efficiency strategies are necessary things that on the most efficient and environmentally desirable manner define use of resources in organizations. These strategies should be covered the entire life cycle of a product, ie. from extraction of raw materials, which are necessary for its production, to the handling this product as waste. The traditional instruments of preserving the environment, especially those used in the legislation, are not the least suitable for sustainable economic development, because they deal with extremely negative effects, and for their implementation requires large amounts of money. Ecologically based reform in the economy would enable the environmental objectives easier to achieve. Here the advantage of the concept of eco-efficiency, is obvious to see when compared with the specific policies applied of specific conservation problems.

There are several policy instruments that affect all phases of product life cycle, such as volunteer of guidance to increase eco-efficiency in the organization (analogous to the introduction of quality management systems in the organization that are being implemented on the a voluntary basis), the reform of existing economic patterns, with respect to the postulates of eco -efficiency, promoting the use of secondary raw materials and reuse of materials, certificates of end products, such as ISO 9000, etc.. In some countries these strategic instruments are defined as conditions that need to be reached in order the even thinking about eco-of efficiency (Nowak et al., 2005). In addition to strategic instruments there are a number of instruments that are focused on specific phases of the product if which are energy efficiency, extended shelf life guarantee, eco-files, eco-labels and so on.

5. EXAMPLES OF ECO-EFFICIENCY

As the global trend, the analysis shows decrease in the amount of resources used per unit in most developed countries, thus supporting the conclusion that modest change is taking place. Eco-efficiency in developed countries will be accompanied by increased use of resources in developing countries, whereby these effects can be reduced or neutralized. In countries in transition exists considerable potential, when the eco-efficiency comes because of excessive use of resources due to the general inefficiency of the mechanism is still not a market, which will quickly notice a complete transition on the a market-driven economy. Effects of eco-efficiency in countries in transition need not be large, as is the case in western countries, due to the unavailability of new technology. Eco-efficiency can be a new element of environmental policy in these countries (Nowak et al, 2005). Increased availability of resources with long-term goal of achieving a higher level of environmental quality and promoting minimization of losses and waste and recycling practices may be the main factors of environmental protection in countries in transition. Strategies for effective promotion of eco-efficiency in these countries should include three integrated components:

- increased availability of resources as an essential part of future conservation strategies;
- pollution control as an additional element that is essential in preserving the environment;
- improved land management (as a natural resource and an integral part of the environment).

In the present, let's hope the final phase of transition, the system of economic instruments serves more rational use of materials and resources in production and consumption. Some of these instruments that address issues of eco-efficiency of the economy are:

- financial burden when it comes to the use of the environment, but also benefits companies that have engaged in the recycling;
- negative marketing points for the improper exploitation of environmental resources, as well as pollution.

6. CONCLUSION

The principles of eco-efficiency must be implemented in the long term national development policies of each country that sees its orientation on the the road to sustainable development. Given that the concept of eco-efficiency is relatively new for countries in transition, in which our country still is, it would be necessary to begin the implementation of the program (so-called early vinners) which, in the short term, yielded positive results and so on motivating interested parts of the public (Musicki, 2009). Eco-efficiency requires the use of multiple instruments, where it would be most appropriate to use only the positive aspects of each instrument, and at the same time minimize adverse effects, which should lead to long-term structural changes the move towards environmental development. Structural changes caused by the policy of eco-efficiency will provide the the winners and losers. Given that the principles of eco-efficiency are partly different from those of the traditional policies of environmental protection (eco-efficiency reduces the input, ie. reduce the initial material and energy flows that inevitably lead to the ultimate adverse effects on the environment, what they do the traditional instruments of environmental environment), all traditional instruments of environmental policy should be revised, while maintaining a positive experience.

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CREATIVE PORTFOLIO STRATEGY AS A MODEL OF MANAGEMENT IN MEDIA COMPANY: AN EXAMPLE OF PUBLIC BROADCASTING

Biljana Ratković Njegovan*
Faculty of Technical Sciences, Department of Industrial Engineering and Management, Novi Sad, Serbia
e-mail: biljananj@neobee.net
Dušan Đurašković
e-mail: dusan.djuraskovic@gmail.com
Branislava Kostić
Faculty of Technical Sciences, Department of Industrial Engineering and Management, Novi Sad, Serbia
e-mail: kosticb@uns.ac.rs

ABSTRACT

This paper deals with issues of functioning public media companies in the context of new technological possibilities of communication media and a keen commercial competition. A creative and dynamic portfolio has been proposed as a possible model of business strategy. For a media organization that means the transition from traditional to modern business concept, which involves researching the characteristics, processes, challenges and impact of the portfolio of media products. Special attention is given to the balance of the portfolio and orientation on the quality of the content of media products.

Key words: media, management, portfolio, public service broadcasting

INTRODUCTION

It is generally accepted that public media is at "an inflection point" and disrupted traditional balance (BBC, 2010), so in the following years broadband must adapt to challenges and possibilities brought by digital age. The expansion of services through multiple channels and platforms offers more choice of programs, increases the diversity of content and improves the availability of both existing and new services. In the light of the new opportunities that the Internet provides, public media has a strong chance to expand its mission and values for this new medium.

It is not only imperative for development of electronic architectures the one imposed by new action strategies of Public Service Broadcasting regarding the overall organization of work - commercial, journalistic and economic practices (Lawson-Borders, 2006), but also increasing criticism of the commercial communication directed to public broadcasters for exceeding the powers of public media. Commercial media competitors openly ask the doctrinal question of legitimacy of public broadcasting, arguing that the regulated public media systems emerged in the period of the media spectrum scarcity, which are now obsolete, and that their monopoly position provides an unfair competitive advantage.

There are, however, optimistic predictions about the future of Public Service Broadcasting (Jakubowicz, 2006) since the "unlimited" offer from commercial broadcasters is not realistic and the positioning of new media organizations that would attract such a large audience is always a slow and difficult process. Collins (et al., 2001) states that PSB must have its position in this century as well, but the nature of this position will depend on the strategy chosen by PSB itself and the corresponding support from the government, then on the strength of public broadcasters to conduct technological changes and the quality of programme choice capable to withstand the pressure from commercial competitors.

Therefore, the management of public media companies are to define a strategy to maintain the principles of public service in communication with the audience, organizational adaptation to service convergence and creating the content useful for the community.

BALANCE: SETTING THE BOUNDARIES

Public Service Broadcasting must orientate towards audience universality (Collins et al, 2001:8) – mass and fragmented, offering the contents which may not be profitable. Hence the traditional model of PSB ought to be examined, which means the following: a) overcoming a critical issue of ratings as the only form of audience measurement; b) accepting non-standardized audience measurement; c) introducing the offer of non-linear programmes; d) allowing a larger number of channels; e) delivering newer productions and services through a wide network (Ratković-Njegovan, Radenković, 2010).

Here a question is arising, and this is what combination of new media activities may maintain the mission of public Radio Television of Vojvodina in the long-term period. Clearly, the answer to this question cannot be provided easily. Jakubowicz (2006) thinks that there is not the proper strategy, and if there is one, its success is unlikely. That is why it is perhaps more opportune to discuss the dimension of evaluating PSB, which includes quality, reliability and credibility, innovativeness, diversity, social impact, audience share. Van Meurs (et al., 2006) adds reach, cost efficiency and effectiveness.

In the digital age, with no natural restrictions on the transfer of media content, it is easy to lose focus regarding the width of the portfolio of media products, and the lack of real vision and strategy can lead to deterioration in the quality and loss of identity of PSB. Hence it is necessary to put emphasis on product quality according to the principle the less, the better. The essence of this compromised attitude is based on the fact that, despite the large number of broadcasting channels and excess of offer and repetitions, the right information today is really rare.

On the one hand, this means that public broadcasters are not required to produce all the types defined by the Law on Broadcasting, so if something is unattainable for the national broadcaster in terms of quality and price - it can be bought from other broadcasters. On the other hand, the other questions remain open: what information services should be offered as public services; what are the strategic functions of multi-platform participation of PSB, should public service, and to what extent, develop individualized services (DG Competition, 2004); how to charge?

PORTFOLIO DEVELOPMENT

Faced with tough competition and cultural, political and economic struggle for the attention of the audience, PSB should change fast their old-fashioned, patriarchal and elitist position (Murdock, 2005) and modernize radically.

New opportunities for development perhaps lie in diversification and portfolio development. Media companies might either expand their business beyond the traditional media areas into new media, or they might build up a portfolio of different media products to complement their offerings (Achtenhagen, 2005). The fact is that traditional media product, designed to the requirements of the mass audience, loses its effectiveness due to the transformation of the market into fragmented segments. Traditional media products are facing maturing or declining stage of its life cycle.
Therefore it is necessary to focus on four areas of activity of media organizations: portfolio entrepreneurship, dynamic processes, flexible organization and inspired leadership (Moser-Wellman, 2007). Intensive orientation of media organizations to portfolio strategy is conditioned by the following reasons: diversity of programme, increase in the number of business areas and

their diversification, the need for simultaneous development of new business concepts and new communications products, investing in services and media products in the market rise. Portfolio strategy is based on the model of prediction; it refers to the high business risk and experimentation, so necessarily involves the readiness to respond to losses by new quick attempts (risk culture). This entrepreneurial orientation requires dynamic internal and external processes and development of innovations at all levels, bearing in mind the following imperatives: create a business development function; fixate on the consumer; revisit and adapt the business strategy; invest in technology; have dynamic relationships with the public; create flexible organizational structures, recursive and self-transformative organization (Moser-Wellman, 2007).

THE QUALITY OF THE CONTENT, ABOVE ALL

Innovations in the field of audiovisual media are most evident in the production, design, method of delivering media content and the interaction with clients. In virtually unlimited participatory and interactive multi-channel environment, it is necessary to create programmes of high quality and deliver them most efficiently. The quality of content is an essential element of attraction and the most important element of credibility of a program.

The orientation to Public Service Content, or new media content over technology, means investment in supply not in demand (Lopes, 2005). A television channel's programming should be conceptualized as assets and optimized as product portfolio (Litman et al., 2000). Unlike financial portfolio, where risk reduction and profits from the total portfolio of investments are in the focus of their creation and management, in the case of media products of PSB the accent must be on creating information as the public and general "communication good" (McQuail, 2003). To achieve the principles of efficiency and effectiveness in achieving its vision and strategy, the management of PSB must choose the products for its media portfolio that are of great value for the audience, make a significant contribution to the company in fulfilling its social function and have relatively low investment and operating costs.

When creating its portfolio, a media company chooses one of the generic strategies of diversification. Sjurts (2002) lists the following: a) intramediary diversification refers to vertical diversification into prior or later value chain activities within the same media industry; b) intermediary diversification can take place into related, unrelated or converging media industries and might reduce the threat of substitutes in customer or advertising markets; c) extramediary industries not related to media. There are numerous internal and external factors contributing to the decision on the choice of generic strategy such as: availability of resources, market possibilities, development trends, personal preferences of managers, etc. However, it seems that it is crucial to select the desired market segment where we want to do business.

Conversely, introducing portfolio products into the offerings of a company imposes conceptual and pragmatic changes within the company itself. Diversification beyond the first product can be viewed as an entrepreneurial process, resources need to be acquired of crucial importance here are entrepreneurial and strategic thinking skills as well as the financial resources needed to finance the product launch (Achtenhagen, 2005). As the size of product portfolio is getting bigger, some significant changes may be necessary within the company's strategy, organization and administration as well as in the activities for the development of products, marketing and services oriented towards clients (Picard, 2005). Figure 1 shows the relationship of portfolio management with other key elements of the organization. The focus is on creating values for a client / audience. The value makes other processes work. All other internal and external activities of the company must be subordinate to vision, mission, strategy, portfolio management and entrepreneurial management (Figure 1).

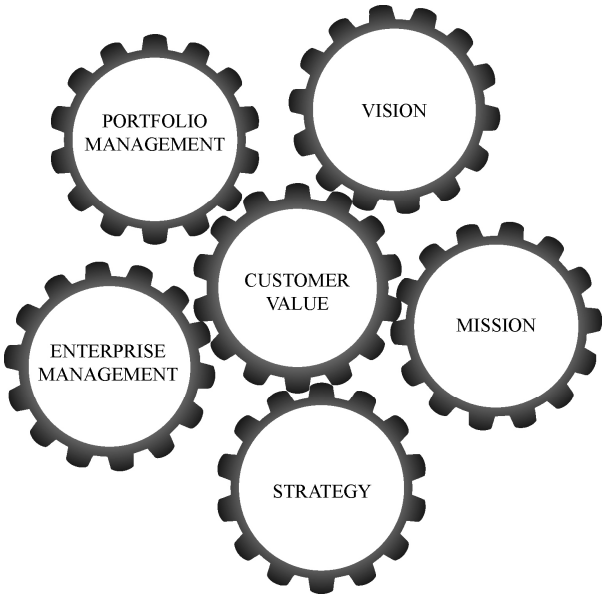

Figure 1: This representation of the corporate environment as a planetary gear shows customer value as the central driver (Mello et al., 2006)

The portfolio strategy implemented by a company must be elaborated so that it considers all market opportunities and neutralizes current threats or foreseen threats. At the same time the company must value its strong points, by referring to the competition. It is based on an optimal combination of three key elements of each portfolio: portfolio balance, attractiveness of market segment and potential synergy between products and market (Johnson and Scholes, 2002). The concept of synergy is related to the terms of economy of scale and economy of scope, and it is based on the assumption that certain products may have a better result in coordination with other products from the portfolio than independent business units may have (Campbell and Luchs, 1992).

The strategy is based on the growth as a component defining the direction of the company's future performance, on competitive advantages, and on strategic flexibility. This matrix includes planning of resources and investments, and analysis of prices and quality competitiveness. The analysis can suggest which activities should be eliminated and which retained and possibly developed later on (Todorovic, 2003). More radical interpretations of portfolio strategy are based on the concept of agressive growth of media companies' income and modifying the strategy from being bottom-line to top-line.

In portfolio analysis of media organizations we observe only businesses that can be called strategic units, which in the case of PSB includes news and educational programming, local programme, formats conformed to national requirements, children's programme (niche products), programme for minorities, older and poorer population, all in accordance with the marketing tribal strategy (micro-niche products). The analysis leads to real facts which products should be kept and which should be eliminated, in which products we should invest more or less and which new products should be developed.

CONCLUSION

In this conceptual-descriptive text we appeal for the survival of public media, in terms of their defined roles to inform, educate and provide entertainment for citizens by their original content, and also to enable them to meet a wide range of their needs, under the motto: people must feel that PSB is theirs.

Such strictly set requirements impose a business strategy formulated in the way that each product contributes to the social role of PSB and values for audience. In other words, this refers to devotion to quality, aesthetic and ethical values as well as for popularity.

PSBs are large and structurally complex pyramid organizations with a long European experience (over 80 years), and all have gone or are going through the phases of evolutionary flow from monopoly, managed economy, multichanel and multimedia to fully digital (Suter, 2005).

Strategic behaviour directed to the dynamic portfolio requires an integration of competencies, hierarchies, strategies and tactics (Mello et al., 2006). Management of media organizations must flexibly and responsively adjust its portfolio concerning the following:

- Organizational structure;
- Offer of media content;
- Orientation to both massive and fragmented (strategy of differentiation);
- Orientation to three most important technological and communication domains: digital, diversity and dialogue.

The key to the selection of product that contributes to sustainable business is in what serves as a high value for a media consumer. The fundamental problem lies in the criteria for selection and evaluation of effects of products and portfolio as a whole. Everything indicates that the measure unit of success is a value for audience. The challenge is how to reliably materialize the value so quantitative analyses of performances can be conducted.

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Session B: OPERATION MANAGEMENT

Papers (pp. 131-190):

SOME CONSIDERATIONS ON THE DEVELOPMENT OF THE INFORMATION SUBSYSTEM FOR PRODUCTION PLANNING

Bozenko Bilic*
Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, University of Split Croatia, e-mal: Bozenko.Bilic@fesb.hr
Miroslav Radojicic
Technical faculty, Cacak, University of Kragujevac, Serbia
e-mail: miskoradojicic@gmail.com
Ivica Veza
Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Split, University of Split, Croatia, e-mal: ivica.veza@fesb.hr
Zoran Nesic
Technical faculty, Cacak, University of Kragujevac, Serbia,
e-mail: zornes2002@yahoo.com

ABSTRACT

The information subsystem for production planning is an integral part of enterprise information system. This paper highlighted some of segments for production planning. The paper presents various aspects of development of the considered information system, such as the flow of information, necessary for analysis of planning, database and application of multicriteria analysis. The accent is based on the specifics of production planning for implementation of information technology to support this issue.

Key words: Information systems, production planning

INTRODUCTION

Production planning is an essential element of each production businesses. The basic feature of planning is based on the optimal choice of the best alternatives for the projection of the future state of production. A large number of influential factors must be taken into account when forming the plan. They are of diverse nature: economic indicators, human resources, unstructured problems that appear every day in practice (Nesic at al., 2006).

Support of computer technology in the implementation of integrated information systems, at the same is of great importance. Although, the function of production planning process in collecting and processing information for this purpose, can be considered as an information subsystem. It is necessary to use data of a large number of other organizational units of the company. Many authors define a concept of integrated value chain, which defines the integration of organizational units and therefore their information.

Starting at mid-century have been developed computerized systems for interrelated business activities. Some of them are: MRP – Material Requirements Planning, MRPII – Manufacturing resource planning, ERP – Enterprise resource plannin, SCM – Supplay Chain Management. The integrated solution called Material Requirements Planning MRP allows integration of the information of all company resources. It promises benefits ranging from increased efficiency to improved quality, productivity and profitability (Appleton 1997). Palaniswamy and Frank (2000)

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cited examples of significant achievements of manufacturing organizations as a result of the implementation of ERP.

Today, there are a number of concepts used in the production planning. They are of a large extent based on the criteria optimization, to determine the best production plan (Pochet 2001). Among the most widely used is Hierarchical Production Planning - HPP (Hong at al., 2004; Aghezzaf at al., 2011; Venkateswaran at al., 2004). Torabi at al., (2010) proposed the inclusion of fuzzy theory in the HPP structure and combine the two levels of multiple criteria (Torabi at al., 2010). Fuzzy hybrid approach now becoming more accepted by many authors (Liang 2008; Jamalnia & Soukhakian, 2009; Baykasoglu & Gocken 2010; Aliev at al., 2007; Qin at al., 2011). In addition, a common approach to forming the optimal production plan is a creation of simulation algorithms (Irdem at al., 2008; Orcun at al., 2006), and hybrid approach (Vasant and Barsoum 2010). Some of the other approaches in the planning of production meet Discrete models (Radulescu and Radulescu 2008), goal programming (Leung and Chan 2009) and others.

In this paper, the primary accent is placed on some major aspects of the formation of information system for production planning, flow and use of integrated information

CHARACTERISTICS OF DEVELOPMENT OF INFORMATION SUBSYSTEM FOR PRODUCTION PLANNING

The main reason for this is a complex relationship of the service for production planning with other organizational units of companies. Interconnection of these units is not only a function of achieving plan. Production planning implies or is under the influence of development strategy of a company, introduction of new technologies, establishment of personnel policies and employee training, long-term policy of company, influencing factors of external environment.

Indisputably it can be concluded that the function of production planning achieves its direct or indirect connections with almost all aspects of business operations. However, at the exercising of the functions of planning, the most direct information flow is between (Nesic at al., 2006):

- logistics sector that gives the information needed for production planning
- sectors in which are updated component structures
- Marketing Service that based on market analysis and customer requirements provides an assessment of the possible sale of products
- sector Plan, based on obtained information, forms the specific production plans

Information of the *logistics* primarily relate to current problems of direct production and warehouse operations. State of parts inventory in warehouses and features of Just In Time supply are of significant importance for the formation of short-term production plans. Logistics sector actually provides complex information about the current functioning of the entire production. State of machinery and equipment, the possibility of using production capacity and material resources, energy and materials are just some of the operational information, of the logistics that must be taken into account in production planning.

Sector in which are component assembly updated is a member of basic technological services in which are lead evidence of parts and assemblies required for installation. The importance of of this organizational unit is particularly evident in the production of complex products with many parts. Based on the structural components are obtained information of the necessary parts to produce, their quantity, their potential replacements, quality. Starting from a complete product , by structural component are obtain data required for the installation to the most elementary level. Such information are of great importance for the ordering from suppliers, analysis of financial investment and the overall production capabilities.

Service of marketing is certainly one of a key functions required for production planning, primarily because of market analysis and possible product placement. The most important information for market research function relating to the movement of sale, market demand for new or existing models, the analysis of prices, consumers, competition. It is undeniable that such a complex system of marketing information services as a key basis for the creation of production plans.

This is necessary to add the next most important information for production planning from other functionally related entities:

Supply service - Information of this service are important for production planning in terms of the possibility of obtaining components, materials and energy from current and potential suppliers.

Service Quality Management - Quality Function is an essential element for planning and product placement. This information are primarily related to maintaining the quality of the final product with different aspects. It is important that the quality of of the final product depends not only on the many factors influencing in the production companies, but also on the quality of components for installation from a supplier. Information of the quality implementation are derived from internal (manufacturing organization) and external sources (markets, customers, customer service).
Human Resources - General information service for human resource management related to the analysis of current and required staffing resources in order to form a potential production plans. Short-term production plans require information on the required engagement of existing staff resources. Long-term plans influence the formation of complex products analysis of personnel policies, training and economic indicators associated with it.

Information of this *service for the development and advancement of technology* also have significant influence on formation of both short-term, and long-term plans. Permanent improvement of the production process, reducing the time of some technological operations due to the introduction of automated equipment, Just In Time method and a large number of organizational processes, allows changes in the procedure of planning.

Output information from the *service for economy* are financial analysis of business operations, assessment of financial resources for investment production and acquisition of materials and energy, budget efficiency and profitability, as well as many other economic indicators of planned and actual production planning.

Top management undoubtedly forms the basic information that can be taken on production planning. This information are primarily related to business policy and unstructured problems that face every day in practice.

Sector for production planning, on the basis of obtained information, forms the specific production plans . It is common for plans that the time dimension can be Daily, Weekly, Monthly, Quarterly, Semi-annual, Annual and Long term.

Figure 1 shows the basic flow of information between organizational units . From the figure can be seen the central place on obtaining large quantities of information of various types. Among the most immediate information of integrated information systems can be enumerated: Estimation of market analysis, Financial resources for investment in manufacturing, Information of supply opportunities to suppliers and components, Stock status in warehouses, Information of structure of assembly for installation, Information of the production, Information of human resource, Information of technological capabilities, Assessment of production quality, Information of managers with unstructured nature. The output informations of plans shall be transmitted to the management , in adopting and issuing the request for production.

The database represents the basis of of any information system, and thereby to the information system for production planning. Since that this system forms a part of an integrated information

system of business organizational unit, it is necessary to use a relational model of shared databases. It is characterized by the use of the data established within the overall information system. Primary databases, necessary for implementing this information system, are (Nešić at al., 2006): Database Positions (a list of all positions from which are product is made), Database Replacement (a list of positions that are a substitute for the preferred position), Database Suppliers (list of suppliers for all items with dual display suppliers) Database Warehouses (inventory in warehouses), Database Payment (a list of suppliers with payment method), Database Incomplete (still incomplete list of for each phase of work, for a specified date, with exact location).

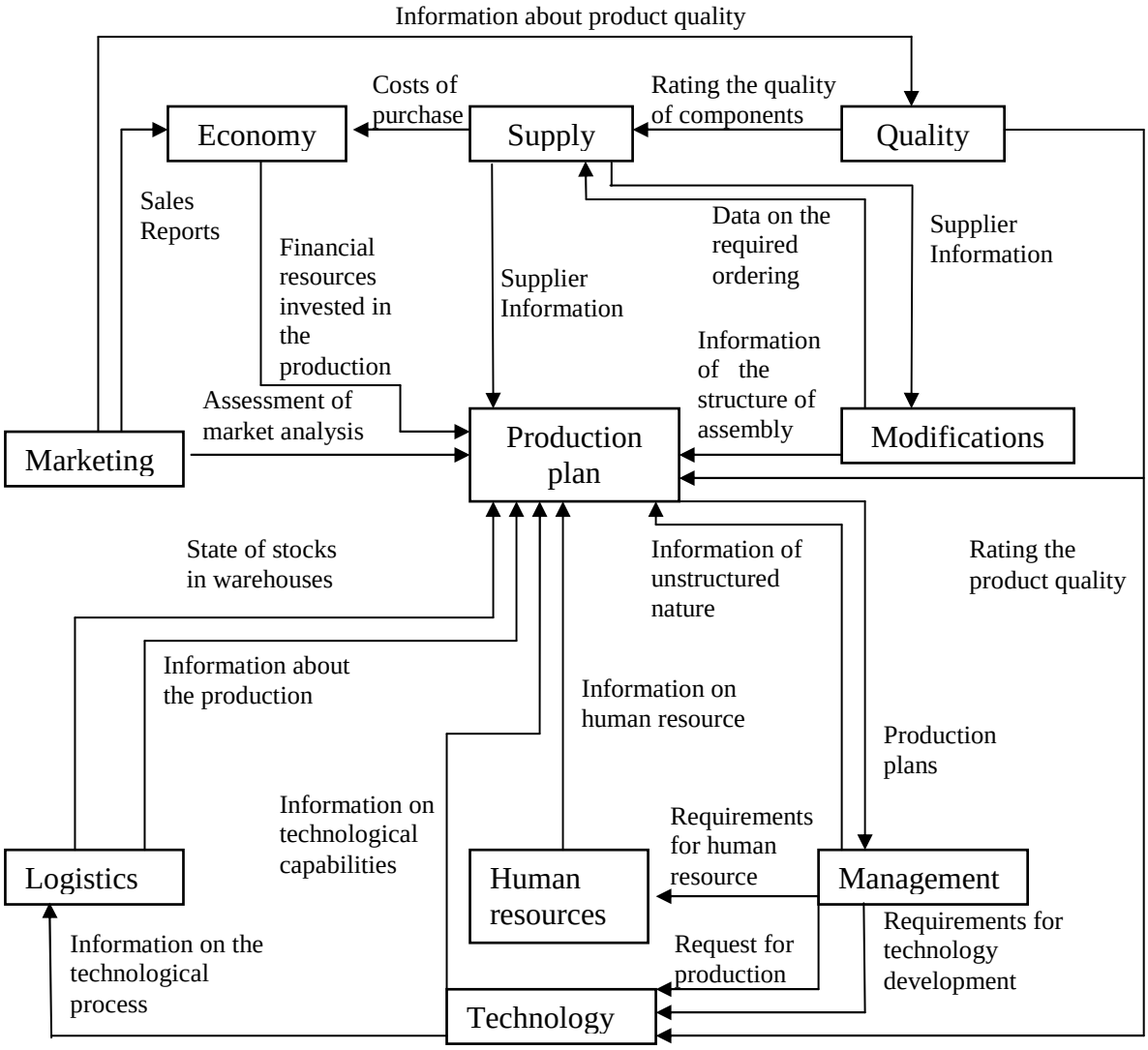

Figure 1: The global flow of information of organizational units.

More complete analysis of influential factors, in forming plans of production, includes the following bases: Database Market (information of product sales, prices, market demands), Database Personnel (information available of required staff engagement), Database Quality (information of achievement product quality), Database Technologies (information of the technological characteristics of production, Database Management (information from other important aspects of current of production). Figure 2 shows a general schematic model of interdependence between these entities. From Figure 2 can be seen the use of a large number of databases, with heterogeneous character, formed by the entire enterprise information system. Presented general scheme of the database model showing the interdependence information for formation of plan. The presented model indicates possibility of the formation of relational links between tables of some databases in order to obtain the necessary information. The picture shows

just some of the most important groups of data. Application of the database of structural components for processing the most important information for production planning, has the greatest significance in the case of complex products, with many components and subassemblies. Automatically obtaining information of the interdependent assemblies, using the database, could be made by multiple relational tables with a recursive relationship. This provides us with information from installation of some components "in depth", starting from of the final product , to the last level of installation. This provides many information needed to form a production plan. The most important are possibilities of producing a certain amount and series of some products and specifications of the required investments for the production and quantity of series

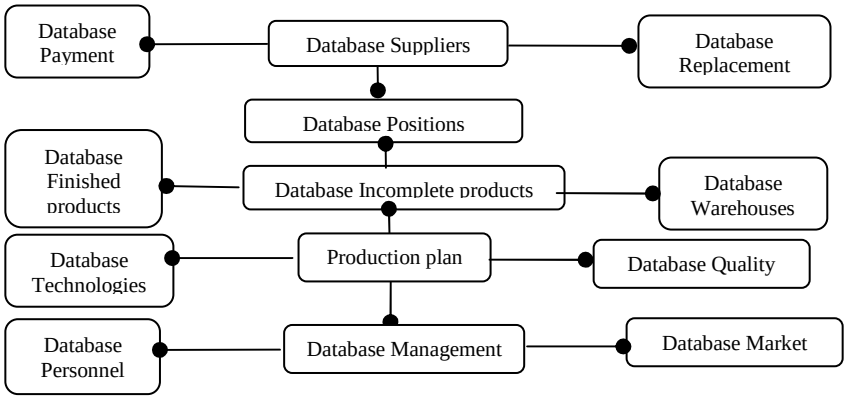

Figure 2: A general schematic model of interdependence between entities.

By placing relationships between table with structural components andother database tables (Suppliers, Payment ...) it is allowed accurately obtaining extended information for the planned volume of production. For each planned volume of production is, in this way, obtained accurate information of the financial statements, available components and materials and many others.

It should be noted that in this way can be simulated a future state of the entire organizational unit, in considering all possible versions of production plans. In this way, are created conditions for selecting the best production plan and the basis for the application of optimization methods in this subject. Considering the diversity of influential factors, in forming the plan of production, application of criteria optimization can be a next step in improving the selection of the optimal production plan. Radojičić at al., (2010) analyzed in detail possibilities of application of criteria optimization in production planning. The study was proposed the following model of criteria, taking into account their preferences: Market neends, Production capacity, Financial resources for production, Labor force, Profitability, Possible supply problems, Stocks of finished products, Stocks of material.

CONCLUSION

This paper presents a review of the flow of the most important information used in integrated information systems for production planning. According to its characteristics in terms of requests for information, it can be considered as the information sybsistem of the entire information system of organization. The paper discusses the general and the most important segments of information for the planning of production, their flow, databases and training system using of criteria optimization. It can be concluded a large number and complexity information for using this information system. Here is pointed importance of using product structure in the implementation of planning. By relational linking to other tables of information system can be obtained many business parameters for simulation of models for some producion plans. Displayed consideration can be a contribution to starting point for creating a practical implementation of information subsystems intended for production planning.

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QUALITY MANAGEMENT SYSTEM FOR THE AEROSPACE INDUSTRY

Branislav Tomić *
Senior Quality Coordinator, Bombardier Aerospace, Toronto, Canada
ben.tomic@aero.bombardier.com
Vesna Spasojević Brkić
Assistant Professor, Faculty of Mechanical Engineering, Belgrade University, Belgrade, Serbia
vspasojevic@mas.bg.ac.rs
Milivoj Klarin
Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Serbia
klarin@tfzr.uns.ac.rs

ABSTRACT

Initially released in October 1999 by the Society of Automotive Engineers in the United States and Canada, and the European Association of Aerospace Industries in Europe, and shortly thereafter by standards organizations in Japan and Asia, AS9100 has been resulted as a cooperative effort of the International Aerospace Quality Group. As such, it combines and harmonizes aerospace requirements outlined in previously different aerospace standards. AS9100 Revision C was issued in 2009 and it was revised to align with ISO 9001:2008 requirements. This article tries to explain why and where this standard is different than common ISO 9001 standard along with the benefits that result from its implementation.

Key words: aerospace, quality, management, system, standard

1. INTRODUCTION

To assure customer satisfaction, aerospace industry organizations must produce, and continually improve safe, reliable products that meet or exceed customer and regulatory requirements. The globalization of the aerospace industry, and the resulting diversity of regional/national requirements and expectations, has complicated this objective. End-product organizations face the challenge of assuring the quality of, and integration with, product purchased from suppliers throughout the world and at all levels within the supply chain. Aerospace suppliers and processors face the challenge of delivering product to multiple customers having varying quality expectations and requirements. This document (AS9100) standardizes quality management system requirements for the aerospace industry. The establishment of common requirements for use at all levels of the supply-chain by organizations around the world should result in improved quality and safety and decreased costs due to the elimination or reduction of organization-unique requirements and the resultant variation inherent in multiple expectations.

Perhaps no other industry is as obsessively safety-conscious as the Aerospace industry. Constantly under public examination, and with little margin for error, strict quality control standards are now considered standard in every aspect of the industry. In an extremely competitive global landscape, almost all the successful manufacturers, suppliers and service providers today regard quality management as their fundamental driving force. To demonstrate this commitment, however, it is required independent certification. It is irrefutable evidence that quality standards are being met. Such certification can mean winning new contracts, or being excluded. AS9100 standard is the internationally recognized quality system standard specific to the Aerospace industry. Known as AS9100 in North America, EN9100 in Europe and JISQ 9100 in Japan, the standard is strongly supported and adhered to by major aerospace manufacturers including Boeing, Airbus, Bombardier, Pratt & Whitney, Lockheed Martin, Goodrich, Messier-Dowty, GEAE, Rolls-Royce and others. AS9100 is a widely adopted and

standardized quality management system for the aerospace industry. It was released for the first time in October, 1999 (Revision A), by the Society of Automotive Engineers and the European Association of Aerospace Industries and it was a cooperative effort of the International Aerospace Quality Group and as such, it combines, harmonizes and aligns the requirements outlined in ISO 9001.

Indeed, AS9100 certification has already become the basic requirement demanded by all these companies to their suppliers. Based on ISO 9001 requirements, AS9100 puts a particular focus on quality, safety and technology in all disciplines throughout the industry, and along the entire supply chain. It applies to every domain whether civil or military. AS9100 was established when the aerospace industry realized that it was necessary to supplement the ISO quality management system model to satisfy internal, government and regulatory requirements for the aerospace industry. AS9100 standard comprises the ISO 9001 requirements augmented by additional aerospace industry requirements. It was the result of an international effort by aerospace companies with a common goal of establishing a quality management system for use within the aerospace industry.

2. AS9100 STANDARD

AS9100 Standard represents the first international effort to formulate a quality management system standard for the aerospace industry. In its usage, it shows its long-term value. The standard supplements ISO 9001 by addressing the additional expectations of the aerospace industry. AS9100 has already got 3 revisions. The latest one was released in 2009 (Revision C) to align with the standard ISO 9001:2008. The difference between the ISO 9001:2008 text and the AS 9100 (2009) text is in the bold, italic text that represents the aviation, space and defense specific additions.
Among other benefits, AS9100 has been proved as good practice for complicated manufacturing chain and one of the crucial benefits is AS9100's contribution to more consistent verification methods and fewer verification suppliers' audits.

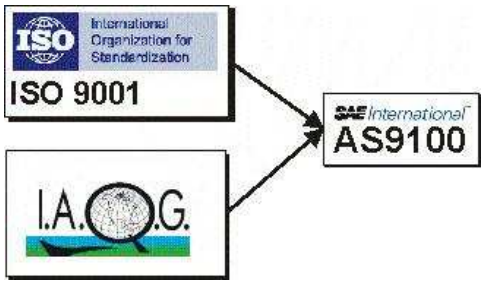

Figure 1: AS9100 – ISO 9001 and additional Aerospace requirements identified by International Aerospace Quality Group (I.A.Q.G.)

According to Gordon (2010), AS9100 defines additional areas within an aerospace quality management system that must be addressed when implementing an ISO 9001-based quality system. Typically, these requirements are included within robust aerospace quality systems. The industry experts who wrote the standard and the representatives who approved it all agree that these additions are essential to ensure product, process and service safety and quality.

All quality systems must be designed to meet the specific needs of the users. And although AS9100 identifies areas to address within the aerospace industry, system designers are encouraged to first establish a robust quality system that's both effective and efficient. This system should be a holistic entity with practices spanning multiple functions and processes within the business.
For example, regulatory requirements are critical functions within the industry. The requirements within AS9100 are complementary to contractual and applicable law and regulations. Those implementing a quality system compliant with AS9100 must ensure that the additional requirements of their customers, regulatory agencies and local, state and national laws are also referenced within the system's documentation.

Within AS9100, additions and clarifications have been made to most areas of ISO 9001. Some additional expectations relevant to the aerospace industry will be emphasized in this article. Most are based upon existing best practices, which are collected and formatted in AS9100 to ensure that manufacturers meet the industry's expectations.

The AS9100 standard provides guidance for managing variation when a "key characteristic" is identified. Keys are features of a material, process or part in which the variation has a significant influence on product fit, performance, service life or manufacturability. AS9100 requires that an organization establish and document a configuration management process.

Planning product realization is essential for effective and efficient processes. The standard emphasizes planning for in-process verification when a product can't be verified at a later point. Tooling design must also be considered when process control methodology is used to ensure that process data will be captured.

The AS9100 standard includes extensive supplementation in design-and-development functions due to complexity of aerospace products and customers' expectations for reliable performance during a protracted period of time. The European version of AS9100 standard EN9100 provides many of these additions. Both standards cover planning for design-and-development activities and ensuring interim control points during the design process. Design outputs are supplemented to provide identification of key characteristics, and the data essential for the product that will be identified, manufactured, inspected, used and maintained is detailed.

Notes are included for both design-and-development verification and validation highlighting traditional areas of emphasis. Additionally, AS9100 provides information on areas of verification documentation and validating testing and results.

Managing suppliers throughout the aerospace supply chain remains a major challenge for the industry. The chain is very long, and within the supply base, there are sources that serve multiple industries. Because the industry is so dependent upon this supply chain, it isn't surprising that AS9100 includes a number of additional expectations for identifying and maintaining suppliers. Supplier approval is just one step in the process of managing suppliers. Effectively communicating requirements is essential. The standard lists seven specific areas for consideration. They range from clarifying engineering requirements to managing test specimens and right of access to suppliers' facilities. The industry typically relies upon one of three methods for product acceptance. An organization might conduct a receiving inspection, perform the inspection at the supplier's facility or formally delegate product acceptance to the supplier. Procedures for determining the method of supplier control are required, as are the processes used when employing these methods. The most important element of this area of the standard is understanding that a supplier is responsible for managing its own suppliers and subtier suppliers. This includes performing special processes that are frequently subcontracted to processing houses. The supplier must use customer-approved sources; however, ensuring that the processing is properly performed is the supplier's responsibility.

Manufacturing a product as sophisticated as an airplane or space vehicle requires special attention during the production processes. It's important to ensure that the correct revision of the engineering documentation is being used and documented within the quality documents and that work performance is recorded. Controlling production processes is essential to demonstrate that operations have been correctly performed. This is especially important when conducting special processes that don't lend themselves to after-the-fact inspection techniques.

The industry frequently relies upon tooling and other production equipment, including computer-controlled machines, to fabricate and assemble products. This equipment often forms the basis for product acceptance. In these cases, it's essential to demonstrate the integrity of these tools and machines and to develop a process that will ensure adequate oversight of the entire process.

Aircraft are designed to perform for 50 years or more, and properly maintaining the aircraft is essential for continued safe operation. Therefore, servicing requirements are an important part of the total quality

management system. These include maintenance and repair manuals as well as the actual servicing work. Again, record keeping is important in documenting the work performed, the equipment used and the people doing the work.

Some products require traceability of part or all of their components. This requirement may be imposed by contract, regulatory agency or internal needs. In any case, AS9100 standard provides the essentials of an effective traceability program.

Using measuring devices of known accuracy including computer-assisted measuring and test equipment is essential in the verification process. Maintaining a calibration history of this equipment and documented proof that it's reviewed and verified periodically underlies the entire metrology system.

Diagnosing the quality management system's health and using this information to guide improvement activity is important for efficiency and effectiveness. Internal audits performed by competent personnel are a vital input into this health measurement system. AS9100 provides some additional expectations regarding internal quality audits.

Detailed first-article inspections are frequently performed to demonstrate product conformance to engineering requirements. Documenting the actual inspection and test results is an established method of demonstrating initial item acceptance. The standard provides general direction in this regard and suggests that additional standard requirements should be consulted for further guidance. Another international aerospace standard, called AS9102 and developed by the IAQG, outlines a methodology for performing and documenting first-article inspections.

When things don't go as planned, AS9100 gives directions for controlling and disposing nonconforming material. This includes specific requirements for contacting the customer for authorization when using or repairing a product that doesn't conform to engineering requirements.
The current version of AS9100 standard issued in 2009 (Revision C) fully aligns the with ISO 9001:2008 standard and those extra requirements regarding Regulatory Compliance and the aerospace-sector specific requirements have been additionally addressed in the following areas of the standard (SAE AS9100C):

- Scope statement includes “Aviation, Space and Defense”;
- Configuration management - The organization shall establish, implement and maintain a configuration management process that includes, as appropriate to the product: configuration management planning, configuration identification, change control, configuration status accounting, and configuration audit;
- Design phase, design verification, validation and testing processes - ensures that design responsible organizations have a robust design process to meet safety and reliability requirements demanded by the aerospace industry;
- Reliability, availability and maintainability - In planning product realization, the organization shall determine the following, as appropriate - quality objectives and requirements for the product reliability, availability and maintainability;
- Control of Suppliers - The organization shall maintain a register of its suppliers that includes approval status and the scope of the approval, periodically review supplier performance; the results of these reviews shall be used as a basis for establishing the level of controls to be implemented, define the necessary actions to take when dealing with suppliers that do not meet requirements, ensure where required that both the organization and all suppliers use customer-approved special process sources, define the process, responsibilities and authority for the approval status decision, changes of the approval status and conditions for a controlled use of suppliers depending on the supplier’s approval status, and determine and manage the risk when selecting and using suppliers;
- Verification of purchased product - The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements;
- Product realization - ensures that each phase of product realization, from planning to shipment, is tightly controlled for delivery of conforming product;

- Identification and traceability - The organization shall maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration;
- First article inspection - The organization shall use a representative item from the first production run of a new part or assembly to verify that the production processes, production documentation and tooling are capable of producing parts and assemblies that meet requirements. This process shall be repeated when changes occur that invalidate the original results (e.g., engineering changes, manufacturing process changes, tooling changes);
- Risk Management – New requirement of implementation of a risk management process applicable to the projects & products, responsibility, criteria, mitigation & acceptance;
- Formal monitoring of customer satisfaction data – Added the requirement to monitor data and to develop improvement plans that address deficiencies with the intent to promote continuous improvement of the product and customer satisfaction;
- Project Management – New requirement for planning and managing product realization in a structured and controlled way.

AS9100 promotes continual improvement as ISO 9001 and puts more emphasize on this process as core process in the standard. The organization is supposed to establish, document, implement, maintain and continually improve quality management system. The following diagram simply explains this process (Myhrberg and Crabtree, 2006):

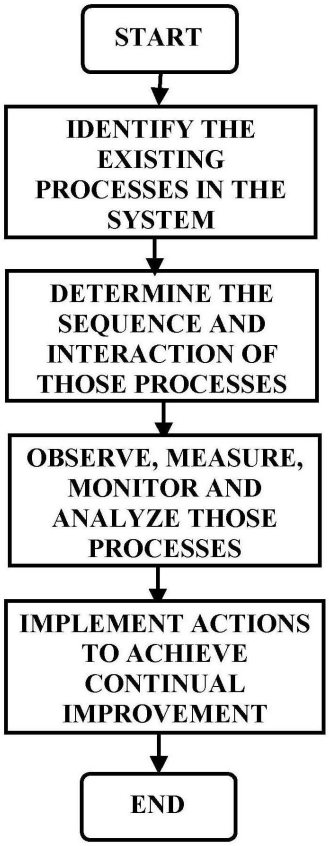

Figure 2: Basis for Aerospace Quality Management System

3. CONCLUSION

Implementing AS9100 will motivate staff by defining their key roles and responsibilities. Cost savings can be made through improved efficiency and productivity as product or service deficiencies will be highlighted. From this, improvements can be developed, resulting in less waste, inappropriate or rejected work and fewer complaints. Customers will notice that orders are met consistently, on time and to the correct specification. This can open up the market place to increased opportunities. An additional benefit due to the standardised processes and procedures is the reduction in multiple expectations due to the consistency in verification.

Implementation of AS9100 should start with identification of AS9100 requirements and how they apply to the business involved, establishing quality objectives and how they fit in to the operation of the business, producing a documented quality policy indicating how these requirements are satisfied, communicating them throughout the organisation, evaluating the quality policy, its stated objectives and then prioritize requirements to ensure they are met, identification of the boundaries of the quality management system and producing documented procedures as required, ensuring that these procedures are suitable and adhered to and once developed, undertaking internal audits to ensure the quality management system carries on working.

The implementation of AS9100 assures customers that the company has a good Quality Management System (QMS). An organization with an effective QMS will typically meet customer expectations better than an organization that does not have an effective QMS. Many aerospace organizations require their suppliers to have AS9100 Registration. AS9100-based Quality Management System has been proven over the years that it leads companies to better operations, improved performance, and improved profitability. Feedback from AS9100 Registered companies shows what it can be expected as the payoff from all of hard work implementing the Quality Management System. AS9100 includes all of the elements of ISO 9001, as well as additional requirements specific to the aerospace industry. Because of the responsibilities called out in the AS9100 standard, organizations often see an increased involvement of top management with regards to the Quality Management System. AS9100 provides the mechanism of reviewing goals and performance against goals on a scheduled basis, and for taking action based on the evaluation. Also, increased productivity results from the initial evaluation and improvement of processes that occurs during the implementation process and from improved training and qualification of employees. Better documentation or control of processes leads to consistency in performance, and less scrap and rework. Customer satisfaction increases are seen as Goals and Objectives take the customer needs into account. Customer needs are better understood as customer feedback is sought, received and analyzed. Goals and objectives are adjusted based on the information and the organization becomes more customer driven. As goals focus on the customer, the organization spends less time focusing on individual goals of departments and more time working together to meet customer needs. All of this leads to financial rewards and significant investments in the Quality Management System showing considerable improvement in fiscal performance.

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EFFICIENCY OF PRODUCTION AS ONE CRITERION FOR THE SELECTION OF THE AUTOMATION LEVEL OF PRODUCTION EQUIPMENT

Vijara Pojidajeva*
University of Mining & Geology "St.Ivan Rilski" Sofia, Bulgaria
email:vpojidaeva@abv.bg
Dragan Živković
VTŠ Beograd, dr Zorana Đinđića 152a, 11000 Beograd
email:zivkkev@drenik.net
Dejan Đorđević
Technical faculty "Mihajlo Pupin", Zrenjanin, Serbia
email: djole@rocketmail.rs
Milorad Živković
Aktaplan, Brčko

ABSTRACT

This paper considers the selection of an optimum automatiyation level of production equipment. There is a multitude of criteria on basis of which the selection of an optimum automatization level can be done. One of those criteria, not the most important, is efficiency of production equipment . There has be done an analysis of 317 technological operations divided into forty-one group (group technology), in the factory "Zmaj" .The results, the dependence of productivity on the automatization level of production equipment, are shown in this paper.

Keywords: Efficiency of production, Economy, Productivity, Automation level, production equipment.

1. INTRODUCTION

The purpose and goal of optimization of the automation level of production equipment is achieving greater efficiency of the production process, and the enterprise as a whole. Greater efficiency implies greater income too, and it is in the interest of any enterprise to increase their income. Income is the material basis of existence and development of an enterprise. Increase of income can be achieved by increasing the volume of production or by decreasing the cost of production. Efficiency of production can be evaluated by the amount of assets engaged in the realization of production, and also by the working resources and the level of their rational employment, because it is a big difference if income will be realized with lesser or bigger production means. Consequently, the goal of an enterprise is to create bigger income by engaging financial assets as rational as possible, i.e. :

- to achieve a maximum volume of production and income by minimum use of labor force,
- to achieve a maximum volume of production and income with minimum cost,
- to achieve a maximum volume of income by minimum engagement of production means,
- to achieve a maximum volume of production with a minimum amount of working time,

The basic principles of the profitability of an enterprise, i.e. the efficiency of production:

- Productivity
- Economy
- Profitability

2. AUTOMATION LEVEL OF THE PRODUCTION EQUIPMENT

Automation of the production equipment i.e. of production system has the task:

- to reduce physical effort of a man,
- to increase productivity,
- to increase product quality,
- to increase economical efficiency.

As a measure of automation for production equipment - machine, production process i.e. production system most frequently is used one measure named: level of automation. The automation level represents the relation of the number of automatizated functions to total number of functions and can be determined by means of the formula: (Ivkovic & Rac, 1995.)

$$A^0 = A_f / A_u \qquad (1)$$

where:

A° - Automation level
A^f - Number of automatizated functions
A_u - Total number of functions

Since nowadays is present a great number of different production equipment having available quite considerable variety of construction and technological characteristics it is therefore very difficult to make comparisons between them. In order to determine the number of automated functions and their comparing the sorting of their single characteristics can be done in different ways. One of them, neither the only one nor the final, is as the following: [Živković, D.,1998.]

1. Type of the equipment drive: manual, mechanical.
2. Method of managing the machine cycle: manual, manual-mechanical, automatized, numerical controlled, adaptive control, computer aided.
3. Way of work piece changing: manual, manual-mechanical, automatized, without human assistance.
4. Way of clamping for workpiece: manual, manual-mechanical, automatized, without human assistance.
5. Number of working axes: one, two, three, four ($4x90^o$), four($360x1^o$), more than four
6. Way of checking for machine piece: manual, manual-mechanical, automatized, without human assistance.
7. Way of cutting tool change: manual, automatized.
8. Way of adjustment and correction for tool in relation to machine: manual, by pattern, automatic adjustment and correction.
9. Sawdust removal: manual, manual-mechanical, automatized
10. Number of working spindles: one spindle, two spindles, more than two spindles
11. Transport of work piece from machine to machine: manual, manual-mechanical, automatized, without human assistance.

By using of listed eleven criterions with forty one parameter it can be estimated the level of automation for production equipment. The automation level of one machining system, that means automation level of the production equipment is determined by the following function: (Živković, 1998.)

$$A^0 = f\,(K_1 - K_{11}\,;\, P_1 - P_{42}) \qquad (2)$$

The minimal automation level refers to the production equipment with manual machining and the maximum automation level to the computer integrated production equipment with automatic designing of product, technology and planning (CIM). Based on such classified characteristics of the production equipment it can be made the evaluation of the automation of their functions and, at extreme case, it can be determined even the automation level of the production equipment. (Ivković & Rac, 1995.).

The automatization level is one relative measure of the automatization which shows the development phase of managing information to which all changes are automated. For example: the automation level would be as follows: for a radial drill 0,12 for a radial drill with a circular table 0,15, for a horizontal drilling and milling machine 0,17, for a machining centre 0,48.

3. RESEARCH RESULTS

An analysis of 317 technological operations was conducted, divided into forty-one group (group technology), in the combine factory "Zmaj", and we got the following results (table 1. for production equipment, and table 2., for transport equipment): (Zivkovic,1995.)

Table 1. Exploitation costs for production equipment

	Radial drill	Rad. drill with revol. table	Horiz. drill and mill	Machining centre
Autom.level	0,12	0,15	0,17	0,48
	Average duration of an operation cycle (min./piece)			
operat. 1	-	-	62,0	45,0
operat. 2	7,8	7,3	7,1	6,9
operat. 3	10,2	9,7	9,5	9,3
operat. 4	10,2	9,7	9,5	9,3
	Total cost of operations 2,3 and 4 (DM/piece)			
	2,2	2,7	16,9	51,5

Table 2. Exploitation costs for transport equipment

	Radial drill	Rad. drill with revol. table	Horiz. drill and mill	Machining centre
Autom.level	0,12	0,15	0,17	0,48
	Average duration of a transport cycle (min./piece)			
operat. 1	-	-	0,15	0,15
operat. 2	0,6	0,2	0,15	0,15
operat. 3	0,6	0,2	0,15	0,15
operat. 4	0,6	0,2	0,15	0,15
	Total cost of transport operation 2,3 and 4 (DM/piece)			
	1,05	0,35	0,26	0,26

When selecting production and transportation equipment there should be saved as much time and money as possible, to decrease the amortization period, to increase profit and productivity, and decrease maintenance and exploitation cost. Factors that affect working costs of production or transportation equipment are numerous. To make the right choice, it is necessary to make detailed analysis of all the relevant factors, which build the exploitation price of the selected production and transportation equipment.

The basic structure of costs of production and transportation equipment (invested equipment) is as follows:

1. Working equipment costs
    - 1.1 Cost of amortization (Ta)
    - 1.2 Maintenance costs (To)
    - 1.3 Cost of tools and accessories (T_{AP})
2. Energy costs
    - 2.1 Cost of fuel and energy used (T_{eA})
    - 2.2 Cost of lubricants etc. (T_M)
3. Costs of foreign services (T_{SU})
4. Costs of interest rates and assurance (T_{ko})
5. Cost of labourers (T_{RS})

6. Cost of working space (T_{RP})

Consequently, the structure of production i.e. transport equipment exploitation costs, mathematically expressed, is:

$$T=Ta+To+T_{AP}+T_{eA}+T_M+T_{SU}+T_{ko}+T_{RS}+T_{RP} \quad (3)$$

Depending on the unit used for presenting particular, previously explained costs (mainly in dinar or german mark DM) and on the time period within which these costs have been observed (mainly year, month, day or hour) we get the exploitation costs of production i.e. transport equipment in corresponding units.

Costs of human resources. There exist different models for determining the cost of human resources. One of them, applicable in Serbia, is as follows:

$$T_{RS}=T_{LD}+T_R+T_O+T_Z \quad (4)$$

and:

$$T_{RS}=NSR\,(1+K_2+(1+K_2)(K_3+K_4)) \quad (5)$$

where:
T_{LD} = NSR -(din./month) - Cost of wages per production worker per month or per total number of workers
N - (hour/month) - Average number of working hours in one month
S - (din./hour) - Price of working hour in production
R - Factor which takes into account being in excess of the working norm of a production worker
$TR = K_1T_{LD}$ -(din./month)-Cost of wages per administration worker.
K_1 - Calculated rate of assets necessary for administration
$To = K_2 (T_{LD}+T_R)$-(din./month)-Cost of taxes on employee wages
K_2 - Calculated rate for taxes on wage
$Tz = K_3 (T_{LD}+T_R)$-(din./month) - Cost of consumption in enterprise
K_3 - Calculated rate of consumption in enterprise
T_{LD} - Cost of wages of production workers
T_R - Cost of wages for administration
T_O - Cost of other expenses(taxes, social sec. etc.)
T_Z - Cost of consumption in enterprise

We can express the calculated costs in dinar per hour if we divide the resulting values of costs by the average number of working hours per month.

Table 3. Costs as a function of the automation level of production equipment

Type of costs	Automation level			
(DM / h)	0,12	0,15	0,17	0,48
T_a –Amortization costs	0,475	0,725	7,456	26,316
T_O –Maintenance costs	1,037	1,585	15,65	55,261
T_{AP}-Tools and equip. costs	0,14	0,22	2,23	7,9
T_{eA} –Energy costs	0,13	0,13	0,246	0,5
T_M –Lubricant costs	0,013	0,013	0,025	0,05
T_{ko} –Inter. rates a. insurance	0,826	1,27	7,38	26,18
T_{RP} –Work space costs	1,2	1,2	5,00	4,6
T_{RS} –Costs of labour force	0,873	0,873	0,873	0,328
$T_{RS}+T_{SR}$- costs	4,694	6,016	38,86	121,135

4. ECONOMY

If the production increases, and the costs for this production are decreasing, then the economy of production is higher. In other words, the level of economy increases when the the costs per unit of production are decreasing.

Economy of labour**,** as we have mentioned already, is the ratio between the achieved amount of production and the costs of production, and can be determined from the equations: (6. and 7.). Average values for the following parameters Q- max. number of pieces per year and T- production costs , and the corresponding level of labour economy -E., are shown in table 4:

Table 4. Level of economy as a function of the automation level of production equipment

	Radial drill	Rad. drill with revol.table	Horiz. Drill and mill	Machining centre
Autom. level	0,12	0,15	0,17	0,48
Q-Max. number of pieces per year	5745	5955	6207	6141
Operation costs of prod. equip.(€/piece)	2,2	2,7	16,9	51,5
Transp. Costs (€/piece)	1,05	0,35	0,26	0,26
T-Total costs (€/piece)	3,25	3,05	17,16	51,76
T-Total costs (€/year)	18 671	18 163	106 512	317 858
E- Level of economy	0,308	0,328	0,058	0,019

5. PRODUCTIVITY

Productivity expressed in natural indicators can be determined from the: (9.). Average value for corresponding parameters P- Productivity, Q - Amount of product and L - Amount of engaged labor force, and the resulting productivity - P., are shown in table 5.

Table 5. Productivity

Automat. level	0,12	0,15	0,17	0,48
Capacity Km(hour/year)	2700	2650	2700	2600
Duration of operation cycle t_C (min)	28,2	26,7	26,1	25,4
Q- Number of poss. pieces per year	5745	5955	6207	6141
Engaged labor for. (man/hour)	2700	2650	2700	2600
Duration of trans. cycle(min)	1,8	0,6	0,45	0,45
Engaged lab. for. (man/hour)	172	60	47	46
L-Total engaged labor force(man hour)	2872	2710	2747	2646
P-Productivity	2.00	2,20	2,26	2,32

6. PRODUCTIBILITY

Productibility is defined as the number of processed pieces per unit of time, technological productibility can be calculated from (2). Resulting average values, as well as productibility values calculated for different levels of automation of production equipment are presented in table 6.

Table 6. Productibility values for different automation levels of production equipment

	Radial drill	Rad. drill with revol. table	Horiz. drill and mill	Machining centre
Autom. level	0,12	0,15	0,17	0,48
t-time for operation (min)	28,2	26,7	26,1	25,4
P – Productibility	0,035	0,037	0,038	0,039

5. CONCLUSION

By establishing a relation between efficiency of production and automation level of production equipment, helps with the selection of a suitable technology, i.e. selection of a optimum automation level of production equipment. Of course, it is important to stress that efficiency of production is not the only, nor decisive criterion for the selection of technological operation, and the automation level of production equipment. Efficiency of production can only be one among the many other criteria. Their analysis can contribute to the selection of an optimum technological operation.

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APPLICATION OF MODIFIED METHOD OF CURRENT OBSERVATIONS IN BIG INDUSTRIAL SYSTEMS

Dragisa Radojkovic*
Tehnical PTT School, Belgrade, Republic of Serbia
gobsdoobeograd@ptt.rs
Zvonko Sajfert
Tehnical faculty "Mihajlo Pupin" in Zrenjanin, Republic of Serbia
sajfertz@tfzr.uns.ac.rs
Janko Cvijanovic
Megatrend University, Belgrade, Republic of Serbia
Milomir Stankovic
Business-Technical Faculty in Doboj, Bosnia and Herzegovina

ABSTRACT

Method of current observations is a need of modern industrial systems and reach industrial states have seen that. Its main goals are to see production cycles, to observe slowdowns and to identify the slowdowns and their frequency. If some appearances appear in extreme parameters we may ask the following questions: what is the reason, how frequent is it and does it affect the whole production? This paper has the aim to observe such problems by researching one big production system and they are not new, but on the other hand they are not researched enough. Actually, this method has the aim to notice certain appearances (slowdowns), monitor them and try to "measure" them and to prove it in data, charts and graphs. By observing slowdowns in these cycles, we observe reasons of their appearance if there are any. On the other hand, we observed types of the slowdowns, their frequency and possibility of prediction (where, when and why they would appear). Modified method of current observations is a new method that has the same technology and mode as classical method, but modification is that we observe only work positions where a worker and object of productions are key objects. In other words, we observe appearances of slowdowns in installment cycles where manual work is dominant and which was the object of the research. We monitored three production cycles and each cycle had several steps in installment of certain part, which was a part of production programme of the Sample. The method showed that there were slowdowns and it classified them and noticed their number, and therefore it pointed out certain activities and types of slowdowns. By defining slowdowns in certain installment steps and further analysis enabled to notice certain key topics – which factors were the reasons of slowdowns and whether they were people, production organization or technology, etc. The research itself has some graph and data index that were gathered directly from the field in the aim to find real model in order to improve prodeuction memo, reduce slowdown appearances, to shorten production cycles and to improve business success of this company.

Key words: method of current observations, production systems, cycles, slowdowns

1. INTRODUCTION

Today industrial production in Serbia has great problems that will be projected and prolonged in many years ahead. Transition periods, as well as, difficult years of economic crisis have led big systems in the situation to become non-concurrent on the market for they have out-of-date-technology and lack of trained stuff who know modern technologies. By using the term" lack of trained stuff" we don't say that this problem can be solved by giving jobs to the unemployed, but we want to say that we have lack of the highly educated stuff who know modern technologies and who can easily meet the needs of the current and fast market.

Modified method of current observations gives clear insight into the production cycles and gives certain values of the average time of slowdowns, which enables us to control the length of a real cycle.

By observing certain appearances or cycles modified method of current observations sees if there is too much vacuum in those cycles or idle speed or if there are enough workers to do that cycle and if we can increase business efficiency by decreasing or increasing number of workers.

The sample and the topic of this paper is a company that was a giant in its field and that employed over 3000 workers and a significant company on home and foreign market by the name Industry of Precise Mechanics (IPM) located in Belgrade. Today the situation is very different: production, market and number of employees are reduced for 80%and it is a company with 500 workers of different qualifications.

The research conducted in this company consisted of monitoring certain assembling cycles in three production cycles in order to see and to identify certain appearances of slowdowns with the aim to reduce slowdown appearances, shorten production cycles and thus to increase business efficiency of this company by using modified method of current observations.

2. MODIFIED METHOD OF CURRENT OBSERVATIONS

Modified method of current observations has been present in industrial production and it was started in the textile industry in 1934 by L.N.G.Tippet (Leonard Henry Caleb Tippit, 1902–1985). Its usage can be seen in any industrial production and it doesn't depend on the type of production or technologies. Modified method of current observations, which will be researched and applied in this paper, will be based on several factors – serial production and production that is based on almost 100% of human resources participation in assembling cycles. In other words, traditional method of current observations was based on monitoring machines, observation of appearances and stating level of capacity usage and the main difference is that here, in this method, there is a slight modification of this method in order to monitor production cycles in serial production in assembling phase where machines make smaller participation and almost 100% of human resources participation is present.

The aim of this research is to see i.e. to identify certain slowdowns in assembling cycles and its influence on the big production systems. The research consisted of several steps followed by field researches and then analysis and computing data:

- **Defining which cycles will be monitored -** there were three cycles that had several activities, assembling steps of certain elements. These cycles were chosen among several cycles that are all part of plan and program of this big production company
- **Defining all the forms where field data will be written–** monitoring of the cycle demanded application of certain monitoring lists (forms) where field data were written into. The data that were important for the research consisted of two types of data – time of a certain operation (production time) and which time it was (technological or non-technological) as well as number and types of slowdowns that appeared in production as (non-production time). After receiving average times of every activity and total time we made charts (using MS Project software) for each installment.
- **Defining monitoring paths–** the person who was monitoring (observer) has certain path by which he went in order to monitor all the activities in a cycle in a certain period of time and observed appearances wrote into the Monitoring lists. The monitoring times were previously received by random number choice (using MS Excel), which were converted into times.
- **Defining the terms that will be used for data entrance – the** observer who monitored assembling cycles on the Sample had a task to write down the monitored parameters according to the certain rules i.e. he had to use certain terms or signs/marks/ that would give some results for the research by how often they appeared in numbers. The terms that appeared enabled the observer to measure and explain by using abbreviations. It is very important for observer to know every cycle, all the activities as well as certain terms that identify times in production cycles.
- **Defining data processing –** Gathered field data had computing and graphical images shown as charts, tables with data and following graphs. Graph showed numerical parameters and enabled to see clearly and actually all the appearances and to easily come to conclusions. If some slowdown

appears in extreme in certain cycles, the research can be expanded on the other cycles by further analysis in order to see the reasons of its presence. In other words, by stating global problem we came to the reasons of its appearance, if that was a human factor, or organization, or technology or poor motivation, etc.

3. RESEARCH RESULTS

This research observed three characteristical assembling cycles: cycle 1- assembling of the fuel pump, cycle 2 – assembling of the hydro mechanical regulator and cycle 3 – assembling of nozzle holder with the aim to see (identify) problems and to improve and shorten production cycles.

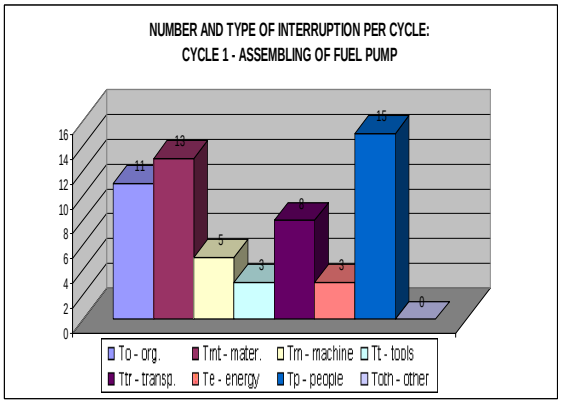
Each assembling phase, i.e. position consisted of certain movements that the worker should do strictly and according to certain technological lists. From these operational lists, where work technology was precisely given for every position, we could easily determine time necessary for production. From these lists we can see times as standards for making certain parts and they are basis for further research. By monitoring directly from the field, all the positions were being monitored and times were recorded in Monitoring lists. Recorded times were measured several times in order to see the average time of the production or assembling of certain part, as well as the duration of each activity and the time of slowdowns. After gathering average times for each activity and total assembling time we made a chart (using MS Project software) for every assembling. We put a red line over the chart on the time line and it was adapted to the monitoring times received by random number choice using MS Excel. Monitoring times were the same every day and thus the monitoring took place always at the same time. By marking monitoring times on the Chart and by observing their projection down the graph we can identify what is happening at every moment and we can see which appearances are present.

The research showed that while they were monitored every data at the exactly the same time, certain slowdowns appeared in certain number and for certain reasons. These appearances were written down in new tables in Monitoring lists, with additional remarks and comments and types of slowdowns. Then they were further statistically processed in order to see if some appearances appear so frequently that we can assume that they can be considered as a rule.

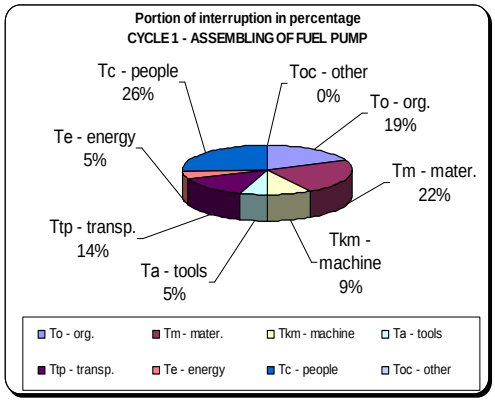
Therefore, the aim of this paper is to identify certain factors:
– Identify certain characteristical slowdowns in cycles
– If we can correct these slowdowns in order to shorten the cycle,
– How we can correct them, i.e. which numerical correction can be in time unit and similar.

By determining average number of slowdowns as well as types of slowdowns we could come to certain conclusions – if there were some slowdowns and how many of them there were.

Cycle 1 – Assembling of the fuel pump



Picture 1 – Number and type of slowdowns Cl. 1

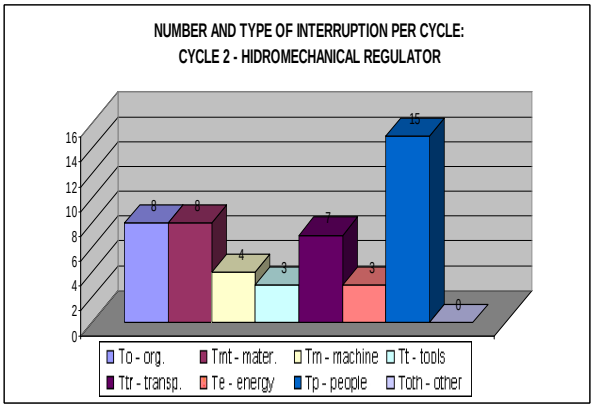


Picture2-Portion of slowdowns in percents Cl. 1

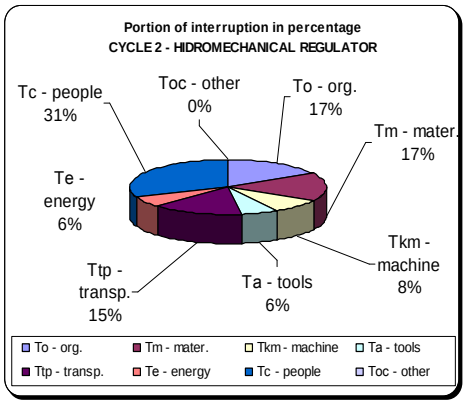
For Cycle 1 the main slowdown factor is human resources. As addition to this, we can see extreme jump in the average number of slowdowns (26%), as well as mild domination of slowdowns – stoppage

because of the lack of materials (around 22%), bad organization (around 19%) and transport (around 14%) in comparison to other types of slowdowns. Such a result may be expected if we have in mind that the company has recently finished its privatization and it has had a large number of problems how to enable good working conditions for the employees. Great technological remnant that dominated in the last years has led this organization in the condition that it is in out of the latest technologies and organizations of the same production in this region.

Cycle 2 – Assembling of the hydro mechanical regulator



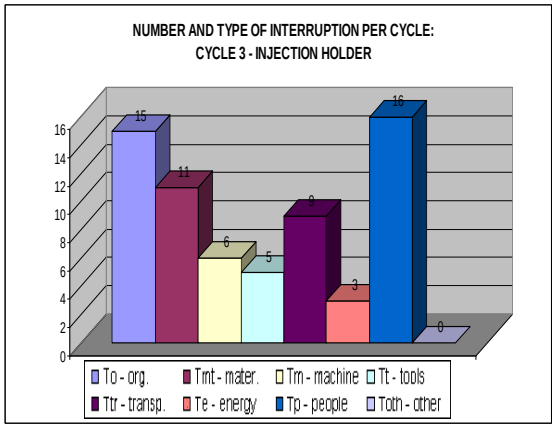
Picture 3 – Number and type of slowdowns Cl. 2



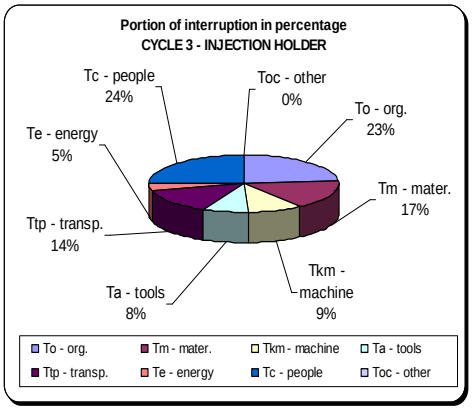
Picture 4 – Portion of slowdowns in percents Cl. 2

Cycle 2 of this Sample shows extreme jump of slowdown caused by human factors 31%, while other slowdowns are on the same level. It is not pleasant to hear such a data especially if it is the dominant one. Slowdowns with over 30% have great influence on the total business efficiency as well as on the efficiency of the organization itself. The main reason is poor motivation and lack of motivation can be easily transferred to the other negative sphere of organization psychology – and that are absence (not coming to work) or fluctuation (leaving job). Both of these terms have more or less influence on the business success, but this is the topic for some other research, but we have mentioned them as a final sequence of the conclusion.

Cycle 3 – Assembling of nozzle holder



Picture 5 – Number and type of slowdowns Cl.3



Picture 6 – Portion of slowdowns in percents Cl.3

In cycle 3 there is a similar situation. I.e. the numerical parameters are very similar and the main slowdown factor here is as well human resources. The other slowdowns are lack of materials, organization and transport. These results, made for all three cycles speak that this sample has a problem concerning human resources.

We may ask the following questions:
– What kind of stuff do we have here,
– On which hierarchy level is the problem,
– Are the individuals problems or just some group of people.

Such an acknowledgment demands another research where we would monitor just personnel regardless the cycles they participate in. On the other hand, this research has another topic, but it open new questions for some other scientific papers.

4. RECOMMENDED MODEL FOR SHORTENING PRODUCTION CYCLES

Recommended model for this Sample that was the topic of this research consists of the giving some directions, which will enable business efficiency. First of all, we noticed that most of the slowdowns were caused by human factor, either by human doing or human undoing. There are different factors in human resources that can influence on slowdowns in production cycles.

Slowdowns caused by human resources can be defined in two categories:
– Deliberate slowdowns of human doing,
– Indeliberate slowdowns of human doing.

Deliberate slowdowns of human doing is perhaps the most common type of slowdowns that is present in production cycles and it is usually connected to the poor human relations, lack of motivation usually seen as small or irregular salary, lack of benefits (paid overtime, reward for commitment, reward for improving quality and similar). In other words, when a worker feels that he is not appreciated or paid, then he turns to certain methods that he uses in order to make the manager see that his work is not respected. As a typical example is being late for work, slower work activities and deliberate slow rhythm of work.

Indeliberate slowdowns of human doing are rather rare, but there are some examples. Every human being is a person for himself and every man has his own style of working. Concretely speaking in this production there are personnel who have the same qualification and the same formal knowledge, but the quality itself was different. In that purpose we can classify slowdowns as undeliberate when a person does his job with less skill than somebody else. Defined standards, as well as certain stimulations enable for a worker to feel the need to improve his working skills in order to have better salary, position and status in his company.

As recommended model after monitoring the Sample IPM – Belgrade, processing and analysis of the results that pointed to certain problems there are some recommendations as directions for future development of this company.
Definition of the strategy should be the key field for the people who make top management of this company and who should precisely define several directives:
– how to improve the production,
– to define priorities of the company-aim, mission, vision.
– to define working stuff who - works, what they work, how they work
– to define the market – to return to home market or to find new markets.

Definition of the strategy enables for company to give directions that will improve the quality of work and to improve success on the market. If the company doesn't know what it wants or it doesn't have long term aims, it will constantly have problems such as bad work climate, lack of motivation, bad organization, decrease of profit and similar.

Lack of motivation is the key reason of slowdowns in this Sample. First of all, lack of motivation can be seen in bad economic situation of our state and this reflects on big business systems. When defining the strategy it is very important to plan ways and mechanisms how to better pay the workers and how to

make them feel a company as a team worth fighting for, even in a very difficult economic times. On the other hand, the company gives certain benefits according to its abilities.

Technological backwardness is a key problem not just for this Sample but for many companies in Serbia. By this we mean application of modern software tools for designing and engineering, application of CAD/CAM technologies, modernization of production capacities. The state that will have benefit from the successful company helps companies by giving certain stimulative packages and enabling them to buy modern machines, licences softwares or modern machine production. With this we have fruitful cooperation where a compnay gets modern facilities and the state gets a corporation which pays taxes..

Reengineering – is a necessity for many companies in Serbia. Reengineering is a change of certain cycles (or processes) as a change of complete business. The essence of reengineering is a change of certain production cycles in order to improve business success and business efficiency. *We don't mean by that to change people but to change the ways of working with the same people.* At the first glance it seems impossible, but big world companies have succeeded to stabilize the company and become leaders on the market by using reengineering.

5. CONCLUSION

Modified method of current observations showed that there were slowdowns and it classified them and saw their number and thus we underlined certain activities and types of slowdowns. To find real model will improve working mode, decrease number of slowdowns, shorten production cycles and it will certainly increase business success of this company.

As a conclusion of these research results for this Sample we may conclude that by realizing personnel problems: *by defining the strategy, by solving motivation problems, by technological backwardness and reengineering* every obstacle can be overcome regardless if that is technological backwardness, loss of the market, finding new markets or clients or coming back to the old markets and etc. the important role in this have immediate supervisors, i.e. the persons who have managing influence on the company and therefore by defining the strategy we define the mdost important priorities of the company.

Moified method of current observations gives clear insight of production cycles bearing in mind the following elements- duration of the operations, duration of the cycles, slowdowns appearances, definitions of the slowdowns, definition of the possible movement of usage levels in comparison to the number of observations. By using modified method of current observations every work organization can see which cycle or which department has slowdowns that can be really amortized and decreased as much as possible. Also, we can predict if some operations are necessary or not, if there is enough workers and if business success of the company can increase by decreasing or increasing number of the workers.

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RISK MANAGEMENT IN PUBLIC-PRIVATE PARTNERSHIP ROAD PROJECTS USING THE REAL OPTIONS THEORY

Nevena Vajdić*
PhD Student, Faculty of Civil Engineering, University of Belgrade, Serbia
nevena.vajdic@gmail.com
Ivan Damnjanović
Assistant Professor, Department of Construction Engineering and Management, Texas A&M University, USA
idamnjanovic@civil.tamu.edu

ABSTRACT

Application of public-private partnership (PPP) agreements as a method for implementation of transport infrastructure projects is a common practice in many countries. Although history of this type of agreements includes examples of failures and successes, in some cases outcomes were responsibility of one partner, while in others outcomes were, either favorable or not, shared between partners. Considering long term obligations between contract parties, which are for highway projects usually 25 to 30 years, and complex nature of this type of projects with number of risks, there is a need for contractual flexibility which will provide a right for a change in investment decision depending on the project's future performance. Application of real options theory in road PPP projects enables this kind of flexibility and share of associated risks. Overview of theory of real options and examples used in road PPP projects is part of this paper which objective is to develop a valuation model to determine the value of a buyback option in the case of unexpected outcome, i.e. in the case of excessive revenues. This option provides contractual flexibility for the public sector, that is the right to buyback the project from the private sector for the predetermined price.

Key words: real options, public private partnerships, toll roads

1. INTRODUCTION

Public private partnerships (PPP) are, in general, agreements between two parties, the public and the private sector, for delivery of services which were traditionally provided by the public sector. These partnerships serve as a model for overcoming budgetary shortfalls, i.e. for filling the gap between services required by the society and available funds for delivery of those services. Transport is one of major sectors in which the implementation of these types of agreements has become a common approach in resolving the infrastructure issues.

Revenue generating projects like toll roads were usually funded by the public sector, while the private sector was involved mainly in several phases of project's life like construction of the highway section or scheduled maintenance work. However, PPP agreements enable the private sector to participate in the project delivery through several crucial phases like design, building, finance, and operation or build-operate-transfer (BOT) scheme which is one of common PPP models. For providing these services, the private sector is usually entitled to collect tolls from users, although the public sector may provide an annual payment directly to the private sector proportional to the highway traffic volumes.

Considering long term obligations between contract parties, which are for highway PPP projects, i.e. concessions, usually 25 to 30 years, and complex nature of this type of projects with number of associated risks, there is a need for contractual flexibility which will provide a right for a change in investment decision depending on the project's future performance. Application of real options

theory in road PPP projects enables this kind of flexibility thus increasing the project value, and better share between parties of project's risks.

Managerial or real options are analogous to financial options. Options are contracts between two parties which grant the right, but not the obligation to one party to exercise the contract if specified event occurs. Generally, there are two types of options, put and call options. Put option grants a right to sell the financial instrument or an asset if the instrument's price drops below the predetermined level (exercised price) at some future agreed date (expiration date). In contrast, call option grants a right to buy the instrument if its price exceeds the exercised price at the expiration date. Also, depending on the time when the option can be exercised, two basic styles can be distinguished: American and European style. European options can be exercised only at the expiration date, while American options can be exercised any time before the expiration date.

In context of toll road projects, managerial options can be interpreted as a right to sell or buy the project for a specified price, if the option's exercise conditions are met (project's value or yearly revenue drops or exceeds some predetermined level). In such settings, two distinct situations can occur: revenue is higher than expected or revenue is below the expected level and cannot cover operational and debt servicing costs.

In these situations, real options do provide flexibility to prevent potential losses or increase the profit. For example, if the agreement specifies that the private investor has a flexibility to abandon the project for a salvage value, then, this agreement represents a real option provided by the public sector to the private sector. This managerial flexibility provides a value to the investor as it can prevent losses beyond salvage value, hence increase the project's market value. In contrast, agreement can have a clause that provides an opportunity to the public sector to act if the revenue is higher than anticipated. In this case, public sector has the same managerial flexibility as it can return the project to its ownership and repay the settled price to the private sector.

In this paper, focus is on the option to buyback the project if the revenue exceeds some predetermined level. Objective is to develop a valuation model to determine the value of this option. This paper is organized as follows. A background with examples of real options used in BOT projects is covered in the next section. Proposed valuation method is presented in the following section. Concluding comments, limitations, and directions for the future research are presented in the last section.

2. BACKGROUND

The theory of the option pricing dates back to Merton (1973), who derived explicit formulas for pricing European call and put options, and the options with the boundary condition (down-and-out). Rubinstein and Reiner (1991) and Rich (1994) developed pricing formulas for four types of European boundary options: down-and-out (in) and up-and-out (in). Geman and Yor (1996) used a Laplace transform for a derivation of a pricing formula based on the fundamental properties of Brownian motion. All this methods are developed for a pricing of an option based on the price of an underlying asset, its volatility, and the exercised price as a function of the asset price. In this paper, the buyback option is considered as the European barrier call option. Here, the underlying process is revenue for which the boundary condition is set. Such condition differs from traditional barrier options to include average revenue over a specified time period.

The main risk component in infrastructure projects including toll roads is the revenue risk (Yescombe, 2002). Over the years, a number of studies were conducted to model this risk and investigate possible mitigation strategies. For example, many public agencies provide a minimum revenue guarantee. This guarantee includes a minimum level of revenue that is assured to the investor. If the real revenue falls below that level, the public sector (the government) has an obligation to pay the difference. In practice, this type of the guarantee is priced as a European put option. Wibowo (2004) discuss a financial impact of different guarantees to the public sector. Guarantees under the evaluation are: minimum revenue,

minimum traffic, tariff, debt, and maximum interest. These guarantees are priced as European put options and compared with the government's direct subsidies concluding that some of these guarantees are more successful in risk reduction than government subsidies. Chiara and Garvin (2007) introduce two methods for evaluating the minimum revenue guarantee: the multi-least square Monte Carlo method and the multi-exercised boundary method. They developed the model with a dynamic option that provides the investor alternative to decide about having the option during the pre-concession phase.

Garvin and Cheah (2004) use a simple binomial discrete-time model to value an option to defer the infrastructure investment. This option provides flexibility to the public sector to postpone the investment in the project depending on the economic growth in the region and the changes in the associated traffic demand. Lara Galera and Solino (2010) develop a methodology for valuing the real options clauses in concession agreements. Some of real options used in highway concession agreements are exchange rate guarantee, public participation loans, minimum traffic guarantees, maximum traffic guarantees, extension of the concession, establishment of subsidies, etc. Authors use a minimum traffic guarantee for application of a proposed methodology where the option was priced as a European put option.

Huang and Chou (2006) use the real option theory to price the minimum revenue guarantee and the option to abandon the project in the pre-construction phase. Option to abandon the project provides the flexibility to the private sector to walk away from the project if the estimated future operating revenues are below estimated capital costs and operating costs. Once when the project's construction phase starts, this option is no longer alive, i.e. it is expired. Both options are priced as European put options. Zhao et al. (2004) develop a multistage stochastic model for decision making accounting for three risks: traffic demand, land price and highway deterioration. Three real options are incorporated in the model: right-of-way contract, highway expansion and rehabilitation decisions. These options are American style options since they can be exercised at any time during the project's service life. Thus, the focus is on the optimal exercise timing.

Vassallo and Solino (2006) discuss minimum income guarantee implemented in Chile as one of mechanisms for traffic risk mitigation in concession agreements. This guarantee is determined by the government as the present value of 70% of the estimated investment cost plus the estimated operation and maintenance costs. Guarantee is optional and if concessioner decides to request the guarantee, than it would have to accept the clause about the extra revenue sharing, i.e. share of revenues that exceed the predefined threshold level. The trigger for the revenue sharing mechanism could be either the rate of return threshold (max internal rate of return of 15%) or "mirror line". Two approaches are in use in Chile as the traffic risk mitigation strategies also: least present value of the revenues and the revenue distribution mechanism (Vassallo, 2006).

Investigating the nature of public-private partnerships, Yang and Meng (2000) developed a mathematical framework for feasibility assessment of a new project as a function of optimal capacity and a toll rate. Chen et al. (2001) extended this framework and included a simulation of a traffic demand as a random variable. A bi-level optimization program was used to formulate the financial analysis model. Addressing the planning decision process, Waller et al. (2001) evaluated the network assignment problem under uncertain demand. Chow and Regan (2009) use, as the key concept in a real options analysis for managerial flexibility in network investments, a stochastic process such as geometric Brownian motion to model future demand. Irwin (2003) assumed that the revenue of the toll road project can be modeled as a stochastic process.

3. OPTION VALUATION

For the public sector, the option to buyback the project is a right to acquire the project back to its ownership if the profit from its operation exceeds some predetermined level. In this case, the owner has a right to buy-back the project for some value and to continue to operate the project and collect all future revenues. Nevertheless, if the value of the project is considered to be a function of its future cash flows, the uncertain revenue that evolves over time stochastically causes the determination of the project's value complicated. In this paper, new approach for the calculation of the project's value is

proposed based on the Geman and Yor (1993) work. Project's value at any given time during the concession period can be derived as the expected sum of future uncertain revenues.

Condition under which the option can be exercised is defined as an upper boundary and the average revenue (AR) over some time horizon is compared with this boundary. This approach overcomes the problem of yearly traffic volatility, hence revenues volatility risk. For considered period, AR is calculated using Monte Carlo simulation as the sum of the discrete values for yearly revenue for each simulated path and divided by the length of a time horizon. Once the value of the AR is evaluated and set, the next step is to, for those simulation paths for which forecasted revenue is above AR, compare the expected project value with the exercised price.

Project's revenue is modeled as the stochastic process, i.e. geometric Brownian motion (Brandao and Saraiva, 2004; Huang and Chou, 2006). In that case, the revenue can be defined as:

$$dR = \mu R dt + \sigma R dW_t \tag{1}$$

where R is the project's revenue, μ is a drift rate (trend), σ^2 is the variance, and $dW_t = \varepsilon_t \sqrt{dt}$ is a Weiner process where dt is time increment and $\varepsilon_t \sim N(0,1)$. The future revenue can be modeled by knowing its starting value R_0, the expected growth rate μ and the volatility σ.

Consider a time for which the average revenue value AR is calculated as $[0, t_1]$ and an upper bound as UB. Option to buyback the project is considered to be a European barrier option (up-and-in) and it can be exercised at time t_1. For each simulated path, if the AR for $[0, t_1]$ is above UB, the value of option is calculated as the call option comparing the expected value of the project for the remaining period and the exercised price. As mentioned earlier, following the Geman and Yor (1993) work, the expected value of the project $E[PV]$ determined in the time t_1 for the remaining period is:

$$E\left[PV(t_1)\right] = \frac{4R(t_1)}{\sigma^2} \frac{\left[\exp\left(2h(\nu+1)\right)-1\right]}{2(\nu+1)} \tag{2}$$

where

$$h = \frac{\sigma^2}{4}(T - t_1) \tag{2a}$$

$$\nu = \frac{2\alpha}{\sigma^2} - 1 \tag{2b}$$

where T is a project's service life and α is a risk-adjusted drift rate. However, determination of the risk factor of the project's revenue is a challenging task which is not analyzed in detail in this paper (see Brandao and Saraiva, 2004; Lara Galera and Solino, 2010). The value of the buyback option is calculated as:

$$C = \left[\max\left(E\left[PV(t_1)\right] - K_c, 0\right) \mid \overline{AR}^i(t_1) > UB\right], i = 1, ..., n \tag{3}$$

where K_c is the exercised price for the buyback option, C is the value of the option and n is the number of simulated paths. The exercised price is considered to be the cost of the initial investment in the project and operation and maintenance costs that have occurred in the mean time (Garvin and Cheah, 2004).

The paths in which the buyback option is in the money (expected project's value is higher than the exercised price), the public sector can exercise the option. In those cases, the public sector expects

that the project will generate more profit than the required payment for this option or the exercised price. The option valuation model is presented on Figure 1.

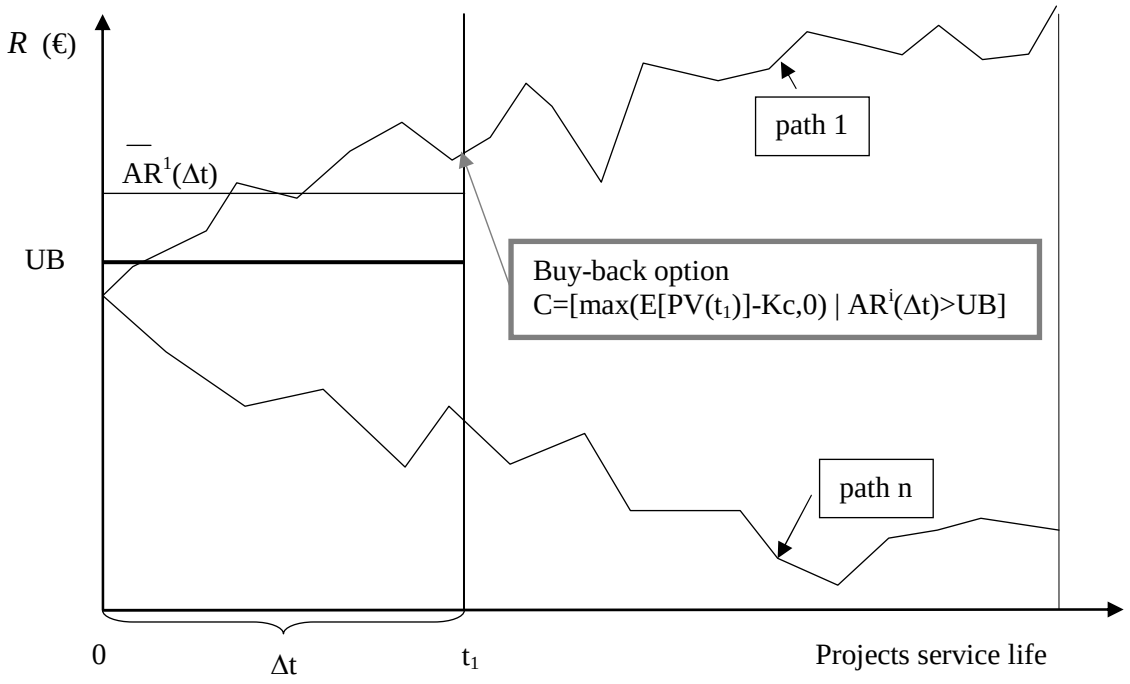

Figure 1: Pricing the buyback option

Let's observe one path of all simulated revenue paths, i.e. path 1 on the Figure 1. After time Δt, when the option can be exercised, value of the $\overline{AR}^1(\Delta t)$ is determined for the period $[0, t_1]$ as an average of all revenues within that period:

$$\overline{AR}^1(\Delta t) = \frac{\sum_{j=0}^{j=t_1} R_j^1}{\Delta t} \qquad (4)$$

This average revenue is compared with the UB which is set in advance. Since the $\overline{AR}^1(\Delta t) > UB$, the option becomes alive. It will be exercised if it has positive payoff. For the given path 1, expected value of the project is determined from the Equation 2 and compared with the exercised price K_c. If the expected project value is higher than the K_c, the option will be in the money. The same process is used for all simulated paths, and the value of the option is determined as the average of all positive payoffs and zeros.

4. CONCLUSION

Lot of research is devoted to the development of models and tools for the valuation of government guarantees which protect the private sector from unexpected losses. In this paper, the valuation method for pricing the buyback option is developed as a risk mitigation strategy which provides flexibility to the public sector to return the project in the public ownership in the case when the revenue is higher than expected. Option is priced as the European call option.

Proposed model is based on the approach that the underlying asset for option's pricing is an expected value of the project. Here, the project's value at any given time during the concession period can be derived as the expected sum of future uncertain revenues which are modeled as a stochastic process, i.e. geometric Brownian motion. The mathematical foundation of the proposed model is presented here.

This approach as the revenue risk mitigation strategy has its limitations. When the project is transferred back under the public operational regime, additional costs for the public sector will occur such as project's future operation and maintenance costs and remaining project's debt. Further research is needed on integrating these costs in the pricing model.

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ACCOUNTING SOFTWARE APPLICATION IN COST ALLOCATION AND CALCULATION OF SECONDARY COST ELEMENTS IN A MANUFACTURING ENTERPRISE

Lazar Radovanović*
Faculty of economics in Brčko, Bosnia and Herzegovina
l.radovanovic@efbrcko.ba
Teodor Petrović
Faculty of economics in Brčko, Bosnia and Herzegovina
t.petrovic@efbrcko.ba
Slavko Matanović
MySoftware d.o.o, Brčko, Bosnia and Herzegovina
s.matanovic@live.com

ABSTRACT

The paper deals with the calculation of the secondary cost elements, as part of the cost centers calculation within the company's internal cost calculation. The precedent, i.e. secondary cost centers with their services ultimately enable the functioning not only of the major, final, but also other, auxiliary cost centers. For this reason, prior to transferring costs from service cost centers to final, production, cost centers it is necessary to calculate internal costs of the preceding cost centers, that is calculate the secondary cost elements. In the preparation and drafting of this paper data from an actual commercial accounting software application were used, with the corresponding illustrations of company's internal cost calculation, in order to better present theoretical aspects of the secondary costs allocation and its practical application.

Key words: cost allocation, secondary cost elements, internal cost calculation

INTRODUCTION

In the first part of this work the necessity of calculating the secondary costs is explained, as part of an internal cost calculation – calculation by cost centers. Then, under the heading of internal cost calculation, there comes a more detailed theoretical overview of secondary costs. We talk about the concept of secondary costs, determining their amount, and then the price component. This part of the paper provides several illustrations of specific bookkeeping software application that contains a modul for performing internal cost calculation. In the second part we investigate the determining of the total cost of auxiliary and non productive cost centers, which is a central part of the calculation of secondary costs. In a series of tables and figures different approaches to this calculation are illustrated: 1) linear equations method, 2) method of additions with inclusion, 3) specified order of closing method, and 4) direct allocation method.

INTERNAL COST CALCULATION

According to most authors, internal cost calculation can be divided into four phases. The first of them deals with processing the primary types of costs for the company as a whole, the second phase is the allocation of the primary types of costs to the accounts of cost centers and carriers, the third area makes an internal settlement between the cost centers, which include the calculation of secondary costs, and the fourth phase of an internal cost calculation concerns the final calculation of cost carriers, and the transmission of the costs from the final cost centers to the appropriate cost carriers and transfer of finished goods to the account of stocks. Calculation of secondary costs, i.e.

the impacts of auxiliary cost centers, stands for an important segment of the internal cost accounting, especially in companies with developed and reciprocally conditioned internal services. Secondary, antecedent or auxiliary cost centers, do not transfer their costs immediately to the cost carriers, but previously to the other cost centers, creating their secondary costs or they can be directly transferred to the expense of companies.

Concept of secondary costs

Giving their main effects to the final cost centers, where all general costs eventually flow into, secondary, or antecedent cost centers allow the performance of activities not only of the main, but the other auxiliary cost centers as well. Secondary costs, therefore, represent the cost of consumed internal effects, created by the auxiliary cost centers during the same accounting period (Stevanović, 2003, p. 173).

Calculation of secondary costs has no effect on the amount of total costs, which correspond to the sum of the primary cost of the company as a whole. Those cost centers which consume the internal effects of auxiliary cost centers will have the total cost equal to the sum of their primary and secondary costs, but ultimately the total cost of the effects of auxiliary cost centers must correspond to the sum of the primary costs initially registered on them. Recording of internal services does not mean increasing the amount of total costs in general, but only distributing expenditures more evenly by entities within the company. In companies with a large internal volume of reciprocal services, particular attention to the calculation of secondary costs should be paid, to what purpose, as the first step, it is necessary to determine the quantitative component of internal costs by cost centers that occur as providers and recipients of the same services, after which it is possible to determine the cost of internal effects, and finally to process the transactions of internal effects values.

The quantitative component of secondary costs

The volume of internal services consumption can be determined by the direct method, i.e. on the basis of appropriate documentation or on the basis of the adequate allocation keys, that is - indirectly. If there is no direct measure for the allocation of costs, we turn to surrogate standards. The basis for allocating costs to cost centers is called *allocation base* or *cost driver*.

If, for example, 20% of the total number of materials requisition for a certain period was necessary for a particular product, then it is possible to allocate 20% of the total cost of materials to the same product. If there was a cessation of production of the product, then it could be expected that the measures to reduce the total material requisition of 20% will bi taken.

Price component of secondary costs

In contrast to external services, the prices by which to calculate the value of internal services consumed are not known in advance. If the services comming from ancillary and non-production cost centers were related only to cost centers (CC) of primary and secondary activities, it would be relatively easy to define the cost of internal services. We would find them simply by dividing the total of primary costs belonging to cost centers providing the services with the amount of actual effects. However, the existence of reciprocal relationships between non-production cost centers and ancillary CC makes some difficulties in defining the price per unit of internal services, which is a key prerequisite for calculating the secondary costs.

Figures 1 and 2 show the part of the interface of a software application with the module of internal cost calculation in a production company with cost centers of production, service and non-production type elaborately worked out.

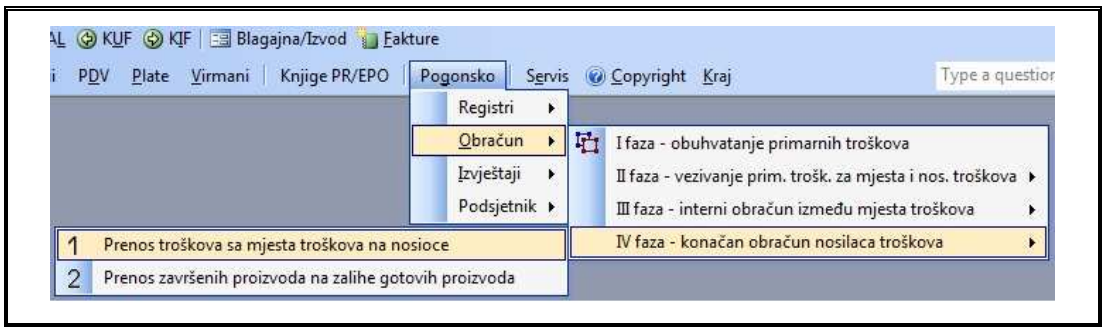

Figure 1: Menu of a software application for internal cost calculation

In the example given, the folowing cost centers and cost carriers are elaborated:

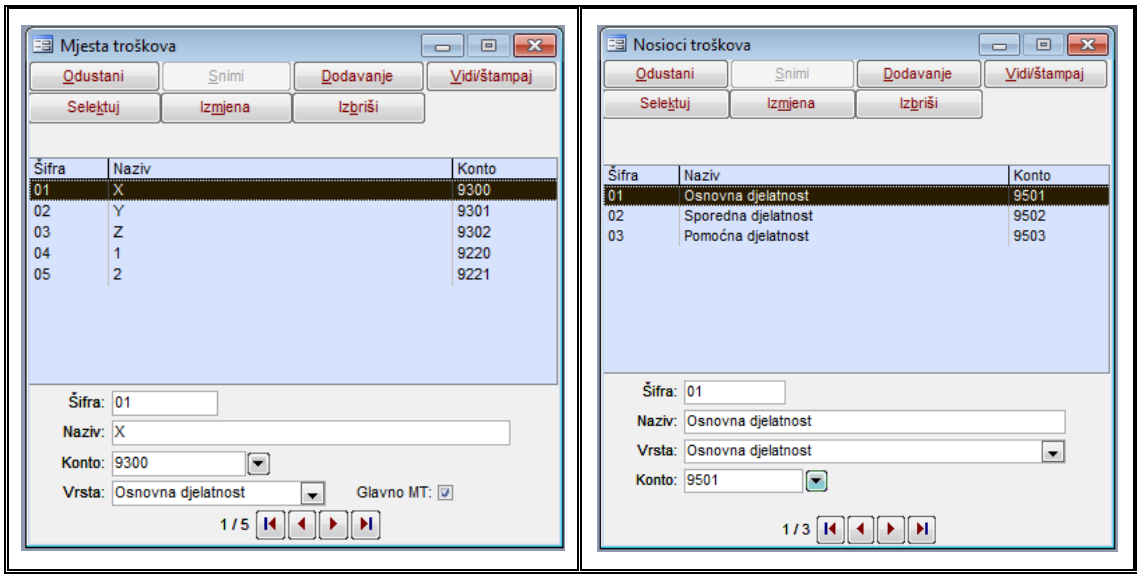

Figure 2: Registry of cost centers and cost carriers

Defining the total cost of reciprocally conditioned ancillary and non-production CC is a difficult task because their calculation for a specific cost center is conditioned by the previous knowledge of the total cost of other ancillary and non-production CC the services of which are being consumed. Likewise, getting the total cost of some other CC is conditioned by the knowledge of the total cost of other cost centers the services of which it consumes, and so on. It is understood that the problem is more pronounced if the intensity of the reciprocal relationship between the ancillary and non-production cost centers is greater. The prerequisite for determining the cost per unit of given type of internal services is pre-calculation of the total cost of ancillary and non-production costs centers. After we get the total cost, it is possible to calculate the secondary costs.

Determining the total cost of ancillary and non-production cost centers

Non-production and service cost centers in their reciprocal relations can be influenced differently. In other words, some of the cost centers (CC) can be fully conditioned, i.e., at the same time to give and receive the services of other CC, incomplete or conditional, i.e., only to provide services to other CC or to receive services only from certain CC. However, it is usually mixed case condition, where one CC as compared to other CC is incomplete, and in relation to some other entirely conditional. Depending on whether the CC is such that it does not consume the internal effects of

other ancillary cost centers, in which case, for them there are no secondary costs, so their primary and total costs can be immediately allocated to production CC, or CC is not fully conditioned, or a complete reciprocal conditionality, some authors recommend that the calculation of the secondary costs should be performed in stages - along the lines from the easy to the difficult, i.e. first to do the calculation of all those CC for which we can with certainty determine the total costs and then to address the calculation of total costs for those CC which are fully conditioned (Kovačević, 1982, p. 81.).

An illustration of calculating the total cost of fully conditioned cost centers can provide the company which has three production cost centers and two service CC (Drury, 2006, p. 110). Analysing indirect costs we obtained the following total values of costs according to cost centers:

Table 1: Total cost of a company

		€
Production cost centers	X	48.000
	Y	42.000
	Z	30.000
Service cost centers	1	14.040
	2	18.000
		152.040

Costs of service cost centers are allocated to other cost centers as follows:

Table 2: Cost allocation of service cost centers

	Production cost centers			Service cost centers	
	X	Y	Z	1	2
Service cost center 1	20%	40%	30%	-	10%
Service cost center 2	40%	20%	20%	20%	-

To allocate costs of service or non-production cost centers to place four different methods are used:

1. simultaneous equation method
2. repeated distribution method
3. specified order of closing method and
4. direct allocation method (Drury, 2006, p. 109).

Simultaneous equation method

Total costs transferred to the MT 1 and MT 2 can be represented as follows:

x (total cost of CC 1) = 14.040 + 0,2y

y (total cost of CC 2) = 18.000 + 0,1x

Solution of the system of equations is obtained with the following values::

x = 18.000 (= 88.200/4,9); y = 19.800

Having calculated the values of x and y, it is possible, according to the given key, to allocate the total cost of the service cost centers to the other CC, and so to get the overall costs of the final cost centers, as illustrated in Table 3 (Drury, 2006, p. 109).

Table 3: The review of overall cost

Row		X	Y	Z	Total
1	Primary cost	48.000	42.000	30.000	120.000
2	Allocation of CC 1	3.600(20%)	7.200(40%)	5.400(30%)	16.200
3	Allocation of CC 2	7.920(40%)	3.960(20%)	3.960(20%)	15.840
4	Total:	59.520	53.160	39.360	152.040

Repeated distribution method

When using this method the costs of service CC are repetitively allocated in a certain percentage to other CC until the values do not become negligible. The second row of Table 4 shows that the costs of service CC are partially allocated in proportion to a given percentage. As a result, part of cost of the service CC 1 is transferred to the second service CC. In the third row service CC 2 costs are allocated again, which means that service CC 1 receives additional charges. Then the costs of the service CC 1 are realocated and service CC 2 receives additional charges. This process continues until row 7, where the costs are becoming so small that any further distribution is unnecessary. Finally, the total costs, presented in the row 8 and by the amount of 152,040€ are transferred to production CC.

Table 4: Repeated distribution method

		Production cost centers			Service cost centers		Total
		X	Y	Z	1	2	
1	Primary cost	48.000	42.000	30.000	14.040	18.000	152.040
2	Allocation CC 1	2.808 (20%)	5.616 (40%)	4.212 (30%)	(14.040)	1.404(10%) 19.404	
3	Allocation CC 2	7.762 (40%)	3.881 (20%)	3880 (20%)	3881 (20%)	(19.404)	
4	Allocation CC 1	776 (20%)	1.552 (40%)	1.165 (30%)	(3.881)	388 (10%)	
5	Allocation CC 2	154 (40%)	78 (20%)	78 (20%)	78 (20%)	(388)	
6	Allocation CC 1	16 (20%)	31 (40%)	23 (30%)	(78)	8 (10%)	
7	Allocation CC 2	4 (40%)	2 (20%)	2 (20%)	-	(8)	
8	Overall cost:	59.520	53.160	39.360	-	-	152.040

Specified order of closing method

By using this method, the costs of service CC are allocated to production cost centers in a particular order. The service cost center performing the most work for other service is closed first, followed by the second CC by the same criteria and so on. Recurrent costs are not passed on to the service CC previously allocated.

Table 5: Specified order of closing

		Production cost centers			Service cost centers		Total
		X	Y	Z	1	2	
1	Primary cost	48.000	42.000	30.000	14.040	18.000	152.040
2	Allocation CC 2	7.200 (40%)	3.600 (20%)	3.600 (20%)	3.600 (20%)	(18.000)	
3	Allocation CC 1	3.920 (2/9)	7.840 (4/9)	5.880 (3/9)	(17.640)	-	
4	Overall cost:	59.120	53.440	39.480	-	-	152.040

Notice that the total values of the costs by cost centers do not match the value of total costs obtained by using two previously illustrated methods (simultaneous equations and repeated distribution). This is because the specified order of closing method sacrifies accuracy on behalf of the simplicity of calculation. However, if the application of this method provides an approximate result as in the previous two, more exact methods, then there are good reasons for its practical application.

Direct allocation method

The method of direct allocation (Table 6) ignores the mutual reciprocal allocation of costs between service cost centers. Therefore, the costs of service cost centers are transferred only to the production, i.e. final cost centers. This simple method can be applied only in cases where the intensity of reciprocal services between service and non-production cost centers is relatively insignificant.

Table 6: Direct allocation method

		Production CC			Service CC		Total
		X	Y	Z	1	2	
1	Primary costs	48.000	42.000	30.000	14.040	18.000	152.040
2	Allocation CC 1	3.120 (2/9	6.240 (4/9)	4.680 (3/9)	(14.040)		
3	Allocation CC 2	9.000 (4/8)	4.500 (2/8)	4.500 (2/8)	-	(18.000)	
4	Overall cost:	60.120	52.740	39.180	-	-	152.040

CONCLUSION

Calculation of secondary costs plays a very important role in the internal accounting of those companies where there is a strong reciprocal conditioning of non-productive and service cost centers. The accuracy of calculation of the secondary costs determines the cost of certain types of internal services, which ultimately determines the accuracy of calculating the total cost of the final cost centers to which all the costs from the preceding cost centers are transfered. To determine the total costs of ancillary and non-productive cost centers two methods which ensure complete accuracy (method of linear equations and method of additions with inclusion) are used, while the other two methods (specified order of closing and the method of direct allocation) do not lead to a completely accurate allocation of costs to the final, production cost centers, but which, for reasons of simplicity, where conditions allow, can be applied without significant distortion of the accuracy of the final allocation of costs by cost centers.

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THE INFLUENCE OF TEAMS AND TEAM WORK ON COMPETITIVENESS OF ENTERPRISES

Snežana Lekić, PhD*
Belgrade Business School, Serbia
snezana.lekic@bbs.edu.rs
Srđan Bogetić, PhD
Belgrade Business School, Serbia
srdjan.bogetic@bbs.edu.rs
Dragiša Ranđić PhD
Belgrade Business School, Serbia
dragisa.randjic.lekic@bbs.edu.rs

ABSTRACT

Global markets, dynamism, high product quality requirements, shorter product life cycle are the factors that create the need for companies to be flexible, innovative, higher in production quality and quicker in reaction to customer's demands. Successful companies are those that have teams and team work in the basement of their business strategies and organizational processes. Organization complexity rise require teams as a group of people acting together in fulfillment of company's goals. There is a direct correlation between team work and business effectiveness of companies. Modern company management tries to create expert teams which are able to create new business solutions and motivate workers to work effectively and with the expected results. Paper analyses team work effectiveness and factors determining it. Basic hypothesis are proved on the small and medium companies case study.

Key words: teams, team work, innovation, quality, team effectiveness.

1. INTRODUCTION

The growth of organizations and the increase of organizational structure complexity create the need for introducing teams in which people work together toward a common goal of the organization. The main reason for this is the correlation between team work and effectiveness of business organization. For these reasons managers in modern organizations are trying to make competent teams necessary for development of new business solutions, strengthening the motivation of people for achieving the results and increasing work efficiency.

2. TEAMS AND TEAM WORK

A team implies a group of people who influence each other in order to achieve the goals of the organization. It can be conceived as a formal group of people with a specific task whose members possess complementary skills, dedication to common goals and tasks. The most common types of teams in organizations are [1, p. 383]:

- *Problem solving teams.* Teams that are formed with a sole purpose of studying and proposing solutions for a particular, specific problem in an organization. It is usually made of experts from one business function or department and the one where the problem arises. A typical problem solving team comprises 5 to 12 members and is created in order to discuss the ways to improve the quality in all phases of production in an organization, to make organizational processes more effective and enhance work environment.
- *Self-management teams.* The chief goal for making these teams is giving authority to those nearest to problems with a view to shortening the process of solving the problems and to making the solution better by using the information and knowledge on the lower hierarchy levels.

Independent work teams are responsible for the completion of deal and team management. It usually entails planning and terms connected to the business, distribution of tasks to the members, controlling the work rate, making operative decisions and taking measures when problems occur.

- *Interfunctional teams.* These teams are formed of employees on the same hierarchy level but from different work fields and different business functions with the goal of solving common problems.These teams are used to achieve concentration of different competences necessary for solving complex problems. They have proved useful in cooperation between organizations dealing with high technologies and they are widespread as a way of cooperation of experts in different fields enabling them to exchange information, generate new ideas, solve complex problems and coordinate complex projects.
- *Virtual teams.* Teams that use modern information technologies for connecting separated members of the group for achieving the common goal. By using electronic mail, video conferences, web pages, intranet nets members of the team can be in different parts of the world and still work as a team. A serious disadvantage of this type of teams should be emphasized. It is the fact that physical distance prevents the members of the team from making social connections that are sometimes essential for the success of the team.

The following advantages and disadvantages of team work have been noticed [2]. *Advantages of team work* are: higher motivation of employees, increased productivity, greater satisfaction of employees, higher dedication to goals of organization, better communication among employees, improvement of business skills, better business flexibility, considerable decrease of costs (by eliminating the middle layer of management). *Disadvantages of team work* are: stress and frustration from maladjustment to team work, elimination of the middle layer of management that is a sort of recruiting center for top managers, phenomenon of group thinking that suppresses creativity, saturation with team work can lead to the drop of performances.

2.1. Team building

For building effective teams in an organization, it is necessary [3, p. 165-167]:

a) *To design a team in an appropriate way* – entails a number of activities from the field of organizational structuring and human resources, namely: defining the task, defining authority of the team, establishing optimal team size, defining team structure, chosing team members, training of team members.

b) *To ensure the adequate context of team work* – to make the adequate environment in which team members can complete their tasks and accomplish goals of the team. Several components of the context influence the performances of the team: the position of team in organizational structure, resources for team work, reward system and grading of performances.

c) *To build "team players"*- design of the team refers to defining team roles and chosing team members that will be suitable for team roles. Team role represents a number of typical behaviour for a specific team position. For a member of a team is said that he is a good "team player" when he successfully performs his team role at the appropriate position. There are nine roles in an efficient team [4, str. 348]: innovator, promoter, analyst, organizator, producer, controller, supporter, counselor and integrator.

The critical point of team work is trust and the way this trust is created. The experience with work teams shows that the trust has five dimensions: *integrity* - implies that individuals value personal honesty and justice; *competence* – skills in defining problems, creating alternative solutions, evaluation of these alternatives and making right decisions, *consistency* - implies reliability, consistent behaviour and successful coping with all situations, *loyalty* - the wish to protect the honour and honesty of each member of the team and contributes to trust; and *openness* – manifests as a wish to share the ideas and information with other people. [1, p. 356]

2.2. Phases of team development

Every team has four phases of development: [5, p. 24-25]

1. Creating – Future members of the team gather and concentrate on a problem that will be solved by the team. In this phase people are cautious; careful about what they say, evaluate others, consider whether they should join the team or not, evaluate their own strength and adequacy of their capabilities in comparison with others and things that will be expected of them, they gather impressions about other people, analyze the atmosphere and leader as the task that awaits them. In this phase people compare their expectations and the things that await them. The better people are informed about the atmosphere and nature of work that awaits them, the less stressful this phase will be, ensuring that people who remain are really interested in the work.

2. Waving – People start to get into interaction, exchange information, define their roles more precisely, realize their positions and ways of cooperation in a team. During this period, as previous statuses are not cancelled and majority of members are not used to cooperation on common task, there is competition, reconsidering, crticism that is not constructive yet. Mutual agreement is hard to achieve and individuals, giving their opinion on something, are still not ready to give it up in favour of a constructive suggestion. New roles, that individuals gained by being part of the team are still stiff, and individuals are sometimes suspicious of other roles and fight for their own instead of common status. This stage is called "waving" because in this phase the movements are back and forward, individuals observe themselves and other people in turns but not the team as a whole. Team moves like a wave toward defing its identity and this phase is less pleasant for the participants.

3. Standardization – After a certain number of completed tasks; team gets feedback information about its work; reconsiders some of existing roles; notices that some members of the team do not work well; estimate the competence of the leader; estimates what capabilities are missing in team; if the structure of the team is on shaky foundation, it faces possible build up of tensions. In this phase team finds a normal way of functioning. Procedures and basic rules of functioning are created that suit all members (from bigger, more formal: how to solve problems, how to transmit information in team; what is the quality minimum when doing business etc. to informal: who prefers which tasks in the team, who possesses which capabilities, what is to be tolerated, when making breaks and writing summaries etc.)

4. Functioning – Phase in which the team really functions: it has been tested in many situations and businesses; guarantees quality; roles in the team are structured but flexible at the same time; members are satisfied with interaction within the team. The team gains strength and seriousness in this phase, defines its profile and identity, builds its style and elegance. As the structure of the team has been already built in this phase, new members can join the team without the danger of destabilizing it. The members of the team help each other much more than they used to: they feel better, they are more relaxed, they have better knowledge of capabilities of their own and others and they are ready to experiment with some new roles and businesses. In these phase team also measures its strengths and effectiveness: it is interested in feedback about the functioning of the team that can be provided by an outside source; it is interested in exchange with other teams.

2.3. Maintaining of team`s positive energy

The team uses its basic energy on solving the existing problems and on mutual interaction. Energy is also spent on *self-restoration* (redifining the roles, introducing new members etc.) and *growth* (quantative growth or broadening of team`s functions; gaining new roles; acquiring new competences).

The team also uses energy on protection of its own interests, when its normal functioning is threatened either from outside or inside (team members are threatened, the results are underestimated, work is obstructed etc.). The spent energy should be restored, and every team works on that in several different domains:

- Work on its own creativity and acquiring new capabilities,
- Work on improving interaction and quality of communication,
- Standardization of functions that have become common practise,
- Work on self-evaluation and protection of team`s identity. [5, p. 26-27]

Revitalization of energy necessary for team`s functioning and becoming aware of processes within it can be achieved in a variety of ways. High quality teams are functional and flexible, open for new experience and ready to pose challenge independently, creating and estimating success of its own actions.

3. CASE STUDY

Team work research is a part of wider research dealing with the influence of organizational behaviour on organizational dedication. [6, p. 216-273]. The goal of research is contribution to a better understanding of phenomenon of team work efficiency and factors influencing it. In this work the empahsis is put on a group of small and middle-sized enterprises (which are not separated), on the sample of 78 respondents. The research included 56% female and 44% male respondents.

The questionnaire for team work consists of four categories of questions: *synergy in team* which represents the sense of belonging shared by team`s members: *skills of associates* describing training of team`s members, competence in doing business and flexibility within scope of work: innovations that involve finding ways for improving productivity and mode of work; quality that measures the level of familiarity with clients` needs and standards for following their satisfaction. The questionnaire is made according to methodology suggested by Bateman, B., Wilson C. F. i Bingham, D. [7, p. 215-226].

The questionnaire consists of Likert type responses scale and the responses on the scale from 1 to 5 indicate the degree of agreement or disagreement with a particlular statement:

Scale	Degree of agreement with statement
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Strongly agree

Synergy in team - is evaluated as average value of eight factors: clearly defined belonging to the team, clearly defined meaning/goal of the team, clear role of team members, efficient communication within the team, sense of value of team members, other organizational parts of company appreciate the team in which an individual works, the sense of pride for belonging to the team, every member contributes to team work to the maximum. In table 1 are given average value, standard deviation and coefficient of variation for particular factors of team synergy.

Table 1: Assessment of sinergy in team (N=78)

	Average alue	Standard deviation	Coefficient of variation (%)	1	2	3	4	5
Clearly defined belonging to the team	3,46	0,96	27,82	1	15	17	37	8
Clearly defined goal of the team	3,50	1,00	28,66	2	13	17	36	10
Clear role of team members	3,33	1,01	30,45	1	20	17	32	8
Efficiency of communication	3,51	1,00	28,56	3	9	22	33	11
Sense of value of team members	3,82	0,85	22,22	1	6	12	46	13
Appreciation of the team by other organizational parts	3,32	1,03	30,89	3	13	28	24	10
The sense of pride for belonging to the team	3,65	0,91	24,88	1	9	17	40	11
Every member contributes to team work to the maximum	3,46	1,10	31,81	4	13	16	33	12

Associates` skills- are evaluated as average value of eight factors: team members are appropriately trained and competent for professional work performance; team members are appropriately trained in administrative work and procedures connected to work; there is a formal system for recognizing needs for professional development and additional education of employees; needs for education and development are identified as a part of system; on the basis of analyzed employees` needs, additional training is given; team members are flexible and willing to perform also other tasks within the team; team members highly value additional education. In *table 2* are given average value, standard deviation and coefficient of variation for particular factors of associates` skills.

Innovations are evaluated as average value of eight factors: team members are encouraged to try new work methods, team is included from the very beginning in new projects connected to its

products/services, every innovation in team work is appreciated and rewarded, problems connected to business/clients are discovered quickly, the discovered problems are solved quickly, problem solving is seen as learning and development of the team, team members often suggest innovations in work and finally, team members readily accept innovations. In *table 3* are given average value, standard deviation and coefficient of variation for particular factors of innovations in team.

Table 2: Assessment of associates` skills (N=78)

	Average value	Standard deviation	Coefficient of variation(%)	1	2	3	4	5
Training and competence for professional work performance	3,42	1,05	30,70	2	17	15	34	10
Training in administrative work and procedures	3,38	1,03	30,57	3	14	20	32	9
Formal system for recognizing needs for education	3,11	0,99	31,88	5	15	28	26	4
Systematic identifying of need for education	2,91	1,02	35,10	5	25	24	20	4
Additional training is given on the basis of employees` needs	2,79	1,07	38,41	8	26	22	18	4
Competence of team members for different tasks within the team	3,53	1,02	28,81	3	11	16	38	10
Willingness of team members to perform other tasks within the team	3,56	0,99	27,72	2	11	17	37	11
Team members highly value additional education	3,49	0,95	27,24	1	11	26	29	11

Table 3: Assessment of innovations in team (N=78)

	Average value	Standard deviation	Coefficient of variation(%)	1	2	3	4	5
Encouragement of team members to try new work methods	3,32	0,99	29,72	3	12	28	27	8
Team is included from the beginning in new projects	3,31	1,01	30,55	4	12	25	30	7
Every innovation in team work is appreciated and rewarded	2,74	1,10	40,03	11	22	25	16	4
Problems connected to business/clients are discovered quickly	3,35	1,04	31,15	4	13	21	32	8
Discovered problems are solved quickly	3,22	1,03	31,93	5	12	29	25	7
Problem solving is seen as learning and development of the team	3,41	0,96	28,13	3	9	27	31	8
Team members often suggest innovations	3,04	1,01	33,31	1	28	23	19	7
Team members readily accept innovations	3,27	0,93	28,61	1	15	32	22	8

Quality is estimated as average value of eight factors: team members are familiar with their clients` needs, it is clearly defined who are the clients of specific team, standards of work within the team are clearly defined, standards of work are followed regularly, feedback information on monitoring team work is received regularly, quantative standards of effectiveness are followed, team observes organizational standards for solving clients` complaints and complaints are considered regularly, and lessons are applied in further work. In *table 4* are given average value, standard deviation and coefficient of variation for particular factors of team quality. On the basis of these tables, *table 5* is formed which shows average value of team work and interpersonal relationships.

From *table 5* we can see that average value of team work and interpersonal relationships in small and middle-sized enterprises amount to 3,31. The highest average value has synergy of team (3,51) which indicates that in these companies great attention is paid to developing the sense of belonging shared by all members of the team. Innovations have the lowest average value (3,21) which shows that they are neglected in a way.

Table 4: Assessment of team quality (N=78)

	Average value	Standard deviation	Coefficient of variation(%)	1	2	3	4	5
Team members are familiar with their clients` needs	3,47	0,94	26,94	2	10	23	35	8
It is clearly defined who are the team`s clients	3,49	0,99	28,39	3	11	17	39	8
Standards of work within the team are clearly defined	3,22	1,03	31,93	5	12	29	25	7
Standards of work are followed regularly	3,17	1,02	32,35	3	19	25	24	7
Feedback on monitoring team work is received regularly	3,05	1,04	34,19	5	19	27	21	6
Quantative standards of effectiveness are followed	3,05	1,04	34,19	6	16	30	20	6
Team observes organizational standards for solving clients` complaints	3,28	0,98	29,83	4	10	31	26	7
Complaints are considered regularly, and lessons are applied in further work	3,31	1,01	30,55	4	12	25	30	7

Table 5: Average value of team work and interpersonal relationships

	Synergy	Skills	Inovations	Quality	Average value
Small and middle-sized enterprises (N=78)	3,51	3,27	3,21	3,25	3,31

3. CONCLUSION

Team effectiveness can be measured by individual and group results that are a product of forming inner processes in groups leading to a result. These processes are normally under influence of managers who form teams, while in-group processes present one of the most influential determinants of higher team effectiveness. They include orientation to common goal, cohesiveness, communication, decision making, work tasks and conflict resolution. In other words, effectiveness of team work is based on the end result of work, but also on satisfaction of team members. The end result is determined by qualitative and quantitative achievements of the team defined through team goals, while satisfaction is based on possibility of team work to satisfy basic needs of members and in this way increase loyalty to team, i.e. company. In order for companies to hold and maintain their competitive advantage on the market they have to pay great attention to fostering team work. Managers play an important role in this. They have to pick out individuals who have interpersonal skills for team work, to enable their training so they can develop skills of team work and to reward them appropriately for common efforts.

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KAIZEN MANAGEMENT PHILOSOPHY

Slobodan Prošić, M.Sc[*]
Ministry of Foreign Affairs of Serbia
bobaprosic@yahoo.com

ABSTRACT

The spirit of Kaizen is all about achieving improvement by taking small steps instead of drastic, rigorous changes. It involves setting and continually improving standards without large capital investments. The objectives of Kaizen include eliminating waste, or activities that add cost but not value, just-in-time delivery, production load leveling of amount and types, standardized work, paced moving lines and right-sized equipment. Basically, Kaizen takes processes, systems, products, and services apart then rebuilds them in a better way. Kaizen goes hand-in-hand with that of total quality control.

Key words: Kaizen, Total Quality Control, Toyota Production System, Just-in-time, Innovation

INTRODUCTION

The foundation of Kaizen was laid in Japan after the Second World War, when the country was attempting to rebuild factories and rethink many systems. The concept of Kaizen began to be formed and it took off in the 1950s. According to Masaaki Imai, the father of Kaizen strategy, it is the most important concept of Japanese management – the key of Japanese business success. The Kaizen principle is based on ancient Japanese tradition and philosophy insofar as it seeks harmony through continuous improvement. In its contemporary form, it is used both to improve and streamline corporate processes as well as to gain developments on a personal level. The meaning of improvement in Kaizen should not be seen in isolation, but in a wider context, which is the real meaning of this expression borrowed from the Taoist and Buddhist tradition, focusing on improvement for all the society and bringing betterment for all. This tradition has been kept alive in Japan until today. Kaizen is a philosophy of management as far as it stems from the view that any particular improvement should not be made to the detriment of the customers and wider community. Therefore, we should always have this wider context in mind when talking about the specific concept of Japanese management which integrates all the components within a dynamic whole and clarifies the underlying importance of social harmony.

In Japanese, Kaizen means "small, incremental, continuous improvement," and the English translation is "continuous or continual improvement." Kaizen is a philosophy that focuses both on the process and the results. According to Masaaki Imai, Kaizen is an umbrella concept. (Imai, 1986) It is a process that, when done correctly, humanizes the workplace, eliminates unnecessarily hard work (both mental and physical), teaches people how to do rapid experiments using scientific methods, and how to eliminate waste in business processes. Kaizen is also a most frequently used word in Japan. One can hear of Kaizen in the commercial exchange balance of Japan, in the system of social security or productivity of Japanese companies etc.

The distinguishing feature of Japanese management is process oriented, and not uniquely goal oriented way of thinking. As a matter of fact, the main difference between Japanese and Western management is in its focus on improvement of all components of production and business process, particularly on such factors as stimulation and involvement of workers and medium ranking

[*] The author was assigned as a diplomat for the duration of two terms in Japan

managers in the decision making process. The outcome is a process oriented management, with its relevant criteria, against a result oriented management focused on control. While process oriented criteria require long term perspective, result oriented criteria, on the other hand, are focused on short term benefits. Process oriented thinking has been one of the key components of the competitive advantage of Japanese industry in the world markets.

Such a difference of focus between Japanese and Western management pervades not only the strategy of improvement of productivity itself, regardless of the working environment, but the concept of quality control itself. Usually, when quality control is concerned, we think only about the quality of products, but Kaizen is also about human quality, meaning a greater emphasis on the education and training, as well as involvement in the quality control process of all employed. There is an axiom in Japanese productivity system which says: “Quality control begins and ends in training”. In one word, the management is tasked to improve the business culture by developing quality and motivation in the human resources field.

THE PHILOSOPHY OF KAIZEN

There are five underpinning principles to kaizen. The first is a heavy reliance on teamwork, in which everyone's opinion is valued and considered, involving their active participation in the form of suggestions aimed at continuous improvement, even when a system appears to be functioning adequately. Kaizen philosophy recognizes that there is always room for improvement. Finally, the system uses quality circles, groups of workers who meet and work together to solve problems and come up with innovative changes. This feature of Kaisen philosophy is clearly based on the Japanese cultural tradition, which puts greater emphasis on group consensus building. The focus on human resources building within Kaizen strategy has anticipated the post-modern developments in the field of management and competitive advantage.

Kaizen is a system that involves every employee - from upper management to the cleaning crew. Everyone is encouraged to come up with small improvement suggestions on a regular basis. In companies as Toyota and Canon, a total of 60 to 70 suggestions per employee per year are written down and implemented. Suggestions are not limited to a specific area such as production or marketing. Kaizen is based on making changes anywhere that improvements can be made.

Kaizen involves setting standards and then continually improving those standards. To support the higher standards, Kaizen also involves providing the training, materials and supervision that is needed for employees to achieve higher standards and maintain their ability to meet those standards on an on-going basis. The term "standard" can be misunderstood as something rigid, unchanging, and absolute. If it is misunderstood in this way, it becomes an obstacle to Kaizen.

In business Kaizen encompasses many of the components of Japanese businesses that have been seen as a part of their success. Quality circles, automation, suggestion systems, just-in-time delivery, Kanban (notice board, as a form of integrated control of part supplies) and 5 S are all included within the Kaizen system of running a business. As a set of priciples, Kaizen is often presented in the form of guidelines:

1. Discard conventional fixed ideas.
2. Think of how to do it, not why it cannot be done.
3. Do not make excuses. Start by questioning current practices.
4. Do not seek perfection. Do it right away even if it will only achieve 50% of target.
5. If you make a mistake, correct it right away.
6. Throw wisdom at a problem, not money.
7. Ask 'WHY?" five times and seek root causes.
8. Seek the wisdom of ten people rather than the knowledge of one.
9. Don't ask workers to leave their brains at the factory gate.

THE DISTINCTIVE FEATURE OF JAPAN'S COMPETITIVE SUCCESS

In his *Kaizen: the Key to Japan's Competitive Success* published in 1986 that introduced Kaizen to the Western corporate world, Masaaki Imai defined it as: "a means of continuing improvement in personal life, home life, social life, and working life. At the workplace, Kaizen means continuing improvement involving everyone—managers and workers alike. The Kaizen business strategy involves everyone in an organization working together to make improvements without large capital investments." (Imai, 1986) Managers are encouraged to improve the efficiency of existing infrastructure instead of investing in more of the same. "And that," says Imai, "can happen only if you are familiar with every inch of your *gemba* (workplace)".

The objectives of Kaizen include eliminating waste or activities that add cost but not value, just-in-time delivery, production load leveling of amount and types, standardized work, paced moving lines and right-sized equipment. Basically, Kaizen takes processes, systems, products, and services apart then rebuilds them in a better way. Kaizen goes hand-in-hand with that of quality control.

Kaizen does not view problems as negative but rather sees them as positive opportunities for improvement. To implement change, Kaizen finds, reports, and fixes problems. This program encourages rewarding employees who expose inefficiencies and other issues. Kaizen is about taking action to generate suggestions then implementing productive ideas as soon as possible.

Kaizen results in improved productivity and quality, better safety, faster delivery, lower costs and greater customer satisfaction. Furthermore, employees find work to be easier and more enjoyable—resulting in higher employee morale and lower turn-over. Outcomes include:

- Reduction in waste in areas such as inventory, waiting times, transportation, worker motion, employee skills, over production, excess quality, and in-processes
- Improvement in space utilization, product quality, use of capital, communications, production capacity, and employee retention
- Immediate results. Instead of focusing on large, capital-intensive improvements, Kaizen focuses on creative investments that continually solve large numbers of small problems. The real power of Kaizen is in the on-going process of continually making small improvements that improve overall processes and reduce waste

A key element of the Toyota Production System (TPS) is Kaizen. The Toyota Production System is frequently compared to a house with two pillars. One pillar represents *just-in-time* (JIT), and the other pillar the concept of *jidoka*. The house will not stand without both pillars. JIT is fairly well understood, but *jidoka* is crucial, since it upholds the entire system. A lot of failed implementations can be traced back to not building this second pillar.

What does *jidoka* mean? A common answer to this question is "autonomation" or "automation with a human touch." This is usually illustrated by example of a machine that will detect a problem and stop production automatically rather than continue to run and produce bad output. The principle's origin goes back to 1902 when Sakichi Toyoda invented a simple but ingenious mechanism that detected a broken thread and shut off an automatic loom. That invention allowed one operator to oversee the operation of up to a dozen looms while maintaining perfect quality. Toyota refers to every process, whether human or automatic, being enabled or empowered to autonomously detect abnormal conditions and stop. When JIT and *jidoka* work together, they form the engine of kaizen that drives your system to get better every day. There are two things that are part of every Toyota' employee's job:

1. Follow the standard
2. Find a better way

This is the essence of Kaizen. These simple yet profound rules are what drive every employee to maintain safety, quality, low cost, and on-time, striving to make it better. To ensure that the Kaizen

mindset is being followed and that every individual's creativity is being fully utilized, the following three rules are commonly prescribed:
1. Spend no money
2. Add no people
3. Add no space

Kaizen will reduce costs, space requirements and cycle time. Of course, since it is continuous, as soon as one set of problems are solved, new problems occur which must be overcome. By going through this process, the production system becomes stronger and stronger. The results are:
1. 65% reduction in work-in-process
2. 50% reduction in manufacturing space
3. 45% improvement in throughput time (lead-time)

The Japanese management encourages employees to generate a great number of suggestions and works hard to consider and implement these suggestions, often incorporating them into the overall Kaizen strategy. Management also gives due recognition to employee's efforts for improvement. An important aspect of the suggestion system is that each suggestion, once implemented, leads to an upgraded standard.

According to the Japan Industrial Standards, implementing quality control necessarily involves the cooperation of all people in the company, including top management, managers, supervisors, and workers in all areas of corporate activities. Quality control carried out in such a way is called company-wide quality control or total quality control (TQC).

TOTAL QUALITY CONTROL

Total quality control (TQC) means organized Kaizen activities involving everyone in a company – managers and workers – in a totally systemic and integrated effort toward improving performance at every level. It is to lead to increased **customer satisfaction** through satisfying such corporate cross-functional goals as quality, cost, scheduling, manpower development, and new product development. In Japan, TQC activities are not limited to quality control only. Elaborate system strategies have been also developed with the view of improving managerial performance at all levels.

Kaizen is the philosophy of incremental continuous improvement with involvement of everyone. At first glance everything is pretty clear and simple - what you need to do is to improve the processes around to make things more efficient. However the first obstacle which appears on the way to improvement usually starts with few questions: what to improve, why to improve, who shall improve, where to improve, how far to improve, how much it will cost. All these questions are answered by Kaizen. This philosophy stresses the high importance of the working environment as the actual place of improvement and the source of information regarding improvement areas. Everything what creates wastes of resources - time, emotions, financial resources, raw materials, unnecessary steps - might be improved. The real life advantages of this approach were observed in the case of Toyota Motor Corporation. The company sought to maximize the waste elimination and error-free production by introducing real time alert system on the operations level. This system allowed ground floor employees to stop the production line if problems occurred. The major message of Imai about Kaizen is that continuous improvements cost nothing but might significantly improve the overall process. However, prior to rushing to improving drawbacks an individual shall evaluate the consequences of change as well as the degree of its urgency and its usefulness for the work process.

In the 1980s, with the globalization of Japanese businesses, kaizen became globally known. According to Imai Kaizen "…was originally developed in Toyota and spread among other Japanese manufacturers as they gained fame in the international market for higher quality products."(Imai,

1986) Following their expansion worldwide, Japanese multinational manufacturing companies tried to duplicate the quality management methods within their new factories. When Japanese firms endeavored to increase local procurement of intermediate inputs, local suppliers were requested to conform to Japan's quality standards. Thus, Japanese companies often assisted their local partners in learning the Kaizen philosophy and practices. Accordingly, the Japan International Cooperation Agency (JICA) began to rely on the Kaizen management style to transform the industrial activities of a number of developing countries.

The Japanese make a distinction between Kaizen and innovation: Kaizen is gradual, uses small steps, conventional know-how and a lot of common sense, while innovation is viewed as being more radical because it comes in big steps. Again, there are discrepancies in the concept of innovation between Japanese and Western companies. Innovation in the West is seen as a unilateral, costly and dramatic breakthrough, the results of which are tremendous. On the contrary, Kaizen effectiveness is not immediate but brings about comprehensive and long term results. The fact that Kaizen, in contrast with the Western concept of innovation, does not involve sophisticated techniques and state of the art technology, as well as big investments, is crucially important from the point of view of SME in the actual global economic crisis.

Another difference of approach between Japanese and Western companies is related to the concept of total quality control (TQC). In Japan it is based on the input of the market, rather than the output of products. The Japanese are traditionally sensitive toward the needs of the customers and this is an important aspect of Kaizen as a strategy of total quality control. Its orientation toward the customers is therefore crucial. This is one of the "secrets" of the success of Japanese products worldwide.

For most Western companies Kaizen involves a significant change in the corporate culture. This is the key. The attitudes of employees, from top management down to new hires will need to change. Kaizen is not a formally adopted method, but involves a transformation of the working environment and needs to become something all employees do because they want to, and because they know it is good for them and the company.

When *The Machine That Changed the World* was first published in 1990, Toyota was half the size of General Motors. Today Toyota is the world's largest auto maker and is the most consistently successful global enterprise of the past fifty years. This management classic was the first book to reveal Toyota's lean production system that is the basis for its enduring success.

In "Kaizen," Mr. Imai reduced much of his theory to simple and strait forward insights: What needed most improvement in most businesses, he argued, were QCD, or Quality, Cost and Delivery. That tendency, continued in *Gemba Kaizen.* The nutshell of this book is the idea of *gemba*. Roughly translated, *gemba* is where the action is. In an industrial or corporate setting, *gemba* is the "place where products or services are formed." The idea is interesting because *gemba* is a spatial concept, not an idea used to organize activity, as most management theories are.

But *gemba* does have the effect of shifting attention from individual employees to the workplace and thus looking at the spatial arrangements that impose limitations on productivity improvements. American companies tend to regard space as incidental, except perhaps as it reflects hierarchy and power. Most American executives would say the real business of business takes place in the executive suite. The factory floor simply executes the plan.

Gemba Kaizen offers an alternative to that analysis. Mr. Imai would probably say he could walk the floor or office complex of any American company and discern where the real action is — the flattening of the humps that services must get over to provide genuine customer satisfaction, or the moment in the manufacturing process when it is clear a quality product will roll off the assembly line.

CONCLUSION

From that point of view, Kaizen management is providing a tool to adapt to the global competition by eliminating waste in the process of production, changing corporative culture and encouraging cross-functional links between the managerial staff and production workers, as well as combining between top down and bottom up mamgement.

The results of the Japanese management thoughout the last decades based on the concept of Kaizen have been outstanding. Since its inception, the implication of Kaizen for businesses and SME has outgrown its initial scope in many parts of the world. It is studied in various universities and presents a strategy for companies faced with the actual economic crisis and in need to keep their qualified manpower by eliminating waste and improving production and management according to the principles of Kaizen.

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ENERGY MANAGEMENT AND RENEWABLE ENERGY RESOURCES AS DEVELOPMENT FACTORS OF THE REPUBLIC OF SERBIA

Petronije Jevtić, PhD*
College of Applied Vocational Studies, Vranje, Serbia
pjevtic@verat.net
Ljiljana Stosic Mihajlovic, PhD
College of Applied Vocational Studies, Vranje, Serbia
mihajlovicp@ptt.rs

ABSTRACT

Energy is one of the strategic resources in the development of economy and society in general, and constant growth of energy prices is reality. On the other hand, oil and gas reserves are limited to and concentrated in a few countries. Considering the fact that there will be significant increase of population on the planet in the future, most countries endeavour to reduce imported energy consumption, which forms the basis for economic development and improvement of standards of living. Due to aforementioned, energy efficiency increase, employment of renewable energy resources and constant care for the environment are basic elements in the concept of renewable development.

Key words: energy management, renewable energy resource

1. INTRODUCTION

Nowadays, energy is one of the most important elements of development of economy and society. Energetic has crucial geopolitical magnitude, where climatic changes and energy supply stability make dominant contribution, taking into account, above all, the fact that oil and gas reserves are limited and concentrated in a few countries. According to some research, world's energy demands will rise at 1.8% rate by 2030, and if nothing is done, fossil fuels will meet 88% of total energy demands on the planet. There is a common opinion all over the world that the current consumption and use of resources is unsustainable. Namely, due to uncontrolled growth of world population, economic development and climatic changes, water, food and energy scarcity will occur for the first time in 2030. Today, about 4 billion tons of oil is used per year, which in comparison with total oil reserves of 120-160 billion tons leads to a simple conclusion that present oil reserves will be depleted in a less than 40 years. Gas reserves will be depleted in about 60 years if this tendency continues, while coal reserves will be depleted in about 200 years. As it was forecasted by one of the most relevant institution dealing with global analyses of DOE-IEA, the oil barrel price will reach 200$ in 2030. We have become aware of the fact that non-renewable energy sources, and above all, fossil fuel resources, are limited and unevenly distributed, as well as that, multinational funds, together with political influences will have a greater role on the world energy market. In the last two decades, energetic has become global, and availability of various energy forms, as well as reasonable use of energy have become major factors of development of some countries and the world as a whole. Because of that, industrial western countries commenced rational consumption of fossil fuels by increasing energy efficiency and by more intensive use of renewable energy resources.

2. EXISTING ENERGY SITUATION IN SERBIA

Energetic dependence of Serbia moderately grows. The greater that dependence is, the more sensitive to disturbances in the world's energy market its economy becomes. The projected energy dependence for 2010 is more than 50, 9% more than estimated import dependence in 2007, being 41%. According to energy balance of the Republic of Serbia for year 2008, planned net import of primary energy was 6,490 million tons of equivalent oil (Mtoe), and it grew for 6% in comparison to 2007 when it was estimated at 6,139 Mtoe. The fact that Serbia is most energy dependent on imported oil and gas implies on emergency for rational energy consumption through increasing energy efficiency and investigating possibilities of using local available renewable energy resources. Apart from abovementioned, according to the Freedom House Report for year 2008 "Serbia is one of the greatest consumers and pollutant in the West Balkan". Carbon dioxide emission is 6.6 times more than world's average, i.e. 11 times more than OECD average. Primary energy consumption by unit of gross domestic product in some sectors is five times more than world's average, i.e. up to 8 times more than in OECD countries." [2] Consequently, economy produces goods that are uncompetitive; households pay a lot of money for used energy, while the state spends more money for energy import. As a result of poor investment in energy infrastructure for past decades, energy efficiency in Serbia has recently been up to 2.5 times lower than in the European Union countries. Necessity to use renewable energy in Serbia, as well as in the world, becomes more and more topical, which culminated with so called "natural gas crisis" at the beginning of 2009, when Russia ceased gas to Ukraine, which further led to total gas reduction to several European countries including Serbia. Concerning that already important energy issue often depends on economic and political relations of countries, it is necessary to turn to local available energy resources in order to avoid dependence on some energy sources owned by few states. Due to all abovementioned, energy management should be capable to plan work of energy plants depending on the amount and type of energy at disposal.

3.ENERGY MANAGEMENT

"Energy management most generally means management of energy flow parameters within an organization, starting with the process of energy production and supply, through transformation to the final energy consumption. The term "energy flow parameters" implies various quantity and quality parameters used for describing some of the processes from technical, economic, and social aspect, as well as from the environmental aspect." [3] The present energy management in Serbia is mostly oriented towards activities of providing optimal energy supply, maintaining energy plants, and planning and realization of new investments. Energy management focuses on technical aspect of energy production (solving issues of maintaining energy systems), while financial aspect of energy management (e.g. energy supply) is separated from technical aspect - providing services. Supply and payment for energy is mostly performed by financial services, while energy management does not have much influence on those activities. Under such conditions, the issues of using renewable energy resources, reduction of bad effects on the environment, as well as the issue of energy efficiency all stand back. Therefore, it is necessary to transform such system. By adopting a strategy of energy development of the Republic of Serbia for the time period 2007-2012, it has been planned for the energy managers to carry out the following activities which present adjusting energy sector functions with the EU directives:

- To prepare plans and programs for using renewable energy resources and their implementation,
- To promote and implement energy efficiency provisions at local level,
- To constitute energy management as an instrument for implementation of energy policy in municipalities, i.e. constitution of energy manager function, being the major carrier of these activities at local level.

If the primary goal of energy policy was increasing energy efficiency and introducing renewable energy resources and major activities of energy management were oriented towards them, there will be some savings that might amortize investments in realization of concrete provisions of energy efficiency. After paying off investments, the budget saving may be used for other purpose, e.g. development of energy systems based on renewable energy resources.

4. ORGANIZATION AND MANAGEMENT IN ENERGY MANAGEMENT

Pursuant to the Law of Energetic, the Ministry is in charge of preparation, implementation, and observation of energy policy of the Republic of Serbia. Accordingly, organization and realization of the project for strategy of development of the Republic of Serbia energetic by 2025, with projections by 2030 is under the Ministry, while at local level, there should be a service and individuals in charge for implementation of

energy management at local level in each municipality. Local authorities work according to the Project for implementation of energy management in municipalities.

The Project management board will be constituted for managing the Project of strategy development, and it will be based in accordance with the Government regulations. The board will have 3 representatives from the Ministry, 1 representative from the Agency for Energetic, and 1 representative from the Agency for Energy Efficiency. The chairman of the board for managing the Project is a minister in charge for mining and energy industry. A working group of the Project for coordination of professional activities (further: Working Group) will be constituted for the needs of the Project realization, and by the act of the Minister in charge for mining and energy industry, and in accordance with provisions for the government, prescribing the principles for internal organization and systematization of posts within ministries. Tasks of the Working Group will be defined by the Act of its constitution, and they should be made of the following activities:
1) to define and adjust project tasks for experts and expert teams in cooperation with the Ministry sectors and departments, and send them to the Project management board for adoption. The Project task is defined by the Working Group leader.
2) the Project management board proposes institutions for making contracts and experts that will be the part of expert teams.
3) it proposes the text of the contract to be signed with institutions whose experts will be engaged in study. The contract form is defined by the Chairman of the Working Group.
4) it coordinates and observes activities of experts, i.e. expert teams.
5) it reviews the reports and sends them to the Board for adoption.
6) it meets with expert teams at least once in three weeks.
7) it organizes public discussions.
8) it reports on the Project to the Project management board.
9) the chairman of the Working Group observes and coordinates activities of other Working Group members, all expert teams and the Ministry sectors and departments for sustainable development.
10) the Working Group consists of: Assistant Minister in the Sector for general energetic, being the Working Group chairman, and who coordinates activities of all expert teams, and being also in charge for coordination of the expert team activities for energy balance and energy planning. Employees in sectors and departments within the Ministry are obliged to provide help in the activities of the Working Group members, and to perform the Project activities upon its demand. Related to that, temporary changed work organization in the Ministry, and the engagement of state officials in the activities of making the Strategy of energetic development may be additionally provided by a directive of the Minister of Mining and Energy Industry. Technical, legal, and economic analysis of particular energy field, prepared by each sector, i.e. department in charge for particular expert team, is prior to the preparation of the Project tasks for expert teams. Based on these analyses, the sector, i.e. department suggests the number and the profile of experts to be members of certain expert teams. Based on this, the Project tasks for these experts are prepared, and in that way their role in team is also defined. Sectors and departments for sustainable development of the Ministry for Mining and Energy Industry have a task within their jurisdiction to:
1) Take part in realization of all activities on making and adopting new strategy through activities of the Working Group members and experts, i.e. expert teams.
2) Prepare project tasks for experts and expert teams in their field, and to coordinate them.
3) Prepare contracts and monitor their realization.
4) Monitor work of experts and review reports made by experts and expert teams.
5) Organize meetings with experts and other people involved in the Project.
6) Prepare the structure of GIS energy data base in cooperation with other expert teams and sectors in the Ministry for Mining and Energy Industry.
7) Send reports to the Working Group members on situations and problems and other.
8) Sector for general energetic has a task to, apart from duties concerning coordination of expert team work, monitor, and harmonize work of all other sectors and their expert teams on this Project.
3. Expert teams
There are following expert teams:
1) An expert team for energy balance and energy planning
2) An expert team for production, refinement and transportation of raw oil and its derivatives
3) An expert team for production, transportation, and distribution of natural gas
4) An expert team for coal production
5) An expert team for production, transportation, and distribution of electric power
6) An expert team for production, distribution, and supply with heat
7) An expert team for energy efficiency in energy consumption sectors
8) An expert team for renewable energy resources

9) An expert team for the environment protection.

Each of abovementioned expert teams will, within the text for strategy creation being submitted with reports, elaborate international-legal aspect of a module, i.e. field to which a team is assigned, implying: the level of compatibility of acts and other regulations with the EU law, liabilities and activities coming from bilateral and multilateral agreements and membership in international organizations, results and possibilities for using resources of the EU Access Funds and other international funds. Each of expert teams listed under items from 1 to 9 has a task to cooperate with other expert teams, to define, i.e. modify requisite structure of GIS energy data base and to input collected and processed data into GIS energy data base of the Ministry. Expert teams listed under items from 2 to 9 have a task to prepare the following reports: periodic reports on the realization of the Project task, with text for creation of new strategy with background, the preliminary report of realization of the Project task, with text for creation of new strategy with background, the final report of realization of the Project task, with text for creation of new strategy with background, a report on the results of public discussion with the text for creation of new strategy with background, the report of input data in GIS energy data base in the Ministry of Mining and Energy Industry.

5. OBJECTIVES OF THE REPUBLIC OF SERBIA CONCERNING USING RENEWABLE ENERGY RESOURCES

Serbia has at its disposal significant energy potential of renewable energy resources (OIE). This energy potential is mostly contained in biomass and watercourses, and there are a few more significant OIE in Serbia: geothermal energy, wind energy and solar energy. The strategy of development of the Republic of Serbia energetic by 2015 recognizes importance of using OIE. Use of renewable energy resources is mentioned regarding all groups of objectives defined in the Strategy: basic energy, special technological and ecological and general development, and strategic objectives. Use of OIE and new more energy efficient and environmentally accepted energy technologies and equipment for energy exploitation is defined as the third, particular priority of development of the Republic of Serbia energetic (total five priorities have been defined). Three objectives concerning more intensive use of OIE have been defined by the Program of realization of the Strategy for development of the Republic of Serbia energetic by 2015 for the time period between 2007 and 2012:
1) creation of stimulation regulation frame for more intensive use of OIE,
2) making and implementation of financial provisions to stimulate use of OIE and,
3) making and implementation of non-financial provisions and activities to stimulate use of OIE.

The same document specifies plans for construction of new capacities for using OIE by 2012, and those are: small hydro power plants 61MW, biomass fuel boiler 110MW, biogas fuel plants for producing electricity and heat 3.5 MW (of electric power), installation of solar (thermal) collectors 22,000 m^2, wind power plants 26 MW, geothermal plants 92 MW, and plants for production of liquid biofuel. OIE for 2.2%, regarding total electricity consumption in 2007, and that presence of biofuel and other renewable resources fuel on the market is 2.2% in comparison to total fuel consumption in transport, calculated through energy contents. According to the Decree of amendment for Decree on the Program of Energy Development Strategy of the Republic of Serbia by 2015 for the time period between 2007 and 2012, major objectives of the Program concerning biomass in Serbia are as follows:
- efficient use of available resources for energy production,
- reducing emission of gases with greenhouse effects,
- reducing dependence on import and,
- creating new posts.

Apart from that, the Republic of Serbia ratified the Treaty establishing Energy Community, signed between the EU and Southern European countries, accepting new obligations related to OIE implementation. Concerning the European Union Law, since Serbia has strategic aim to approach the EU as soon as possible (which implies implementation of corresponding laws and standards), it is particularly important to mention Directive 2009/28/EC promoting use of energy from renewable resources and determines common frame for promotion of energy produced in such way. This Directive sets compulsory national objectives for total energy share from renewable energy resources in final energy consumption, and for share of renewable energy resources in transport: at least 20% of energy share from renewable energy resources in final energy consumption in the EU, and 10% of energy share from renewable energy resources in energy consumption for transport by 2020. Besides, criteria for sustainability of biofuels and liquid biofuels have been established. Recently, introduction of obligation to build energy and/or CO_2 neutral buildings in the EU by 2018, i.e. 2020, has been mentioned more and more often.

6. THE EU DIRECTIVES ON RENEWABLE ENERGY RESOURCES PROMOTION

The Republic of Serbia has assumed obligations to enable development of energetic based on renewable energy resources (above all biomass) in order to reduce and limit emission of gasses with greenhouse effect by signing the Kyoto Protocol, the Treaty establishing Energy Community between the EU and Southern Europe countries, and other international treaties. By ratifying the Treaty establishing Energy Community between the EU and Southern Europe countries the Republic of Serbia has assumed the obligation to implement directives aimed for more intensive use of renewable energy resources, and those are the following:

- **Directive 2001/77/EC** on the promotion of electricity produced from renewable energy resources in internal electricity market
- Directive 2003/30/EC on the promotion of use of biofuels or other renewable fuels for transport
- **Directive 2001/77/EC** (published in the EU Official Gazette L283/33 on September 27, 2001) defines renewable energy resources as non-fossil energy sources in the nature, renewing completely or partially, and particularly: wind, solar energy, geothermal energy, sea wave energy, tide energy, hydro energy, biomass, landfill gas, and wastewater gas. Directive 2001/77/EC anticipates establishing national objectives for consumption of energy produced from renewable energy resources, defining provisions and programs for their achievement, being revised every 5 years, and the Member States are obliged to send the report to the European Commission on this achievement. Based on reports by Member States, the Commission will estimate the progress of Member States in achieving their nationally significant objectives, in accordance with globally significant objective being 12% of gross national energy expenditure by 2010. The Commission reports its conclusions every two years. Directive anticipates commitment to:
- issue guarantees of origin for electricity produced from OIE. Guarantee of origin should comprise the following information: Energy source for electricity production, date and place of production, and in the case of hydro power plants, capacity, which will all be confirmation to producers of electricity from OIE that electricity they retail really comes from OIE, and in terms of this Directive.
- Obligation of states to analyze and promote existing legal frames and administration procedures necessary for construction and exploitation of plants producing energy from OIE,
- establish obligation for transmission and distribution system operators to take over and transfer electricity from OIE with possibility of providing priorities for grid access, and to avoid discrimination of electricity from OIE produced in periphery regions, such as islands, and regions with low population density.
- Clearly define technical specifications and tariffs for connection to the grid and conditions for rehabilitation of electro power system. [4]

Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport
This Directive aims at promoting the use of biofuels or other renewable fuels instead of diesel and petrol for transport in order to contribute to objectives such as meeting commitments regarding climatic changes, environmentally friendly security of supply and promotion of energy from OIE. Directive defines biofuel as liquid or gaseous fuel for transport derived from biomass, being biodegradable fraction of the products, waste and residues from agriculture, forestry and related industries, as well as biodegradable fraction of industrial and city waste. Directive 2003/30/EC sets a commitment for states to provide minimum proportion of biofuels (2% of total amount of fuels used for transport by the end of 2005, i.e. 5.75% by the end of 2010). The commitment of the Member States is to report to the European Commission on the measures taken to promote use of biofuels for transport, as well as total sales of transport fuels in the market with the share of biofuels (pure or blended). The conclusion of the Commission, based on the measures taken for use of biofuels in past period, is that the share of biofuel use of 5.75% by the end of 2010 will not be reached, and that it will be about 4.2%. Concerning objectives such as strategic climate change, energy security and economic competitiveness, and that some commitments from previously abovementioned Directives will be in effect by the end of 2010, the European Parliament and the European Union Council have published in the EU Official Gazette L140 from June 5, 2009, **Directive 2009/28/EC on promotion of use of energy from renewable resources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.** According to Directive 2009/28/EC and "in order to reduce greenhouse gas emissions and reduce its dependence on energy imports, the development of OIE should be closely linked to increased energy efficiency". Directive defines OIE, anticipated establishing of OIE share for each Member State, with obligatory objective of total 20% OIE share in the EU consumption by 2020. Individual objectives for the EU countries vary, so the highest standards of OIE share have been set by Sweden with 49% OIE energy, Denmark with 30%, Letonia with 40%, where the large portion of energy has already been derived from OIE. On the other side, there are countries where large amounts of fossil fuels have been used traditionally, such

as Great Britain whose OIE share was 11% in 2005, and those countries will enlarge energy share from renewable resources up to 15%, while Luxemburg with 0.5% of OIE energy from 2005 will reach 11% in 2020. [8] Based on anticipated national objectives for consumption of OIE electrical power, all Member States should define programs for using OIE by December 31, 2011. The objective to reach 20% from OIE is extensive and involves sectors for energy production, transport, heating and cooling, and it will require mass changes in terms of production, transport, and consumption of energy in the European Union, implying simplification and reduction of barriers and administration procedures that might imperil adequate market functions. According to this Directive, each Member State should provide energy share from OIE in transport at least 10% by 2020. It should be mentioned that this is the first Directive of the EU that mentions the Treaty establishing Energy Community, and that anticipates measures for cooperation between the European Union Member States with Southern Europe countries which ratified the Treaty establishing Energy Community in the field of renewable energy resources. By implementing these Directives, the Republic of Serbia gives its contribution to preservation of the environment, improvement state of energy, and therefore improvement in national economy. Putting the Treaty establishing Energy Community in Europe into the force, managers are obliged to make a plan for implementation of abovementioned Directives from OIE field. Nevertheless, there are no regulations in the Republic of Serbia for regulation of use of OIE, as well as regulations for designing, creation, control, and installation of equipment used by OIE, and there are no accredited certificate laboratories for OIE plants. There is also a lack of standards for equipment and procedures for use of OIE, which have already been established in this field in the European Union. If Serbia gets the candidate status for the EU membership soon, energy management has to harmonize national legislation with the EU legislation, as well as to establish whole system of information and education of population, and to provide quality statistical data for defining strategies for implementation of OIE.

5. CONCLUSION

Energy dependency of Serbia in the past years notes increasing trend and it is about 42%. Changes in energy sector require review of lively events in energy field in our country as well as in the world. If Serbia gets candidate status for the EU membership, major activities have to be directed towards assuming and implementation of EU legislation, and towards improvement of competitiveness of its economy by reducing energy dependence of Serbia, and through improvement of energy efficiency and implementation of renewable energy resources, being priority objectives of management, and if the whole system is set in accordance with that, it is possible to expect that the system will pay off itself and realize additional savings. Great losses and irrational energy consumption, as well as growing import dependency are sufficient reasons for Serbia to include improvement of energy efficiency, and implementation of local, particularly renewable energy resources into its development priorities. Implementation of almost completely neglected renewable energy resources having evident potentials in Serbia, offers itself as one of the solutions that should lead to preservation of remained resources, preservation of the environment and sustainable development of energetic. The role of renewable energy resources is important, both from economic development standpoint, and from the standpoint of finding solution to the problem of the environment pollution.

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APLICATION OF THE MAINTENANCE METHODS ACCORDING TO THE CONDITION IN ORGANIZATION MANAGEMANT

Zivoslav Adamovic*
Technical faculty " Mihajlo Pupin", Zrenjanin, Serbia
adamovic@tfzr.uns.ac.rs
Ljiljana Radovanovic
Technical faculty " Mihajlo Pupin", Zrenjanin, Serbia
ljiljap@tfzr.uns.ac.rs
Eleonora Desnica
Technical faculty " Mihajlo Pupin", Zrenjanin, Serbia
desnica@tfzr.uns.ac.rs
Jasmina Pekez
Technical faculty " Mihajlo Pupin", Zrenjanin, Serbia
jpekez@yahoo.com

ABSTRACT

Condition based maintenance focuses on expensive long-life assets that are subject to condition monitoring. The paper presents a methodology to utilise available information from condition monitoring systems. The maintenance models according to the condition are shown in the paper and those are the following: the maintenance according to the condition with the control of parameters and the maintenance according to the condition with the control of the reliability level. It is the modules of developed models that have been given and the stages of development that have been analysed. The algorithm of the prognosis of the technical condition has been developed.

Key words: Condition based maintenance, Models

INTODUCTION

Since the late 1950s the use of condition based maintenance has expanded. The shift from a time based maintenance strategy to condition based maintenance (CBM) strategy has proven beneficial in several cases. Increased system complexity, technological development, expensive production facilities, and introduction of new condition assessment tools have contributed to the use of CBM strategies. However, the authors believe that there is still a significant potential in better utilisation of information from condition monitoring and related decision support tools in both long term and short term maintenance planning (Thorstensen, 1999).

THE MAINTENANCE ACCORDING TO THE CONDITION

The maintenance according to the condition is a kind of preventive maintenance whose strategy of making decisions on the maintenance activities depends on the periodical or persistent control of the technical condition of the system within the exploitation process. On the basis of the results of the control, the decisions on the necessary deadline and the amount of the planned maintenance activities are made. Whereas the classical preventive maintenance includes the maintenance activities that are performed after the appointed time, the maintenance according to the condition includes the control of particular technical parameters of the condition and there is an intervention only if the technical condition exceeds the prescribed limits.

The maintenance according to the condition is a diagnostic process which is carried out in the way that, primarily, within particular time intervals, independently of the condition of damage of the constituent parts of the system, the diagnostic control of the technical condition is performed, and, after that, depending on the technical condition, it is the maintenance activities on the constituent parts of the system that are performed or those parts remain within the exploitation process further on.
During each diagnostic control of the technical condition it should be necessarily decided whether the constituent part of the system is to be re-installed, repaired or discarded. Therefore, the constituent parts of the system that can be maintained, should have the wear-out limit ('the usability limit').
The awareness of the allowable wear-out is one of the prerequisites for the quality and economical performance of the maintenance activities as well as the prerequisite for the application of the method of the maintenance according to the condition.
Technical systems in industry provide the possibility of applying a large number of models of the maintenance according to the condition, whereby some necessary conditions must exist. The research has contributed to those models dividing into two groups (1) (Figure 1):

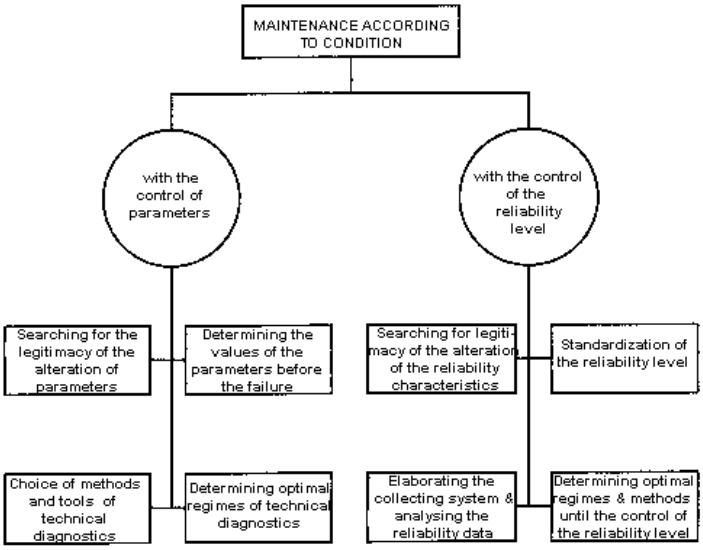

Figure 1:The basic methods of the maintenance according to the condition

- the maintenance according to the condition with the control of parameters, and
- the maintenance according to the condition with the control of the reliability level.

The maintenance according to the condition with the control of parameters includes a persistent or periodical control and measuring the technical parameters which determine the technical condition of the constituent parts of the system. The decision on the maintenance activities is made when the values of the controlled parameters (e.g. the level of vibrations) reach the 'usability limit', i.e. the pre-critical level. The maintenance according to the condition with the control of the reliability level includes collecting, processing and analysing the data about the reliability level of the constituent parts and their elaboration. The decision on the necessary planned maintenance activities is made after the reduced reliability.

THE MAINTENANCE ACCORDING TO THE CONDITION WITH THE CONTROL OF PARAMETERS

Basic Modules

The maintenance according to the condition with the control of parameters has the planning-forestalling character. The periodical performance and the amount of work for the technical diagnostics are determined, whereas the forestalling character is provided by a constant control of the technical condition of the system in order to find the condition leading to a failure (ε_1) and the wear-out limit (ε_2 =

ε). In order to find out the conditions ε_1 and ε_2 the principle of determining the tolerance for diagnostic parameters (the diapason between the maximum parameter level and the one before the failure occurs) can be used, whereby the system failure occurs at the moment when the parameter of the system condition reaches the bordering level (ε_2).

If the condition parameter reaches the value ε_1, it means that it is necessary to perform some maintenance activity in order to escape the failure of the system (replacement or repair of the constituent part of the system should be performed at the moment of the diagnostic control when $\boldsymbol{\varepsilon < \varepsilon_1}$) whereby the value of the forestalling tolerance $(\Delta\boldsymbol{\varepsilon} = \boldsymbol{\varepsilon}_2 - \boldsymbol{\varepsilon}_1)$ is connected with the value of the periodical performance of the diagnostic control ($\Delta \boldsymbol{T} = \boldsymbol{T}_2 - \boldsymbol{T}_1$).

A correct or incorrect technical system can be presented as a dynamic system, whose technical condition is at any moment determined by the values of input, internal and output parameters, i.e. this problem can be solved by the cybernetic principle of 'the black box'.

The performed operations of the technical diagnostics can be divided into three stages: the transformation of the physical phenomena which follow the operation of the examined technical system into a diagnostic signal (electrical value), measuring (registering) certain parameters of the diagnostic signal (e.g. a certain relative value), comparing the values of the measured parameters of the diagnostic signal with the allowable values of the determined technical norms ($\boldsymbol{\varepsilon}_2$). If $\boldsymbol{\varepsilon < \varepsilon}_2$, the technical system can operate properly, but if $\boldsymbol{\varepsilon > \varepsilon}_2$, the system is out of order, so the exploitation process must be either interrupted or further performed under special control. The choice of the diagnostic control parameters of the technical condition and searching for the failure of each part of the system are carried out on the basis of the following:

- studying their function, way and conditions of operation,
- analysing the level of their functioning,
- making logical schemes of cause-related connections of the parameters and factors influencing the operational ability of the technical system,
- analysing the failure etc.

The chosen parameters of the technical condition (vibrations, temperature, pressure etc.) should completely define the condition of the constituent parts of the system, which enables predicting the moment of the deviation of the basic characteristics of the constituent parts and/or the system from the nominal (allowable) values. When choosing the parameters it should be taken into account that their number is to be as small as possible (it is most desirable that there is one, two or three parameters).

Taking into consideration the alteration of the technical condition of the system leading to the parameters exceeding the nominal limits and performing their division in relation to the speed of the alteration of the technical condition (possible criterion for classification), all the technical systems in industry can be classified into those where the alteration of the technical system is performed momentarily (discretely) and the ones where the alteration of the technical condition is performed gradually (monotonously). According to all the above mentioned, it is possible to form a model of maintenance according to the condition with the control of parameters (1) which involves the application of the method for (Figure 2).

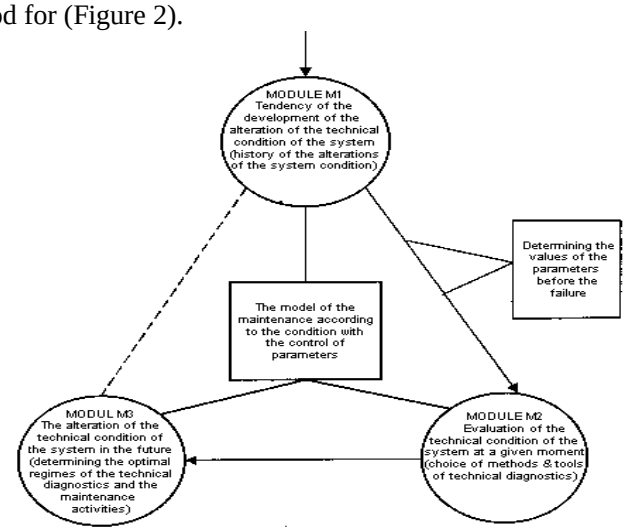

Figure 2: The stages of the development of the maintenance according to the condition with the control of parameters

Defining the legitimacy of the technical condition alteration on the basis of the history of the condition alteration, such as in Figure 3.
Defining the diagnostic system of the system condition such as in Figure 4.

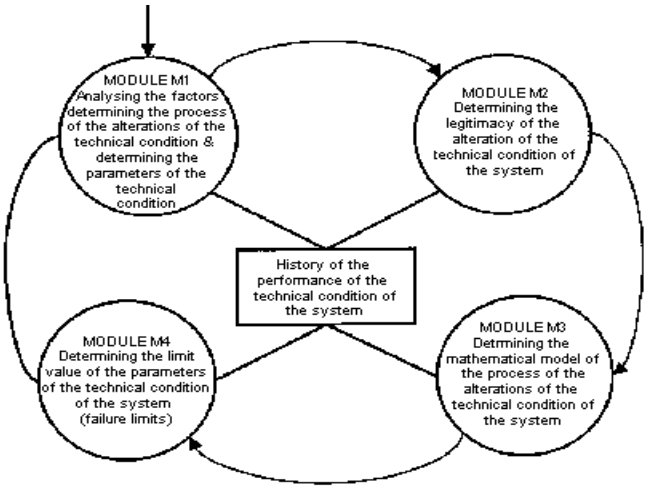

Figure 3: Research into the history of the alteration of the technical condition of the system

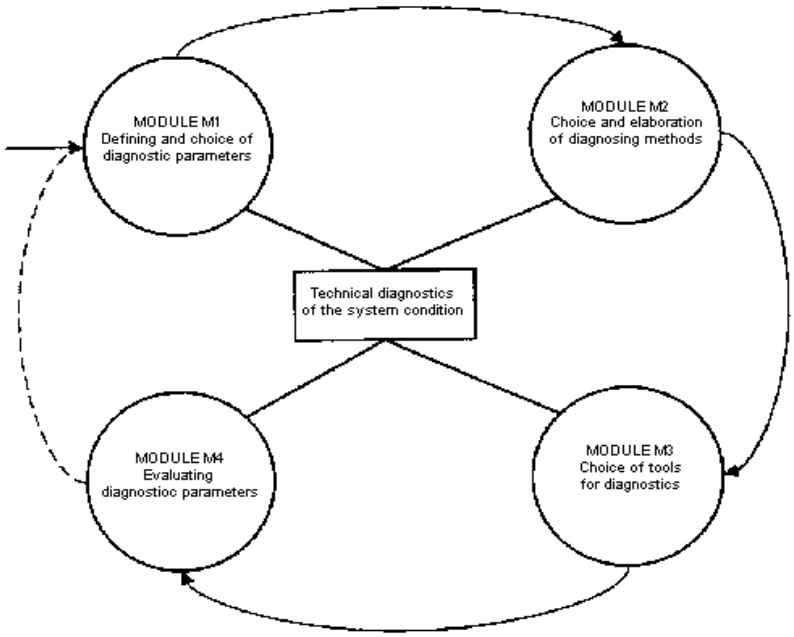

Figure 4: Modules of technical diagnostics within the process of the maintenance according to the condition

Defining the anticipation system of the system condition (getting ideas about the technical condition in the future or prognostication ('usability reserve'), such as in Figure 5.
After solving the problem of determining the diagnostic regime (defining the anticipation of the condition of the system), i.e. determining optimal periodical diagnostic controls for the constituent parts of the system, with respecting the signalization tolerances for the controlled parameters, there is a new problem of grouping periodical performances of diagnostics and the maintenance activities for the constituent parts of the system within the optimum type of standard diagnostics. The optimum variant of standard diagnostics can be determined according to the criterion of the minimal average annual costs of the maintenance system together with taking into account the costs due to the production failure.

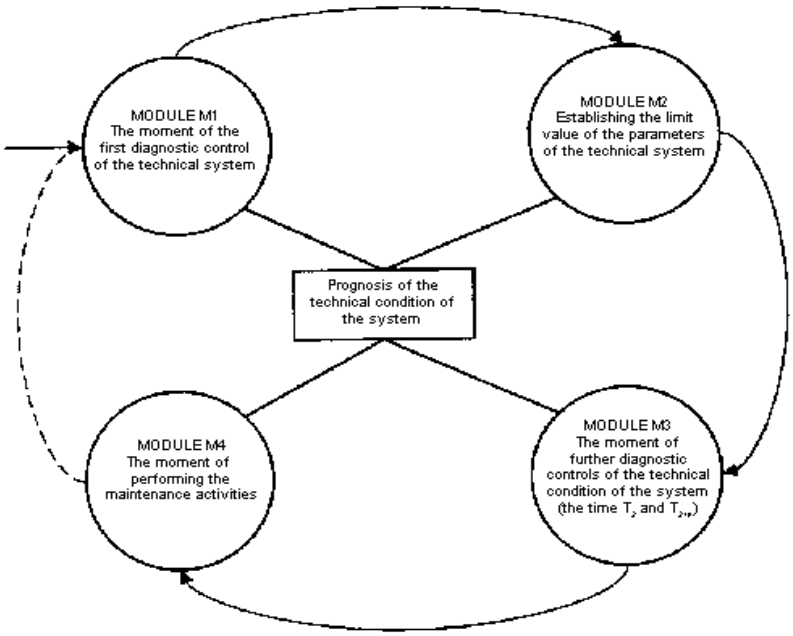

Figure 5: The modules of the prognosis of the technical condition of the system

The maintenance according to the condition with the control of the reliability level

The basic approach while defining the maintenance according to the condition with the control of the reliability level amounts to the fact that the constituent parts of the system are used without limiting the resource between repairs with performing the necessary maintenance activities while removing the existent failures, whereas the real reliability level is within the limits of the determined (allowable) norms. If a deviation occurs, the measures for improving the reliability level of certain constituent parts of the system are taken. Accordingly, the reliability level expressed by the reliability indicators has been adopted as the criterion of the technical condition for this maintenance model. In order to solve the given problem, such indicator should possess the maximum information about the technical condition of the system, it must be suitable for performing comparative analyses and it must also be critical to the alterations of the technical exploitation process of the system on the whole. The movement of the failure intensity can best correspond to those demands.

The basic modules of the maintenance according to the condition with the control of the reliability level are shown in Figure 6.

All the information about the reliability of the constituent parts of the system is primarily derived from extensive experiments. There is much less information referring to the results of the research of the operation of the system within the real conditions of exploitation. The failure intensities which are mentioned as the results of the examination of certain constituent parts are often treated as certain 'nominal' or 'basic' values of this reliability indicator.

On the basis of the estimated failure intensities of the constituent parts of the system it is possible to make the prognosis of the failure intensity of the system. In principle, this can be performed in three different ways:

- estimate of the reliability according to the principle of the similarity of the constituent parts (made with 2-3 alternatives),
- estimate of the reliability applying the method of enumerating the constituent parts (for the parts of identical functions, but different performances) and
- estimate of the reliability applying the analysis of stress (e.g. the alteration of thermal stress with turbines can serve as a real parameter for the reliability estimate).

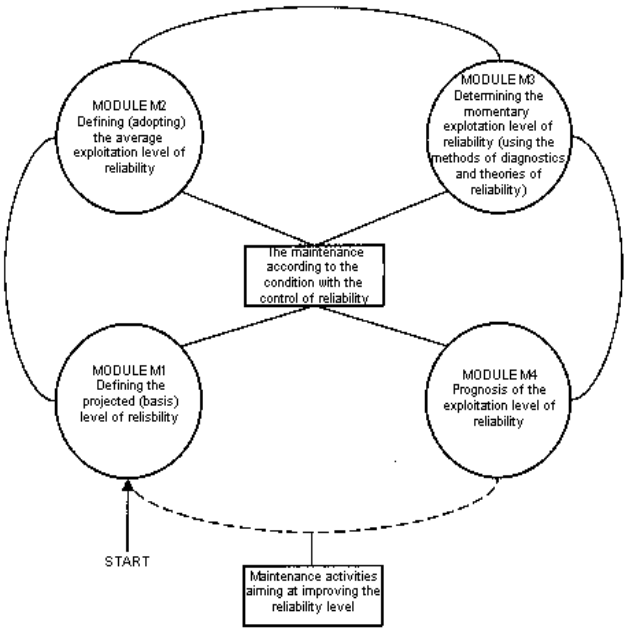

Figure 6: Modules of the maintenance according to the condition with the control of the reliability level

CONCLUSIONS

Developed models of the maintenance according to the condition can be applied in all industrial branches, as organization managemant. They are very simple, without special mathematical patterns and do not require complex information systems.

Analytical expressions, which were reached by the application of the linear alteration of the technical condition of the system (other alterations can also be accepted), indicate the influence of the quantiles of normal distribution, mathematical expectation and average square deviation.

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Session C: ECONOMIC MODELS AND ECONOMETRY

Papers (pp. 193-262):

FACTOR ANALYSIS OF REGIONAL LABOUR MARKETS

Mirko Savić
Ekonomski fakultet u Subotici, Srbija
savicmirko@ef.uns.ac.rs
Stojanka Dakić*
Ekonomski fakultet u Subotici, Srbija
stojankad@ef.uns.ac.rs
Dejan Brcanov
Ekonomski fakultet u Subotici, Srbija
brcanovd@ef.uns.ac.rs

ABSTRACT

This paper was done in the framework of the project Vojvodina and EU Regions: Structural Analysis Concerning Age, Gender and Education and Comparison of Labour Markets, Labour Migration and Policy Measures, funded by the ADA (Austrian Development Agency) and CESS (Centre for Economic and Strategic Studies). The main objective of this research was to perform a comparison of the labor market in Vojvodina with regional labour markets in the EU, and to assess the regional disparities in the labour market between the EU regions of Vojvodina at the NUTS2 level. During the research, attention was focused on structural aspects of unemployment, employment, the share of long-term unemployment and labor mobility in terms of age, gender, education, and the similarities in the Vojvodina region with the EU on regional labour market structure and implemented policy measures. To uncover the factors underlying heterogeneity, we have conducted a factor analysis, in which we have included the employment, unemployment and participation rates for males and females by age groups and the share of the long-term unemployment. From this analysis we have obtained five significant factors which are represented in the paper.

Key Words: Labour Market, Factor Analysis, Regions, Vojvodina

INTRODUCTION

This paper explains differentiation of labour market problems and structural differences through descriptive analysis, principal components analysis and factor analysis. Principal components analysis was performed in order to find principal components associated with the structure of employment, unemployment and participation rates to explain variance in the regional labour markets data. We wished to discover the factors underlying heterogeneity through factor analysis with employment, unemployment and participation rates and the share of long-term unemployment included in the model. Analysis obtained certain number of factors that will account for significant percentage of the total variance in the data. The results are indicative of the explanatory power of structural explanations of regional employment, unemployment and participation rate disparities among regions. A series of ANOVA tests have been conducted to test the hypothesis that average employment, unemployment and participation rates in the Vojvodina, Croatian regions and 12 new member states do not differ significantly from the old EU member for each of the indicators as well as for the principal components derived in the last section.

SCIENTIFIC METHODOLOGY APPLIED IN THE RESEARCH

Data for the analysis were collected from different sources. For the structural analysis of labour market in Vojvodina, the following publications were used:

- National Statistical Office, Labor Market Survey for 2007, Belgrade, 2008.
- National Statistical Office, Municipalities 2008, Belgrade 2008.

Data from regional labour market in European Union were collected from EUROSTAT database on the Internet: http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/regional_statistics

Data from publications and EUROSTAT database are from the year 2007 because these were the latest available data at the time of the research. In total, data for 268 were collected, including EU regions, Croatian regions and Vojvodina. Some EU regions were excluded from the analysis because of their specific characteristics, like Guadelupe, Guyana, etc. These regions are the French overseas territories and labour market indicators from those regions have the low relevance.

Discovering factors underlying heterogeneity – factor and regression analysis

Table 1: Factor loadings identified on the basis of factor analysis

Age	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Employment rates - Females					
15-24	0,31	0,14	0,33	0,13	**0,84**
25-34	**0,74**	0,26	0,02	0,25	0,38
35-44	**0,94**	0,10	0,10	0,15	0,12
45-54	**0,86**	0,16	0,34	0,11	0,11
55-64	0,41	0,12	**0,83**	0,01	0,21
Employment rates - Males					
15-24	0,19	0,14	0,26	0,23	**0,88**
25-34	0,36	**0,52**	-0,08	**0,55**	0,33
35-44	0,15	0,49	0,06	**0,80**	0,11
45-54	0,04	0,45	0,31	**0,75**	0,13
55-64	-0,02	0,19	**0,81**	0,19	0,36
Participation rates - Females					
15-24	0,25	0,07	0,35	0,12	**0,86**
25-34	**0,68**	0,01	-0,02	0,34	0,29
35-44	**0,93**	-0,15	0,06	0,15	0,04
45-54	**0,88**	-0,07	0,32	0,11	0,09
55-64	0,43	-0,01	**0,83**	0,03	0,23
Participation rates - Males					
15-24	0,15	0,06	0,31	0,13	**0,89**
25-34	0,36	0,11	-0,16	**0,61**	0,25
35-44	0,22	-0,02	0,06	**0,90**	0,02
45-54	0,11	0,07	0,37	**0,80**	0,14
55-64	0,02	0,01	**0,83**	0,16	0,37
Unemployment rates - Females					
15-24	**-0,60**	-0,30	-0,12	-0,16	-0,48
25-34	**-0,61**	**-0,57**	-0,06	-0,01	-0,38
35-44	-0,49	**-0,72**	-0,13	-0,07	-0,30
45-54	-0,28	**-0,85**	-0,18	-0,01	-0,08
55-64	0,02	**-0,89**	-0,00	0,09	0,11
Unemployment rates - Males					
15-24	-0,29	-0,36	-0,00	**-0,50**	-0,42
25-34	-0,25	**-0,77**	-0,01	-0,31	-0,30
35-44	-0,01	**-0,83**	-0,05	-0,37	-0,17
45-54	0,10	**-0,87**	-0,07	-0,33	-0,06
55-64	0,17	**-0,90**	0,09	-0,17	0,07
Long term unemployment					
Total	-0,03	**-0,58**	-0,21	-0,06	-0,41
Descriptives					
Expl. variance	6,41	6,72	3,75	4,43	4,80

Using factor analysis, in which we have included the employment, unemployment and participation rates for males and females by age groups and the share of the long-term unemployment, we have tried to discover the factors of underlying heterogeneity. By this analysis we have obtained five significant factors which are presented in the Table 1. Through these five factors 84% of the variation in the data is explained (Table 2). The explanation of the five factors is the following:

- **Factor 1** (44% of variance explained) is connected with **female employment rates and participation rates** and with **female unemployment rates in the young age**.
- **Factor 2** (17% of variance explained) is connected with **unemployment rates and long-term unemployment** for both genders.
- **Factor 3** (10% of variance explained) is connected with **participation rates and employment rates of the older participants**.

- **Factor 4** (8% of variance explained) explains **male employment and participation rates** in the prime age.
- **Factor 5** (5% of variance explained) is connected with **youngest participants** on the labor market for both genders.

Table 2: Eigenvalues based on the factor analysis

Factors	Eigenvalue	% Total - variance	Cumulative - Eigenvalue	Cumulative - %
1	13,63374	43,97981	13,63374	43,97981
2	5,14001	16,58068	18,77375	60,56049
3	3,12890	10,09323	21,90265	70,65372
4	2,51404	8,10980	24,41669	78,76353
5	1,69486	5,46729	26,11155	84,23082

Table 3: Regression coefficients for key labour market indicators

	Employment rate		Participation rate		Unemployment rate	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Constant	53,44**	0,14	57,48**	0,16	7,16**	0,04
Factor 1	3,21**	0,14	2,92**	0,16	−1,02**	0,04
Factor 2	2,27**	0,15	0,65**	0,16	−2,90**	0,04
Factor 3	2,90**	0,14	2,94**	0,16	−0,28**	0,04
Factor 4	1,77**	0,14	1,42**	0,16	−0,89**	0,04
Factor 5	3,33**	0,14	3,11**	0,16	−0,74**	0,04
Coefficient of determination	87%		81%		95%	

In order to measure differences in employment rates of certain demographic groups and detecting the level of correlation of aggregate regional employment, unemployment and participation rates between the EU regions (Vojvodina and Croatian regions involved), a regression analysis was conducted. The hypothesis we have attempted to verify in this step was that regional labour market problems may be correlated with different variables in different parts of Europe.

As already mentioned, the purpose of regression analysis is reflected in the assessment of explanatory power of structural explanations of regional employment, unemployment and participation rate disparities in European Union. Aggregate labour market indicators, such as total employment, unemployment and participation rates, were used as dependent variables for every region and factor scores as independent variables. All five factors are statistically significant and they explain 87% of variation in employment rate, 81% of participation rate and 95% of unemployment rate.

Regression analysis showed that Factor 1 is negatively correlated with regional unemployment rates and positively correlated with the aggregate regional employment and participation rates. The other four factors are in the same situation, but the sign isn't important and it doesn't have any analytical meaning when it comes to factorial analysis. That is a reason why regression coefficient should be interpreted disregarding the sings.

The highest marginal effects on aggregate employment rates are found for factor 5. Here an increase of one standard deviation is associated with the change in the employment rate of 3,33 percentage points. Significant influence on the employment rates is evident for factors 1, 2 and 3. Factor 5 also has the strongest impact on the regional participation rates by 3,11 percentage points. Factors 1 and 3 have similar impact on participation rates. When it comes to the unemployment rates, the strongest impact on it has factor 2 which is very logical because factor 2 is mainly associated with unemployment rates for both genders and almost every age group.

Considering the regional dispersion of the factor scores on employment and participation rates, we have concluded that regional labour markets with high scores on factor 1(female employment and participation rates) are mainly from Belgium, France, Germany, Sweden and Baltic countries and regional labour markets with low scores on the same factor are almost entirely from Spain, Italy, Greece, Malta and some regions from Croatia and Portugal. Well known situation about gender gap on labour market in Mediterranean countries is confirming by these results. Scores for factor 2 (unemployment rates) are lowest in regions from Germany, while the highest scores we can find in some regions form UK, Italy, Romania and Belgium. The lowest scores on factor 3 (older participant on the labour market) we can find in many regions from Poland and Belgium, while the highest scores we can find in almost every region from Sweden. Scores for factor 4 (male employment and participation rate) are the lowest for regions from Romania and Hungary, while the highest scores we can find in regions from Italy, Greece and Spain. Lowest scores on factor 5 (youngest participants on labour market) we can find in the regions from Belgium, Italy, Greece and Czech Republic, while the highest scores we can find in the regions from UK, Holland, Austria and Malta.

CONCLUSIONS, RECOMMENDATIONS AND CHALLENGES

The causes of bad labor market situation in Vojvodina should be sought not only to the bad labor market situation in Serbia, but also by factors within the AP of Vojvodina. This is primarily thought to the high degree of market segmentation of AP Vojvodina, both in territorial and in a professional sense. It is evident the presence of large regional differences present between the municipalities and districts. According to this, studies show that the North and South Backa, according to the indicators of labor market are closer to Belgrade as the most developed district in Serbia, Srem, Banat and South West Bačka keep the national average, while North and Central Banat district belong to the group of the least developed districts.

Differences that exist among labor markets are especially noticeable at the municipal level. If we exclude the Novi Sad, in the best position are the municipalities which are located near the Belgrade (in the first place, there are thought to Inđija and Pećinci). For good location, these municipalities, due to key road corridors that pass through them (Belgrade-Zagreb highway and Corridor 10), which cause better investment attractiveness of these communities, compared with municipalities that do not gravitate towards the big cities (in the first place, there are thought to Belgrade and Novi Sad). In the case of Novi Sad, in the first plan emphasizes the importance of its university, and a large influx of students in the University Centre of Vojvodina, who after graduation trying to find or get a job in this town, which certainly contributes to further segmentation of the labour market.

Low labor mobility and the variations in human capital between the municipalities and districts are the principal causes of regional disparities present in the labor market in the AP Vojvodina.

The main limiting factor for greater labour mobility in AP Vojvodina is bad economic situation. First of all, more developed districts and municipalities themselves faced with the problem of high unemployment and so employment probability of migrants is small. The second problem arises from the fact that there are evident discrepancies between possessed and required migrants' qualifications.

Also, regional disparities in the AP Vojvodina labour market could be explained by difference in human capital. Districts and municipalities with the lowest unemployment rate at the same time have the highest percentage of high educated population. The explanation should be sought in the fact that the population with more human capital are more flexible, more agile in finding new jobs, and this lead to a lower overall unemployment rate. However, the problem is not only expressed in the population with the lowest qualifications, but also in the population with secondary education. The main cause of the high share of unemployed with secondary education are high production of some profiles over the past decade, with one hand and the obsolescence of those knowledge in relation to the needs, due to loss and significant reduction in certain industries, first of all mechanical and chemical industries.

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SURVEY OF ONE-DIMENSIONAL LIQUIDITY MEASURES[1]

Jelena Minović*
Assistant research, Serbia,
jelena.minovic@gmail.com
Slavica Stevanović
Assistant research, Serbia
slavica.stevanovic@ien.bg.ac.rs
Grozdana Belopavlović
Assistant, Serbia
grozdana.belopavlovic@bba.edu.rs

ABSTRACT

In order integrate Serbian market into EU financial market, structural change is required. Since Serbian market belong to frontier markets, it should be transformed to emerging markets in order to develop market. One of the major requirements for this to happen is to improve market liquidity and its measuring. Liquidity is not easily defined and measured. Liquidity itself is not observable and therefore, has to be proxies by different liquidity measures. This paper presents an overview of different types of one-dimensional liquidity measures. Definition of liquidity would be a market characterized by the ability to buy and sell securities with relative ease. The one-dimensional liquidity measures covered in this paper are: probability of informed trading, market capitalization, turnover, and different spread-related liquidity measures (bid-ask spread, relative spread, effective spread, Roll's measure, realized spread, quoted spread). The advantages and disadvantages of these measures are given.

Key words: Liquidity, liquidity measures, one-dimensional measures.

1. INTRODUCTION

Liquidity is not easy to define and there is no common definition of liquidity anyway (Wyss, 2004). Liquidity is easier to recognize than to define (Crockett, 2008). Liquidity generally denotes the ability to trade large quantities quickly, at a low cost, and without moving the price. Liquidity is a market characterized by the ability to buy and sell securities with relative ease (Clark, 2008). Market liquidity refers to the ability to undertake transactions in such a way as to adjust portfolios and risk profiles without disturbing underlying prices. The dimensions of market liquidity include:

- market *depth*, or the ability to execute large transactions without influencing prices unduly;
- *tightness*, or the gap between bid and offer prices;
- *immediacy* or the speed with which transactions can be executed;
- and *resilience*, or the speed with which underlying prices are restored after a disturbance (Crockett, 2008).

Liquidity is one of the favourable characteristics required by the investors. Liquidity on stock exchange is generated by the so called market makers (Campbell et al., 1997). Speculative investors and market makers are the key players that bring market or assets liquidity (Huberman

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and Halka, 2001). Indeed, liquidity is the condition for investors (regardless of the investors being individuals or institutions) to get returns from the expected changes in prices. They, however, generate demand which enables liquidity. Liquidity has several aspects and cannot be described by one indicator only.

This paper presents an overview of different types of one-dimensional liquidity measures. The one-dimensional liquidity measures covered in this paper are: probability of informed trading, market capitalization, turnover, and different spread-related liquidity measures. The advantages and disadvantages of these measures are given. The rest of the paper is organized as follows. The Section 2 presents different one-dimensional liquidity measures. The Section 3 presents their advantages and disadvantages. The Section 4 concludes.

2. THE ONE-DIMENSIONAL LIQUIDITY MEASURES

2.1. The probability of information based trading (PIN)

The probability of information based trading is measure of the degree of information asymmetry among investors about the value of individual stocks (Yan and Zhang, 2006). This measure describes the percentage of trading based on private information of all the observed trading. Higher value of this measure means a higher degree of information asymmetry, and therefore less liquidity (Li, 2008).

Orders from informed trades arrive at rate η (on information event days), orders by uninformed buyers arrive at rate φ_b, and orders from uninformed sellers arrive at rate φ_s. Informed traders buy if they have seen good news and sell if they have seen bad news. If there is no information about an event that reached rates of uninformed buyers and sellers remain unchanged (Easley et al., 2002).

The probability of information based trading is defined as:

$$PIN = \frac{\alpha\eta}{\alpha\eta + \varphi_S + \varphi_B}, \qquad (1)$$

where $\alpha\eta + \varphi_S + \varphi_B$ is the arrival rate for all orders and $\alpha\eta$ is the arrival rate for information-based orders. The ratio (eq. 1) is thus the fraction of orders that arise from informed traders or the probability that the opening trade is information based (Easley et al., 2002).

2.2. Market Capitalization (MC)

Liquidity measure of some share can be size or market capitalization. Market capitalization calculates as follows:

$$MC_j = n_j \cdot P_j, \qquad (2)$$

where n_j is the total number of issued shares *j*, and P_j is the price of share *j*. Using equation (2) we can determine the market value of a company. Market capitalization of some stock exchanges is the total value of all traded securities at the prices determined by supply and demand.[2]

2.3. Turnover (TO)

Turnover is:

$$\mathrm{TO}_{iy} = \frac{1}{N_{iy}} \sum_{t=1}^{N_{iy}} \frac{V_{iyx}}{n_{iyx}}. \qquad (3)$$

[2] http://www.belex.rs/trgovanje/vesti/8237

Where V_{iyt} is trade volume in shares of stock *i* on day *t* in year *y*, and n_{iyt} is number of shares outstanding of stock *i* on that day (Amihud, 2002).

2.4. Absolute Spread (S^{aps})

Glosten and Milgrom (1985) consider a market structure in which competitive market makers must quote binding bid and ask prices and investors arrive sequentially and can decide whether to buy one share at the ask (P_t^a), sell one share at the bid (P_t^b), or refrain from trading. In this case, the bid is the expected value of the fundamental given that the next trade is a sell order, and similarly for the ask, leading to the following "regret free" prices (Amihud et al., 2005):

$$P_t^b = E\left(f \middle| \Im_t, sell \right), \qquad (4)$$

$$P_t^a = E\left(f \middle| \Im_t, buy \right), \qquad (5)$$

where *f* is the fundamental value of orders, and $\Im_t$ is the public information. The quoted bid price (eq. 4) reflects the risk that a seller is informed of bad news, and the ask (eq. 5) reflects the risk that a buyer is informed of good news. If the market maker were sure that the counterparty is informed, she would not trade at all since as long as the informed trader wishes to sell, the price is too high. What makes the market maker willing to trade is the possibility that the counterparty is uninformed, and it may gain by selling to him at a "high"-ask-price or buying from him at a "low"-bid-price. Thus, the market maker gains from trading with uninformed traders and looses with informed ones. Since in a competitive market the market maker ends up with zero profit, the gains of the informed traders are at the expense of the uninformed trade. Clearly, the model implies a bid–ask spread (bid<ask) which is greater if the probability of trading with informed traders is larger (Amihud et al., 2005).

The absolute bid-ask spread is the difference between the lowest ask price and the highest bid price:

$$S_t^{aps} = P_t^a - P_t^b . \qquad (6)$$

This measure is always positive and its lower limit is the minimum tick size.

2.4.1. Relative Spread

Relative spread calculated with last trade:

$$S_t^{rel} = \frac{P_{t-1}^a - P_{t-1}^b}{P_t} . \qquad (7)$$

P_t denotes the last paid price of the asset before time *t*. P_{t-1}^a and P_{t-1}^b are ask and bid prices before trade execute, respectively. P_t may be at the ask price in an upward moving market, whereas it will be at the bid price in a downward moving market. On the other hand, the paid price P_t has to be known before P_t^a or P_t^b are quoted (Wyss, 2004).

2.5. Effective Spread

The effective spread of a particular stock on the k^{th} trade is defined as:

$$S_k^{eff} = 2 \cdot \left| \ln\left(P_k\right) - \ln\left(mq_k\right) \right|, \qquad (8)$$

where P_k is the price of the k^{th} trade and mq_k is the midpoint prevailing at the time of the k^{th} trade. For a particular stock aggregated over a time interval *T* (either a month or a year), the Effective Spread is the dollar-volume-weighted average of k Effective Spread computed over all trades in time interval *T* (Goyenko et al., 2008).

2.6. Roll's model (RO)

Roll's (1984) model is one of the measures of effective bid-ask spread, and it means that this measure is used for calculation effects of bid-ask spread on feature of stock returns time-series (Campbell et al., 1997). This estimator of liquidity indirectly includes costs of trading which are based on behaviour of prices (Lesmond, 2005). Roll proposes an estimator of implied effective spread based on measuring the negative autocorrelation produced by bounces between the bid and ask quotes. Particular to general liquidity, this estimator should be positively related to the bid–ask spread. However, the serial autocorrelation is, at times, positive, invalidating the estimate (Lesmond, 2005).

Roll proved his model using the first order autocovariance for simple returns (return of stock *i* on day *d* in month *t*), on following way:

$$RO_{i,t} = 2\sqrt{\left|-Cov\left(R_{i,d-1,t}, R_{i,d,t}\right)\right|}\text{. (Lee, 2006)} \qquad (9)$$

However, this measure cannot be defined if the covariance term is positive. In that case, we force covariance terms to have negative values by taking absolute values with a negative sign added (Campbell et al., 1997; Lee, 2006).

2.7. Realized Spread

The realized spread of a particular stock on the k^{th} trade is defined as

$$S_k^r = \begin{cases} 2\cdot\left(\ln\left(P_k\right)-\ln\left(P_{k+5}\right)\right) & \text{when } k\text{-th trade is a buy} \\ 2\cdot\left(\ln\left(P_{k+5}\right)-\ln\left(P_k\right)\right) & \text{when } k\text{-th trade is a sell} \end{cases}, \qquad (10)$$

where P_{k+5} is the trading price five-minutes after the k^{th} trade. The trades are signed according to Lee and Ready (1991) algorithm (Lee, Ready, 1991). For a particular stock aggregated over a time interval *T* (either a month or a year), the Realized Spread is the dollar-volume-weighted average of k Realized Spread computed over all trades in time interval *T* (Goyenko et al., 2008). Indeed, Goyenko et al., (2008) included effective spread and realized spread in high-frequency spread proxies, and Roll's measure included in low-frequency spreads proxies.

2.8. Quoted Spread (QS)

In markets with established market makers, the existence range between the price at which the market maker wants to buy and the price at which market maker wants to sell can have non-trivial impact on the serial correlation in price changes (Campbell et al., 1997). The bid–ask spread is calculated using the average of the available quarterly quotes and incorporates at a minimum a single quarter's quote for that quarter (Lesmond, 2003). The average bid–ask spread spanning the quarter is used for the estimate of the spread. This procedure minimizes outlier problems and averages out the recording of either quarterly highs or lows in quotes resulting from quarterly sampling. The quarterly quoted spread is defined as:

$$QS_q = \frac{1}{2}\left[\left(\frac{\left(\mathrm{P}_q^a-\mathrm{P}_q^b\right)}{\left(\mathrm{P}_q^a+\mathrm{P}_q^b\right)/2}+\frac{\left(\mathrm{P}_{q-1}^a-\mathrm{P}_{q-1}^b\right)}{\left(\mathrm{P}_{q-1}^a+\mathrm{P}_{q-1}^b\right)/2}\right)\right] \text{ (Lesmond, 2005).} \qquad (11)$$

3. ADVANTAGES AND DISADVANTAGES

Lesmond (2005) concludes that any measuring of liquidity has its advantages and disadvantages when used for estimation of liquidity among countries or within some country. In general, liquidity is not a one-dimensional variable and therefore can hardly be captured in a single one-dimensional liquidity measure. According to Amihud (2002), it is doubtful whether there is one single measure that captures all aspects of liquidity. On the other hand, the one-dimensional measures may give insight into specific questions of market liquidity which more complicated measures are unable to furnish. The probability

of information based trading (PIN) would be a useful indicator of liquidity in frontier and emerging markets due to informational asymmetries are expressed in these markets. However, the PIN measure is empirically impossible to find due to lack of information for buying and selling quota[3], as well as the total number of purchases and sales for every action and every day, on the frontier markets. This liquidity measure was used by Easley et al., (2002), Yan and Zhang (2006), and Li (2008). Market capitalization and measures based on size of the company are not good indicators of liquidity in frontier and emerging capital markets. Large portion of the total capitalization on the Serbian frontier market is highly illiquid, i.e. many companies are listed on the exchange just de-jure rather than de-facto. In addition, only a small fraction of the companies is typically floated. Size of the company or its market capitalization as a potential for trading activity is not reliable, because there are certain categories of shareholders which are extremely realistic to assume that they will not find on side of sale. More accurate measure introduces the concept of the number of shares which are in free turnover, i.e. the market value of those shares - the free float market capitalization[4]. Turnover is the ubiquitous liquidity measure (Lesmond, 2005). The advantage of this measure is that it makes different stocks comparable. Turnover is easy to construct and has intuitive appeal (Lesmond, 2005). Turnover captures trading frequency but fails to account for the cost per trade, which varies considerably across assets. Moreover, turnover is likely to be nonlinear with respect to the bid-ask spread, leading to scaling problems with this measure. Turnover and the bid-ask spread is hypothesized to be inversely related because larger spreads should reduce the frequency of trade (Lesmond, 2005). Lesmond (2005) explained that turnover is downward biased for low liquidity markets. This downward bias is practically manifested by reduced trading volume that specifically affects turnover. General conclusion is that turnover measure is not a viable liquidity measure in frontier and emerging markets, either in assessing cross-country or within-country liquidity (Lesmond, 2005; Bekaert et al., 2007).

Glosten and Milgrom (1985) modelled the cost of trading as the bid-ask spread. Although the bid-ask spread is the most used measure, spread is not always available for all bonds or for all time periods. This is especially true for thinly traded bonds or more mature bonds. Additionally, if data are hand-collected, quote information are gathered only on a quarterly basis, what lead to smaller precision for liquidity measure (Chen et al., 2007). Presence of bid-ask spread complicates things in several ways. Instead of one price for each, there are now three prices: bid price, ask price, and price of transaction which is not bid nor ask (although in some cases it is), neither it lies between these prices (although in the most cases lies). Since random purchases and sales go in the market, prices can bounce back and forth between bid and ask price, making spurious volatility and serial correlation in returns, yet economic value of stock is unchanged (Campbell et al., 1997). The bid-ask spread based on market microstructure data is not accessed for longer time series. Further, the bid-ask spread is good measure for cost of sales for small number of stocks, but this measure is not good measure for cost of sales for high number of stocks (Acharya and Pedersen, 2005). The quotes are rough indicators of the underlying liquidity. The bid–ask quote is by far the most demonstrable indicator of overall liquidity, but closing prices often deviate from the quotes as trades are consummated at different prices from, or even outside, the quotes. In addition, quotes are not always available in all markets and for all time periods (Lesmond, 2005). Fleming and Remolona (1999) used relative spread. Relative spread is liquidity measure which is the most studied because it is easy to calculate and because it allows comparison of a spread of different shares. Some authors have called this measure "inside spread". If the last trade occurred long before the absolute spread measured, prices for traded and the relative spread may be irrelevant to the actual market situation (Wyss, 2004). Amihud et al., (2005) inferred that relative spread is not good measure of liquidity, because it does not cover all aspects of liquidity.

The advantage of Roll's measure is that it require only price to estimate liquidity instead of trading volume (Lesmond, 2005). Hence, Roll (1984) accepted that quoted spread can usual differ from effective spread, or spread between actual market prices of a sell order and a buy order (Campbell et al., 1997). Some of Lesmond's findings are that cross-country differences in liquidity are best reported using the price based model as Roll's (1984) model. However, results by Lesmond (2005), Bekaert et al. (2007) indicated that Roll's measure is not robust estimator of liquidity when it is used within each

[3] Information on buying and selling quotas for each share of these small, specific markets are not publicly available.

[4] http://www.belex.rs/trgovanje/vesti/8237

individual country. The Roll (1984) measure uses the bid-ask bounce-induced negative serial autocorrelation in returns to estimate the effective spread. Roll's measure requires a negative autocorrelation in the returns. If the serial autocovariances are positive, Lesmond (2005) force it to be negative and uses the Roll estimate as if a negative serial autocovariance is estimated (Harris, 1989). Harris (1990) explains that positive autocovariance could result from closing prices that cluster at the ask, violating Roll's assumption of trade independence (Lesmond, 2005).

4. CONCLUSION

This paper presents an overview of different types of one-dimensional liquidity measures. In order integrate Serbian market into EU financial market, structural change is required. Serbian market belongs to frontier markets. One of the major requirements that this market transforms to emerging and than to develop market is to improve its liquidity. Thus, it is very difficult to cover liquidity with only one variable. Liquidity can be well described as a function of a number of variables, where each variable is an approximation for incomprehensible concept of liquidity (Amihud, 2002). The one-dimensional liquidity measures covered in this paper are: probability of informed trading, market capitalization, turnover, and different spread-related liquidity measures. The one-dimensional measures may give insight into specific questions of market liquidity which more complicated measures are unable to furnish. For a global liquidity measure, certainly one of the multi-dimensional liquidity measures have to be used (Wyss, 2004). Generally, measuring of market liquidity is not trivial problem.

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SOME POSSIBILITIES FOR APPLICATION OF DYNAMIC CRITERIA IN ESTIMATION OF THE ECONOMIC VALIDITY OF INVESTMENT PROJECTS IN AN ELECTRIC ENERGY DISTRIBUTION COMPANY

Stojan Vasović
Elektrodistribucija Cacak, Krenov prolaz bb, Serbia, stojan.vasovic@gmail.com
Jasmina Vesić Vasović*
University of Kragujevac, Tehnical Faculty Cacak, Svetog Save 65, Serbia, jasmina.vesic@gmail.com

ABSTRACT

The paper presents some aspects of application of various economic criteria for evaluating the investment projects in an electric energy distribution company. Starting with the specific properties of investment projects in electric power industry, it is necessary to perform a correct analysis and estimation of all relevant project elements, in order to take into consideration all the aspects of validity of investing into implementation of that project. In that sense, in this paper, specific properties of investment projects in electric energy distribution companies were taken into account – long investments period, unbalanced realisation dynamics, limited financial resources etc. Companies use various project evaluation techniques to determine the feasibility and profitability of a project. The criteria based on discounting represent the dynamic aspect of investing and are suitable for economic evaluation of investment project from many various aspects, as is the case with investment projects in electric power industry.

Key words: dynamic investment criteria, investment projects in electric power industry

1. INTRODUCTORY CONSIDERATIONS

Dynamics and complexity of modern business and economy impose the need for the company to invest in order to become more competitive in increasingly stricter business circumstances, i.e. to make certain investments at present with the aim of accomplishing the effects and benefits in the future. By using investments, as a development factor, the company undertakes measures to ensure the efficiency of its business in the future. The total process of investing is characterized by series of disposable and reusable investments, whose aim is to contribute to certain economic and non-economic effects in the near and far future; such effects are realistically expected to satisfy the validity of invested resources and realisation of one investment project. Diversity of relevant factors in investment project and their constant variability impose the need for estimating the results in relation to planned project values. The existence of alternative economic possibilities for using resources necessary for realisation of investment projects imposes the need for estimating its efficiency, because the selected project can be considered useful only if it is somehow better than the other ones. Its advantage can be based on financial profitability, i.e. on net income from which the investor makes profit and/or on social profitability, the total influence of project on state economy, as is the case with investment project in electric power industry.

Since electric energy distribution companies within Electric-power Industry of Serbia operate as monopolists on the electric energy market, it is logical that the work of those companies is controlled by independent regulatory agency of the Republic of Serbia, i.e. Energy Agency of the Republic of Serbia (AERS). The aspirations of AERS are: to provide good quality of electric energy for the buyers; higher efficiency of electric energy distribution companies in utilization of available potentials; lower operating costs of electric energy distribution companies. The main task

of electric energy distribution companies regarding resources control is the increase of reliability, with simultaneous reduction of participation of human and financial resources.Management of resources of electric energy distribution system, which are limited anyway, is a complex process which must include geographic diversity and all other particularities of certain electric energy distribution companies. Starting with the specific properties of investment projects in electric power industry, it is necessary to perform a correct analysis and estimation of all relevant project elements, in order to take into consideration all the aspects of validity of investing into their implementation. In that sense, in this paper, specific properties of electric power industry, i.e. electric energy distribution, long investments period, unbalanced realisation dynamics, limited financial resources etc. should be taken into account.

The importance of improving the process of investments management and investment projects evaluation in electric energy distribution companies is shown by many performed investigations, published in various papers. The aim of the paper (Biezma, Cristóbal, 2006) is to develop a clear description and understanding of the uses and limitations of many different project evaluation techniques. The paper (Sauma, Oren, 2007) focuses on different economic criteria that should be considered when planning electricity transmission investments. The approach (El-Khattam, et al, 2004) proposes a new heuristic approach for distributed generation (DG) capacity investment planning from the perspective of a distribution company. This article (Andersson, Taylor, 1985) examines the investment criteria used by the Swedish power industry. This paper (Lee, Yang, 1998) presents a comparative study of three evolutionary algorithms related to the optimal reactive power planning problem. The paper (Moreira, et al, 2009) proposes a project prioritizing method for investment decision in electrical energy distribution networks, based on a multi objective genetic algorithm. In the work (Rivera, Vargas, 2007), the subject of hierarchical expansion planning and the basis for an investment decision methodology for determining the investments that electric distribution utilities are presented. This work (Fawzi, et al, 1983) presents an efficient algorithm for the static investment planning of large radial distribution systems. Companies use various project evaluation techniques to determine the feasibility and profitability of a project. Within the evaluation of investment projects, it is necessary to take into account all the advantages and expected effects of evaluated project application. Measuring of total effects brought by exploitation of one investment project and their quantitative expression by particular criteria makes it possible to estimate whether the expected effects will exceed the total necessary investments.

2. EVALUATION OF INVESTMENT PROJECTS

Evaluation of investment projects involves overview and estimation of all relevant factors, i.e. determining of economic and non-economic effects obtained by exploitation of one particular investment. The company - investor is mostly interested in direct economic investment effects, while other business entities and society are interested in indirect effects brought by development-investment project. Therefore, when evaluating the investment project, the estimation of economic-financial efficiency and estimation of social validity of the specified investment should be included as well. The estimation of economic validity includes only those effects which the project brings to the investor, while the estimation of social validity includes overview of all the effects which the investment project brings to the society as a whole. The essence of evaluation of investment projects efficiency is the same, whether it is economic-financial or social profitability, and it consist of three stages: identification of quantities, quality and time synchronisation of physical input and output; determining of appropriate prices at the input and output with the aim of calculating proper values of costs and benefits; presentation of project costs and benefits in the way which facilitates comparison with alternative projects.

Estimation of validity of investment projects realisation implies the comparison of performed investments and effects achieved by projects exploitation. In order to provide conditions for comparing these values, it is necessary to reduce them to appropriate values at the same moment of time, i.e. to perform their discounting. Criteria based on discounting – dynamic criteria – unlike static ones, take time into account in adequate way in the process of analysis and estimation of investment projects efficiency, including the whole period of investments and exploitation of one investment project. These criteria represent the dynamic aspect of investing and they are suitable for economic evaluation of the

project from the aspect of society, organisation and the bank. They can especially be used for ranking capital investments within the same branch or when one should select, out of many variants of a project, the alternative solution which is the most favourable for the given conditions.
There are a large number of dynamic criteria which are used for estimating the investment efficiency; most widely accepted and developed criteria in work practice are:

- present value criterion, as a measure of the level of accumulative ability of the investment project; it represents a difference between present accumulation value and present value of investments;
- internal rate of return criterion, as a measure of the project potential to pay certain interests; it represents the discount rate for which the present accumulation value equals present investment value;
- annuity criterion, as a measure of average annual accumulation; it represents the average value of difference between present income value and present costs value;
- criterion of payback period, as a measure of time period in which one project exploitation leads to equally realised accumulation with the amount of realised invested resources.

By applying a large number of criteria, a larger amount of information is obtained; therefore, the reliability of the evaluation is better; the correct selection of the criteria reduces the investing risk.

3. THE SELECTION OF THE MOST FAVOURABLE INVESTMENT PROJECT BASED ON APPLICATION OF DYNAMIC CRITERIA

The estimation of validity and usefulness of investment projects can be carried out by setting the dynamic criteria values as eliminatory categories, by determining the minimal value of each of them, as well as by using the necessary condition of investment acceptability. By this it is implied that the present value is bigger than zero, internal profitability rate is bigger than some minimally acceptable rate at which the invested resources can be paid back, while annuity is bigger than zero. Among valid and useful investment project, the most favourable one was determined by maximisation of dynamic criteria, which represented a sufficient condition for making rational investment decision.
The demonstration of determining the most profitable investment project in an electric energy distribution company will be performed on the practical example, where it was necessary to determine the most favourable one out of three offered projects. The estimated investment projects arose from the Study “Development of distribution network and selection of the mean voltage in the region of Electric Energy Distribution of Čačak for the period up to 2020”.

- The project ED-92 represents the replacement of the conductor of section Al/Č 25mm^2 with the conductor of section Al/Č 50 mm^2 in the first part (4,57 km long) of the power line 10 kV from TS 35/10 kV/kV “Bresnica”, branch for Mrcajevci. The value of the necessary investments is 27420 €, and total reduction of losses which will be accomplished by realisation of this investment project is about 19 kW, i.e. the planned business effect in the ten-year exploitation period is 5970 € on the annual level.
- The project ED-145 represents the replacement of the conductor of section Al/Č 16mm2 with the conductor of section Al/Č 50 mm2 of the total length of 3,1 km, of the power line 10 kV from TS 35/10 kV/kV “Separacija”, branch for Vinogradi. The value of the necessary investments is 18600 €, and total reduction of losses which will be accomplished by realisation of this investment project is about 14 kW, i.e. the planned business effect in the ten-year exploitation period is 4400 € on the annual level.
- The project ED-169 represents the replacement of the conductor of section Al/Č 25mm2 and Al/Č 30mm2 with the conductor of section Al/Č 50 mm2 in the total length of 3,93 km, of the power line 10 kV from TS 35/10 kV/kV “IKG”, branch for Goracici. The value of the necessary investments is 23580 €, and total reduction of losses which will be accomplished by realisation of this investment project is about 15 kW, i.e. the planned business effect in the ten-year exploitation period is 4700 € on the annual level.

3.1 Net present value criterion (NPV)

First of all, comparison according to present value criterion will be performed; this criterion represents the net benefit of the investment, determined by discounting to a certain time period with appropriate discount rate of future courses of its income and costs. Starting with the fact that the present value of an investment project represents a difference between realised (present) values of accumulation accomplished by project exploitation and realised value of invested resources, it can be calculated as follows (Radojicic, 2009):

$$NPV = A_S - I_S$$

where: $A_S = \sum_{n=1}^{\ell} \frac{A_n}{(1+i)^n}$ - total present value of investment project accumulation realised in exploitation period (ℓ);

$\frac{1}{(1+i)^n}$ - discount factor, realisation coefficient;

A_n - accumulation (amortisation calculated as well) in *n* year of exploitation period ;

$I_S = \sum_{n=1}^{q} \frac{I_n}{(1+i)^n}$ - total present value of resources invested in realisation of an investment project;

I_n – value of investing into investment realisation in *n* year of investing period;

q - period in which investing into investment project is made.

By applying the described procedure, the present value of project ED-92, at interest rate of 12%, would be equal to: $NPV_{ED-92} = A_{S\ ED-92} - I_{S\ ED-92}$, since

$$A_{SED-92(12\%)} = \frac{5970}{1+0{,}12} + \frac{5970}{(1+0{,}12)^2} + \frac{5970}{(1+0{,}12)^3} + ... + \frac{5970}{(1+0{,}12)^{10}} = 33721{,}1\ €$$

$I_{S\ ED-92}=I_{n\ ED-92}=27420$ €, because the investing would be performed at once, in the year preceding the exploitation beginning, so it is not necessary to discount the values of invested resources; therefore, the following is obtained: $NPV_{ED-92(12\%)} = 33721{,}1 - 27420 = 6311{,}1$ €

In an identical way, the present value of project ED-145, i.e. ED-169 was calculated, so the obtained values are $NPV_{ED-145(12\%)} = 6260{,}44$ €; $NPV_{ED-169(12\%)} = 2975{,}47$ €

Each of the three estimated projects is economically valid according to the present value criterion, because the present value of each of them is bigger than zero. Present value can be used as an indicator of validity, i.e. usefulness of investing, acceptability or unacceptability of an investment project in global sense. This is the absolute indicator of investment efficiency and it shows whether the project is economically efficient or not, but it does not specify the efficiency extent.

For comparing different projects, it is more convenient to use the following indicator as a relative value: present value reduced to investment unit, as an indicator of the relative economic efficiency (REE) of the project. It is defined as the ratio of present project value and total present value of invested resources: $REE_s = NPV_s / I_s$

For project ED-92 it is $REE_{ED-92}=0{,}23$, for project ED-145 - $REE_{ED-145}=0{,}34$ and for project ED-169 - $REE_{ED-169}=0{,}13$. Since project ED-145 accomplishes the highest unit present value, i.e.: $REE_{ED-145} > REE_{ED-92} > REE_{ED-169} > 0$, that makes the most favourable basis for making the decision on accepting its selection.

3.2 Criterion of internal rate of return (IRR))

Criterion of internal rate of return is an universal and complex indicator of investment efficiency, which helps in finding the one discount rate which indicates which part of the project is "lost" due to inflation, and which part serves for compensation of risks and further development, i.e. it indicates at which smallest discount rate the project realisation is still valid.

Internal rate of return represents the discount rate at which the present value of the project equals zero, i.e. for which the realised value of investment project accumulation equals the realised value of invested resources: $NPV = A_S - I_S = 0 \Rightarrow A_S = I_S$

One of the methods for determining internal rate of return implies determining of two close realisation rates (p_1 , p_2), for which the present value changes the mark, so that the internal rate of return is in interval p_1 - p_2. Calculating of internal rate of return is done by the following expression:

$$IRR_S = p_1 + \frac{NPV_1}{NPV_1 - NPV_2}(p_2 - p_1)$$

For the estimated example, we shall first calculate the present project values at interest rate of 20% (condition NPV<0 is fulfilles), whose values are: $NPV_{ED-92\ (20\%)} = -2391{,}37$ €; $NPV_{ED-145(20\%)} = -153{,}44$ €; $NPV_{ED-169(20\%)} = -3875{,}72$ €.

By replacing the appropriate values in the expression for calculating the internal rate of return, the following is obtained for project ED-92:

$$IRR_{ED-92} = 12 + \frac{6311,1}{(6311,1 + 2391,37)}(20-12) = 17,80\%$$

i.e. for project ED-145 - IRR_{ED-145}=19,81% ; ED-169 - IRR_{ED-169}=15,47%.
Since the internal rate of return for each of the estimated projects is bigger than interest rate on capital market, they are efficient for realisation. Project ED-145 has the highest value of this criterion, so it is the most favourable according to this criterion as well.
By applying the internal rate of return criterion, the subjective influence of the decision maker is reduced and better quality of decision-making process is provided, because the smallest interest rate at which the project realisation is still valid is calculated (not assumed).

3.3 Criterion of annuity

Annuity criterion represents the annual measure for estimating the efficiency of undertaken investment. It represents the difference between the average realised annual accumulation and average realised amount of invested resources. Conversion into average annual values is done by annuity factor, determined according to:

$$a_f = \frac{i \cdot (1+i)^n}{(1+i)^n - 1} = \frac{0,1 \cdot (1+0,1)^5}{(1+0,1)^5 - 1} = 0,18$$

Annuity criterion is determined based on expression $A_n = A_S\, a_f - I_S\, a_f$;
i.e. for project ED-92: $A_{n\ ED-92} = 33721,1 \cdot 0,18 - 27420 \cdot 0,18 = 1135,1$
For project ED-145 it will be $A_{n\ ED-145} = 1126,88$, i.e. ED-169 $A_{n\ ED-169} = 535,58$
According to this criterion as well, the projects are valid because the annuity is bigger than zero, i.e. the projects are valid if the average project income is sufficient for compensating for amortisation and minimally acceptable interest costs, presented in selected interest rate.
Project ED-92 has the highest positive value of annuity criterion, which is the proof of its advantage over other estimated projects.

3.4 Payback period criterion

Payback period criterion estimates the time needed for accomplishing the income equal to investment by exploitation of investment project. Therefore, payback period represents the time period expressed in years, in which the net effects made by exploitation of investment project will pay back the total invested resources. To be precise, that is the time period in which the total present value of investing into development-investment project will be compensated and equal to total present value of accumulation realised by that project: $A_S = I_S$

Payback period (t), is calculated by the following expression: $PP_s = I_s / A_s$

According to this criterion, the project can be considered efficient if its payback period is shorter than some maximally acceptable value of payback period of a suitable branch, group or similar activity.
The final overview of the results of evaluation of the estimated investment projects is given in Table 1, in which it can be seen that the project ED-145 is the most favourable for realisation according to all the criteria, because when compared to competitive projects ED-92 and ED-169, it offers optimal possibilities for fast payback of invested resources and realisation of particular income from investing.

Table 1.

Investment criterion	Investment project			Rang
	ED-92	ED-145	ED-169	
Relative economic efficiency	0,23	0,34	0,13	ED-145, ED-92, ED-169
Internal rate of return	17,8 %	19,81%	15,47%	ED-145, ED-92, ED-169
Annuity	1135,1	1126,88	535,58	ED-92, ED-145, ED-169
Payback period	7	5,5	8	ED-145, ED-92, ED-169

4. CONCLUSION

Decision-making related to investments and selection of the most favourable alternative represents one of the most important managerial activities which take place in various business areas. The accomplishment of investment project goals implies analysis and comprehensive estimation of relevant elements of the investment project on one hand, with necessary conclusions based on optimisation process results; on the other hand, it implies investment project realisation in line with foreseen investment programme performances (technical-technological solutions, foreseen time, and foreseen financial resources). The complexity of evaluation process and selection of investment project imposes the need for a complex approach, i.e. application of estimated dynamic criteria. They provide gradual introduction into techno-economic analysis of particular relevant elements, technological, market, financial, staff, ecological, social and other variables, with regard to specific properties of electric power industry and its significance and role in social and economic development. The effectiveness of investments can be considered from many aspects – economic, social, political, strategic etc. Different aspects of project estimation contribute to heterogeneity of criteria and methods for determining investments efficiency. In spite of the numerous criteria available, virtually the only ones used to determine whether to reject or to accept a project have been the net present value (NPV), internal rate of return (IRR) and payback period (PP). The optimisation of investment options is an important consideration for an electric energy distribution company if it is to remain competitive in an ever demanding market. The calculation of investments is an expensive tool of enterprise management used in planning the investments. It can be perceived as the harmonization and evaluation of the models for investment decision-making.

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INTERIOR-POINT METHOD AND COMPUTATION OF COMPETITIVE EQUILIBRIUM

Zoltan Pap*
Subotica Tech – College of Applied Sciences, Serbia
papzoli@vts.su.ac.rs

ABSTRACT

In this paper the possibility of computing competitive equilibrium in general equilibrium models by interior point method is investigated. An algorithm based on interior-point method is applied in determining the equilibrium. The performance of the algorithm is tested on examples with known equilibria taken from the literature on general equilibrium models and numerical results are presented. In computing equilibria, welfare characterization of the equilibrium is used.

Key words: equilibrium, welfare characterization, interior-point, least-squares problem with bound constraints

INTRODUCTION

The fast development of the computer science and powerful computers enable equilibria computation of extremely large-scale and nonlinear economic models. Unfortunately, powerful computers are not sufficient for solving these models. Inefficient algorithms can increase the computation time and even provide inaccurate results. As one can see, reliable and good computation algorithms are important ingredients in solving economic models. In literature, there are a lot of proposed algorithms which compute equilibria in general equilibrium models. One of these algorithms is based on the interior-point method. It is proposed in Esteban-Bravo (2004). The main aim of this paper is the analysis of the mentioned algorithm and also some modifications will be proposed.

To compute the equilibrium, it is necessary to define conditions that characterize these points. Much of the literature on computing equilibria uses the excess demand function as characterization. However, in large applied models it is difficult to specify the functional form of the excess demand function and in this way the computation of equilibria may be impossible. The algorithm that will be analyzed can be applied both on the excess demand characterization and on the welfare characterization of the equilibrium. As the second characterization appears to be more practical, in this paper only welfare characterization will be considered. In both cases, the system of nonlinear equations

$$\mathrm{H}(z) = 0 \qquad (1)$$

needs to be solved. The problem of solving nonlinear system can be seen as a nonlinear least-squares problem with bound constraints:

$$\min_z \frac{1}{2}\left\|\mathrm{H}(z)\right\|_2^2, \; s.t.\; l \le z \le u \qquad (2)$$

where $\mathrm{H}(z) = (\mathrm{H}_1(z), \mathrm{H}_2(z), \ldots, \mathrm{H}_m(z))^T$ and $\mathrm{H}_i : \square^n \to \square, i = 1, 2, \ldots, m$ are smooth, nonlinear functions. Vectors l and u are lower and upper bounds. It is assumed, that $m \ge n$. In solving (2) problem of ill-conditioning may appear. In hope of avoiding ill-conditioning problem, Esteban-Bravo (2004) uses interior-point method. The algorithm for solving (2) incorporates the idea of Gauss-Newton method.

The rest of this article is organized as follows. In Section 2 Walrasian general equilibrium model and the welfare characterization is introduced. In Section 3 the algorithm for computing the equilibrium is described. In Section 4 numerical results are presented. Section 5 contains conclusions and recommendations for further work.

WALRASIAN GENERAL EQUILIBRIUM MODEL

Consider an economy with I consumers and D commodities. Every commodity d has own positive price p_d. The price vector is denoted by $p \in \mathbb{R}^D$. Each consumer has their own preference defined by utility function $u_i : X_i \to \mathbb{R}, i = 1, 2, \ldots, I$, where $X_i \subseteq \mathbb{R}^D$ is the choice set of the consumer, and $\mathbb{R}^D$ is the commodity space. Vector $x_i \in X_i, i = 1, 2, \ldots, I$ denotes consumption bundle of the i-th consumer, i.e. it denotes the consumption of the d-th commodity of the i-th consumer. Each consumer is endowed with a vector $w_i \in \mathbb{R}^D, i = 1, 2, \ldots, I$ that is strictly positive. This vector represents wealth level of the consumer. Let us also assume that there are J firms which are concerned with production. A production vector $y_j = (y_1, y_2, \ldots, y_D)^T$ of the j-th firm describes the output of the production. Positive elements of the vector denote outputs and negative elements denote inputs. Some elements may be zero, which means that process of the production does not have output of that commodity. The set of all production vectors that constitute feasible plans for the firm j is known as the production set $Y_j \subseteq \mathbb{R}^D$. The production set is limited by technological constraints. The description of the production set can be done by transformation function $F_j : \mathbb{R}^D \to \mathbb{R}$. The production set can be described in this way by $Y_j = \{y_j \in \mathbb{R}^D : F_j(y_j) \le 0\}$. Usually, general equilibrium models assume that the firm's objective is to maximize profit:

$$\max_{y_j \in Y_j} p \cdot y_j \qquad (3)$$

In competitive (Walrasian) economy society's initial endowments and firms are owned by consumers. It is supposed that consumer i owns a share θ_{ij} of the firm j, giving them a claim to fraction θ_{ij} of firm j's profits. One can see that $\sum_{i=1}^{I} \theta_{ij} = 1$. It is also assumed that firm's objective is maximizing profit. In order to introduce welfare characterization of the equilibrium, the definition of the Walrasian equilibrium allocation is stated:

Definition 3: The allocation $\left(x_1^*, \ldots, x_I^*, y_1^*, \ldots, y_J^*\right)$ and a price vector $p^* \in \mathbb{R}^D$ constitute a competitive equilibrium if the following conditions are satisfied:

(i) Profit maximization: for a price vector $p^* \in \mathbb{R}^D$, y_j^* solves problem (3) for every firm $j = 1, 2, \ldots, J$.

(ii) Utility maximization: for each consumer $i = 1, 2, \ldots, I$, x_i^* solves the problem

$$\max_{x_i \in X_i} u_i(x_i), \; s.t. \; p^* \cdot x_i \le p^* \cdot w_i + \sum_{j=1}^{J} \theta_{ij} p^* \cdot y_j^* \qquad (4)$$

(iii) Market clearing conditions: for each good $d = 1, 2, \ldots, D$

$$\sum_{i=1}^{I} x_{id}^* = \sum_{i=1}^{I} w_{id} + \sum_{j=1}^{J} y_{jd}^* \qquad (5)$$

As one can see, determining equilibrium involves solving two optimization problems for each firm and for each consumer and an extra constraint. It means that growing number of firms and

consumers in the economy can make excessively large the problem one needs to solve in order to obtain equilibrium allocation. The welfare characterization of the equilibrium makes easier the problem of determining an optimal allocation. Negishi (1960) presented a proof of the existence of equilibria based on constraint optimization techniques.

Theorem 3. (Negishi 1960): An allocation $\left(x_1^*,\ldots,x_I^*,y_j^*,\ldots,y_J^*\right)$ with price p^* is equilibrium if and only if there is a strictly positive vector of welfare weights $\left(\delta_1^*,\ldots,\delta_I^*\right)$ such that allocation $\left(x_1^*,\ldots,x_I^*,y_j^*,\ldots,y_J^*\right)$ solves the Pareto problem

$$\max_{x_i\in X_i,y_j\in Y_j}\sum_{i=1}^{I}\delta_i u_i(x_i),\ s.t.\ \sum_{i=1}^{I}x_i=\sum_{j=1}^{J}y_j+\sum_{i=1}^{I}w_i, \qquad (6)$$

that p^* is the corresponding vector of Lagrange multipliers, and that $p^*\left(x_i^*-w_i-\sum_{j=1}^{J}\theta_{ij}y_j^*\right)=0$.

THE ALGORITHM

The algorithm for determining equilibrium solves the problem (8). The first-order optimality conditions of the problem (8) are as follows:

$$\begin{gathered}
\delta_i\nabla_{x_i}u_i(x_i)-p=0, i=1,2,\ldots,I\\
p-\xi\nabla_{y_j}F_j(y_j)=0,\ j=1,2\ldots,J\\
p\left(x_i-w_i-\sum_{j=1}^{J}\theta_{ij}y_j\right)=0, i=1,2,\ldots,I\\
\xi F_j(y_j)=0,\ j=1,2\ldots,J \qquad (7)\\
\sum_{i=1}^{I}x_i-\sum_{i=1}^{I}w_i-\sum_{j=1}^{J}y_j=0\\
F_j(y_j)\le 0,\ j=1,2,\ldots,J\\
p\ge 0,\xi\ge 0
\end{gathered}$$

By adding slack nonnegative variables, the first order conditions can be written as a system of nonlinear equations $\mathrm{H}(z)=0$, where z represents all variables of the system. This system will be called KKT system. In order to solve KKT system, one can consider it as a problem of nonlinear least-squares with bound constraints (2). Problem (2) will be solved by interior point method. The log-barrier of the problem can be written in the following form:

$$\mathrm{B}(z;\mu)=\frac{1}{2}\left\|\mathrm{H}(z)\right\|_2^2-\mu\sum_i\ln(z_i-l_i)-\mu\sum_i\ln(u_i-z_i). \qquad (8)$$

The idea of the interior-point algorithm is to solve sequence of unconstraint optimization problems $\min_z \mathrm{B}(z;\mu)$ for the decreasing sequence of parameters $\mu\in(0,1]$. The first-order optimality conditions for (11) can be written

$$\begin{gathered}
\mathrm{J}^T\mathrm{H}-w_1+w_2=0\\
(Z-L)W_1=\mu e, \qquad (9)\\
(U-Z)W_2=\mu e
\end{gathered}$$

where $\mathrm{J}=\nabla\mathrm{H}$, $w_i^1=\frac{\mu}{z_i-l_i}$, $w_i^2=\frac{\mu}{u_i-z_i}$, $W_1=diag(w^1), W_2=diag(w^2), Z=diag(z), e=(1,\ldots,1)^T$.

J will be approximated by the central finite-difference formula . Let us denote this approximation

by J. System of the first-order optimality conditions (12) will be denoted by $\mathrm{F}(z, w^1, w^2) = 0$. The algorithm incorporates the idea of the Gauss-Newton method for solving nonlinear least-squares problem. It means that the second order information $J^T J + \sum_i \mathrm{H}_i \cdot \nabla \mathrm{H}_i$ is approximated by $J^T J$. This approximation is efficient when $J^T J$ dominates the second term. In small residual nonlinear least-squares problem $J^T J$ fulfills this requirement. In order to obtain the descent direction for the function F, in every iteration of the algorithm, linear system

$$\begin{bmatrix} J^T J & -I & I \\ W_1 & Z-L & 0 \\ -W_2 & 0 & U-Z \end{bmatrix} \cdot \begin{bmatrix} \Delta z \\ \Delta w^1 \\ \Delta w^2 \end{bmatrix} = -\mathrm{F} \qquad (10)$$

needs to be solved. This system will be called Gauss-Newton system in the future.

The algorithm for computing equilibrium

The algorithm for computing equilibrium can be written as follows:

Step 1. Set initial values z_0 for starting point. Set $\varepsilon = 10^{-4}, Maxit = 10$ parameters for stopping rule and starting algorithm parameter $\mu_0 = 1$. Also calculate $w_0^1 = \frac{\mu_0}{z_0 - l}, w_0^2 = \frac{\mu_0}{u - z_0}$ for starting point. Set $k = 1$, $iteration = 1$ and $z_k \leftarrow z_0, w_k^1 \leftarrow w_0^1, w_k^2 \leftarrow w_0^2$. Calculate $\left\| \mathrm{F}(z_k, w_k^1, w_k^2) \right\|_2$.

Step 2. While $\left\| \mathrm{F}(z_k, w_k^1, w_k^2) \right\|_2 > \varepsilon \wedge iteration > Maxit$:

- Solve the Gauss-Newton system in order to obtain descent directions $\Delta z_k, \Delta w_k^1, \Delta w_k^2$.
- Determine feasible step-lengths for w_k^1, w_k^2 which ensure positiveness of the w_{k+1}^1, w_{k+1}^2 by formula $\alpha_{w^1} = 0.95 \cdot \min\left\{ \frac{w^1}{|w^1|} \right\}, \alpha_{w^2} = 0.95 \cdot \min\left\{ \frac{w^2}{|w^2|} \right\}$.
- Calculate the value of the merit function (11) and set $m(\alpha) = \mathrm{B}(z + \alpha \Delta z; \mu)$. Perform the backtracking algorithm on the merit function for $\alpha \in (0,1]$ in order to obtain the step length α which satisfies the Wolfe conditions. Backtracking algorithm performs halving of the step length until the Armijo condition is not satisfied.
- Update $z_{k+1} \leftarrow z_k + \alpha \Delta z, w_{k+1}^1 \leftarrow w_k^1 + \alpha_{w^1} \Delta w^1, w_{k+1}^2 \leftarrow w_k^2 + \alpha_{w^2} \Delta w^2$ and algorithm parameter $\mu_{k+1} \leftarrow 0.1 \cdot \frac{\left(z_{k+1} - l\right)^T w_{k+1}^1 + \left(u - z_{k+1}\right)^T w_{k+1}^2}{2n}$, where n is the length of the vector z.
- Calculate $\left\| \mathrm{F}(z_k, w_k^1, w_k^2) \right\|_2$ and set $iteration \leftarrow iteration + 1$.

As one can see, the major computational effort in each iteration is solving the Gauss-Newton system. While solving this system, the problem of the ill-conditioning of the system matrix may arise. Esteban-Bravo (2004) argues that the ill-conditioning problem is less harmful in least-squares approach. Ill-conditioning did not influence the results obtained by the algorithm which was applied to examples stated in the next section.

NUMERICAL RESULTS

In this section the introduced algorithm will be applied to some known problems of determining equilibria. The starting points are taken in such way that they should satisfy problem (9). In order

to check if the results are correct, equilibrium allocation is also computed according to the definition 3.

Example 1. (Kehoe 1991): Consider a static exchange economy with two consumers and two pieces of goods. Utility functions of consumers are given by $u_i(x_1, x_2) = \sum_{j=1}^{2} a_{ij} \frac{\left(x_j^{-4} - 1\right)}{-4}$, where coefficients $a_{ij} = 1024$ if $i = j$ and $a_{ij} = 1$ if $i \neq j$. Initial endowments w are given by $w_{ij} = 12$ if $i = j$ and $w_{ij} = 1$ if $i \neq j$.

The algorithm is applied with the starting point $\delta_0 = [0.5, 0.5], x_0 = \begin{bmatrix} 12 & 1 \\ 1 & 12 \end{bmatrix}, p_0 = [0.5, 0.5]$. Resulting prices are normalized to positive simplex $\square_+ = \left\{ p \in \square_+^D : \sum_{d=1}^{D} p_d = 1 \right\}$. After eight iterations, one obtains the following results: $\delta = [31.8918, 31.8918], x = \begin{bmatrix} 10.4 & 2.6 \\ 2.6 & 10.4 \end{bmatrix}, p = [0.2684, 0.2684]$, and normalized prices are $p_{norm} = [0.5, 0.5]$. The algorithm is also applied to this example with a different starting point. One obtains the same results but different iterations are needed to satisfy the stopping rule. Depending on the starting point, during the running of the algorithm Matlab sometimes showed warnings about the ill-conditioning of the Gauss-Newton system's matrix. Although these warnings are shown, correct results are obtained. This means that the influence of the ill-conditioning is small.

Example 2. (Esteban-Bravo 2004): Consider a static production economy with one consumer, one producer and two goods. The consumer has a utility function of the form $u(x_1 x_2) = x_2 - (-x_1 + 4)^2$, and an initial endowment $w = [5, 15]$. The firm has a production set $Y = \left\{ (y_1, y_2) : y_2 = 16 - (y_1 + 4)^2 \right\}$.

The starting points of the algorithm are $\delta_0 = 1, x_0 = [6, 20], p_0 = [1, 1], y_0 = [1, 5], \xi_0 = 3$. The algorithm reaches optimal values in seven steps. These values are $\delta = 1.6846, p = [5.0537, 1.6846]$, while normalized prices are $p_{norm} = [0.75, 0.25]$. The optimal allocation is $x = [2.5, 28.75], y = [-2.5, 13.75]$.

Example 3. (Esteban-Bravo 2004): Consider a static production economy with two consumers, two producers and two pieces of goods. Consumers have utility functions of the form: $u_1(x_{11}, x_{12}) = x_{12} - (-x_{11} + 4)^2$ and $u_2(x_{21}, x_{22}) = x_{22} - (-x_{21} + 6)^2$. Initial endowments are given by $w_1 = [5, 15], w_2 = [15, 5]$. Firms have production sets $Y_1 = \left\{ (y_{11}, y_{12}) : y_{12} = 16 - (y_{11} + 4)^2 \right\}$ and $Y_2 = \left\{ (y_{21}, y_{22}) : y_{22} = 36 - (y_{21} + 6)^2 \right\}$.

The starting points of the algorithm are $\delta_0 = [1, 1], x_0 = [5, 15, 15, 5], y_0 = [0.5, 0.5, 0.5, 0.5], p_0 = [1, 1]$ and $\xi_0 = [1, 1]$. The algorithm converges in twelve iterations. The obtained optimal points are as follows:
$\delta = [0.6413, 0.6413], p = [3.2064, 0.6413], p_{norm} = [0.8333, 0.1167], x_1 = [1.5, 33.6250], x_2 = [3.5, 63.625]$ and $y_1 = [-1.5, 9.75], y_2 = [-13.5, 67.5]$. With a different starting point, the algorithm provides the same results but it needs different numbers of iterations. Depending on the starting points, sometimes warning about ill-conditioning of the Gauss-Newton system matrix appears.

CONCLUSIONS

Computing of equilibrium can be done efficiently by the algorithm which is proposed in Esteban-Bravo (2004). This algorithm uses welfare characterization of the equilibrium point. The algorithm solves KKT system of the problem (8). It is done by nonlinear least-squares approach and interior-point methods. The motivation of the least-square approach is minimizing the effect of the ill-conditioning of the Gauss-Newton system matrix. The algorithm is applied on three known examples of smaller dimensions. The results can differ from those given in Esteban-Bravo (2004), because of the possible multiplicity of the equilibrium point Kehoe (1991). Convergence of the algorithm can be improved by the correct choice of algorithm parameters.

During the testing of the algorithm with different starting points, ill-conditioning of the Gauss-Newton system matrix appeared, but it seems like that it did not influence the result to a greater extent. In problems with larger dimension, ill-conditioning can be a serious problem. This algorithm can be improved by implementing the idea which will cope with ill-conditioning. One of the ideas for dealing with ill-conditioning is using the Levenberg-Marquardt method, or using the idea of Vanderbei and Shanno (1999).

Vanderbei and Shanno (1999) symmetrize the matrix of the Gauss-Newton system and they perform the LDL^T factorization, where D is a diagonal matrix, and L is a lower triangular matrix. If $J^T J$ is not positive definite, or if it is ill-conditioned, a positive multiple of the identity is added so that $HL = J^T J + \gamma I$ is well-conditioned. Well-conditioning is ensured by repeatedly doubling γ until the diagonal elements of the D are all greater than the small positive constant.

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COMPETITIVENESS OF THE ECONOMY IN ATTRACTING FOREIGN DIRECT INVESTMENT

Mr Darko Marjanović*
Faculty of Economics Subotica, Serbia
marjanovicd@ef.uns.ac.rs
Predrag Radojević
Serbia
radojevic.predrag@gmail.com

ABSTRACT

Foreign investments are now in almost all countries of the world recognized as an important tool for development and an important channel to activate their potential. Global trends in foreign direct investment and actual investment values indicate the great importance of foreign direct investment in the global economy. The main objective of the transition countries are trying to achieve is to achieve stable, long-term economic growth that will be based on increasing investment and increasing the competitiveness of their products in international markets. Important role in realizing this goal have foreign direct investment through direct contribution to the transition process and the inflow of capital, by creating new sales channels for domestic companies, through the strengthening of competition and the restructuring in the domestic economy. For the domestic economy are very important fiscal incentives to attract foreign investors to invest their capital in Serbia and thus contribute to the new foreign investment Serbian become a leading country in attracting foreign capital in the countries of the region. This will be primarily reflected in increased rates of economic growth and reducing poverty, improving competitiveness and knowledge of employees and to increase tax revenue. Therefore, in order to achieve growth and development necessary to pursue policies of openness to foreign direct investment, maintaining the necessary measures to remove barriers that could slow the influx of foreign investors.

Key words: competitiveness, foreign direct investment, economic growth

1. INTRODUCTION

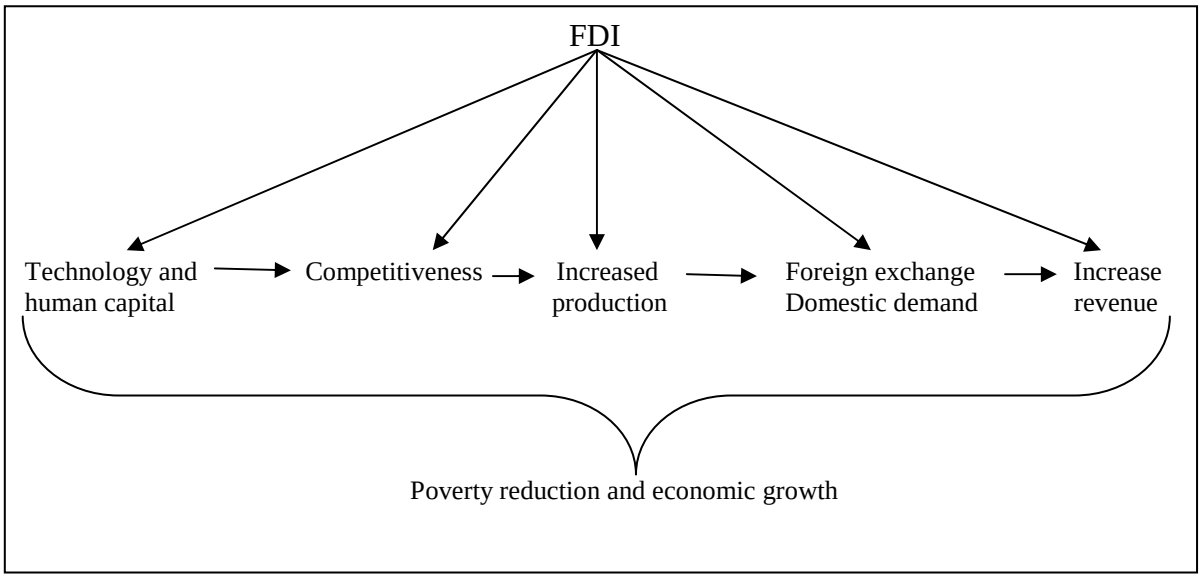
Foreign direct investments are the result of contemporary processes that take place in the sphere of financial globalization, and also represent the most important international source of funding. The process of financial globalization (financial liberalization, internationalization, deregulation, etc..) Led to the abolition of restrictions on the domain of international capital flows while contributing to the expansion of foreign direct investment. It can be said that foreign direct investment actually represent a product of financial globalization, and that without this process, we could not talk about the great importance of FDI. In the process of globalization of capital is the first and most mobile sperm cells factor in the creation of the world's global economy, and as such it can accelerate the economic development of the country you are investing, as it enters where they are from the global point of view most favorable conditions of placement. Looking from the macroeconomic point of view, the inequality between savings and investment in some countries is the main cause of international financial flows. Namely, in the national open economies shows that the gap between domestic savings and investment equal to the net increase in borrowing abroad. This means that countries with higher investment than savings, borrow savings from other countries to finance their own investments. Conversely, a country that has a higher savings from the investment may invest the surplus savings abroad. In the long run, it raises the profit rate in the countries that emit the capital, and the influx of a certain amount of foreign capital cheaper capital in the countries that enter the financial resources.

2. THE IMPORTANCE OF FDI FOR DEVELOPING COUNTRIES IN TRANSITION

It is a known fact that FDI can bring many benefits the country in which it invests, including the transfer of knowledge and technology to local companies and workforce, increase productivity, increase competitiveness, increase export opportunities and the like. Foreign companies can also increase the gross national product by "creating" the sale and development work with local businesses within their supply chain. The main benefits of FDI in transition countries provide include:

- increased production - foreign companies in the rule have better operational solutions that can be transferred to the local economy. They are generally large and often employ local suppliers and providing technical assistance, training and information needed to improve the quality of their products. Thus can be used not only for increased revenue but also due to increased production efficiency. Foreign companies can increase competition and encourage domestic enterprises to adopt international quality solutions in business organization.
- improve technology and increase the efficiency of domestic companies - foreign companies bring with them innovative technologies and resources for the further research and development. These new technologies are transferred to the local economy by educating employees and companies with whom they work, and through direct technical assistance provided by these companies provide local entities, thus reducing the gap between developed countries, developing countries and countries in transition.
- development of human capital - employees are trained and qualified for the new technology and by switching from the foreign companies in the domestic enterprise or the opening of his company brought with them their knowledge.
- promotion of foreign trade - increased efficiency, economies of scale and product quality contribute to greater export opportunities for domestic companies that previously did not have opportunities to participate in foreign trade.
- increased revenues - in the best case, the initial investment by foreign investors, the sale of their products and increased sales of domestic producers, can lead to economic growth and development throughout the country. In addition, foreign companies generally pay employees higher wages than most domestic companies.
- used for domestic investors - a good investment climate is beneficial to all investors in the country. Creating a good investment climate for foreign investors, the state creates and domestic companies more options to exit the "informal" economy, creating better opportunities and develop new ideas.

Model the possible impact of FDI on the development of the countries in transition can be summarized as follows:



3. DETERMINANTS OF FOREIGN DIRECT INVESTMENT

Accelerated process of globalization, liberalization of foreign investment regime and deregulation of many activities, has helped multinational companies increasing choice of locations. As a result, multinational companies are becoming more demanding in the choice of the host country for investment. Liberal government policy towards foreign investments, therefore no longer sufficient to attract foreign investment, it is necessary to take active measures to attract investment. Countries that provide an overall policy environment in which the stable conditions for the smooth and profitable operation will certainly faster and easier to attract FDI from those countries where the investment environment is not sufficiently favorable.

Important determinants of the host country for foreign investors include political and economic framework, and government regulations to facilitate investment and business. The importance of individual determinants of implementation depends on the motives of FDI. Hence the importance of individual economic determinants of the country varies depending on the motives for investment. Table 1. presents the determinants of FDI host countries (World Investment Report (2005)).

Table 1: Determinants of FDI host country

Determinants of host country	Type of foreign direct investment to the motives of investors	The most important economic determinants of the countries in which capital is invested
I. Political Framework • economic, political and social stability • regulations regarding entry and action in it • standards of treatment affiliate in the country • policies and market structure • international agreements on foreign investment • privatization policy • trade policy and compliance with the policy of foreign investment • tax policy	**The quest for market**	• market size and GDP per capita • market growth • access to regional markets • country-specific consumer tastes • market structure
II. Economic framework	**The quest for resources**	• raw materials • low cost of unskilled labor • skilled labor • technology, innovation and other acquired resources • physical infrastructure
III. Easing investment and business • promotion of investment • incentives for investors • reduction of administrative barriers • servants after the investments made	**The quest for efficiency**	• costs of resources and assets • other input costs (transport and communication costs to / from and within the host country, the cost of other intermediate products) • membership in regional integration applicable for the establishment of regional corporate networks

State policy towards foreign investment consists of legal provisions and regulations that affect the entry of foreign investors and their activities in the country. These policies can range from a ban on entry of foreign investors to the policy of preferential treatment of FDI through a variety of benefits. The unstable economy, relatively high inflation, unstable currencies and other factors that are uncertain investment climate discouraging foreign investors. Regulations regarding entry and activities it refers to the legal provisions governing the legal status of foreign investors in the host country, or the process of entry and establishment of the company. This is a very important determinant as to

disclose the risks that foreign investors may have regarding his treatment by the law of the host country.

According Arsic (2005) foreign investors want to invest capital abroad realize certain goals, and these are: (a) profitable (efficient) investment, (b) the sale of technology and equipment, (c) new markets, (d) cheaper production (e) transfer of production technology that uses a dangerous outside the country, (f) taking advantage of tax and other incentives. In order to attract foreign investment, and then optimally use all the possible positive effects of these investments, you must first: (a) create conditions favorable for business and investors attractive, (b) establish clear objectives to be achieved by using FDI, (c) to select the best strategy for attracting FDI, (d) additional policy incentives for further direct investment where it will best meet the objectives. Since the foreign capital, in the absence of domestic capital, a necessary transition countries, they use different policies and strategies to attract more foreign capital. There are several reasons that will further complicate attempts by countries in transition to attract FDI, namely: (a) FDI as gateways to international markets, (b) FDI will still be necessary to reduce the deficit in current accounts, (c) the need for technological modernization. Factors that have or will have an important role in the policies of transition countries in attracting FDI are: (a) low cost as a result of low wages and low tax rates, (b) institutional arrangement, and (c) macroeconomic stability.

4.COMPETITIVENESS OF THE ECONOMY IN ATTRACTING FDI

Foreign direct investment, compared to other forms of international capital movements, investors have the primary advantage of which is to achieve adequate profits, which corresponds to greater risk and compensate for the cost of investing and doing business abroad. In addition, these investments provide the foreign investor: product placement, the expansion of the capital market of the importing country, export of technology, managerial skills and experience, positive use of resources (raw materials, energy, labor), as well as saving on production and transport costs. The above advantages make it possible for foreign direct investments profitably implemented and to ensure the reproduction of capital invested and the corresponding gain, which is higher than the profit that would be achieved by investing its own capital in the economy or the economy of another country. The investor decides to invest in a foreign company if the cost of production for the company lower production costs than in-country residence and transportation costs, and selling products on the market of the country where the foreign company is located. In doing his modern equipment and technology, management and marketing knowledge allows to compensate for the advantages of domestic firms in the knowledge of local business conditions and increased costs of organizing and managing a business from abroad.

At the beginning of the XXI century the influx of foreign direct investment in Serbia reflects a trend of growth that lasted until the end of 2006. year. At that time the largest share of the total inflow had revenues from privatization, while greenfield investments were significantly lower share. In the period since 2000. by 2007. The Serbian has significantly improved its share in total world FDI inflows. FDI inflows in Serbia went on steady rhythm as in other transition countries, ie. privatization of state enterprises and then, with increased economic stability, the emphasis was on individual sectors - food, trade, telecommunications, financial sector and others.

The rapid inflow of FDI into the Serbian economy occurred in 2006. in the amount of $ 4.3 billion, with the largest investment of the sale of mobile operator Mobtel for 1.6 billion Norwegian firm Telenor. In the same period there was a large investment, primarily in the financial sector by investors from Greece and Germany amounting to about $ 900 million. After that, the decline in FDI inflows mainly due to lower revenues from privatization and the global financial crisis. In the period since 2000. year until 2008. The foreign direct investment in Serbia amounted to 14 billion dollars, according to IMF data, lower than in other transition economies (Croatia 21 Bulgaria 34, Hungary 41, Romania 50, Slovakia 25 and Czech Republic 61 billion). However, Serbia has been obtained and new competitors in the Balkans, Albania and Montenegro, which was in 2007. a flow of 1401.8 per capita (Serbian - 296.7 million). For the influx of new technologies, create jobs, increase productivity,

growth of GDP and export growth required a change of structure in favor of greenfield and brownfield investments. The more so as Serbian by the World Economic Forum takes 126th position when it comes to introducing new technologies and the 120th the availability of new technologies.

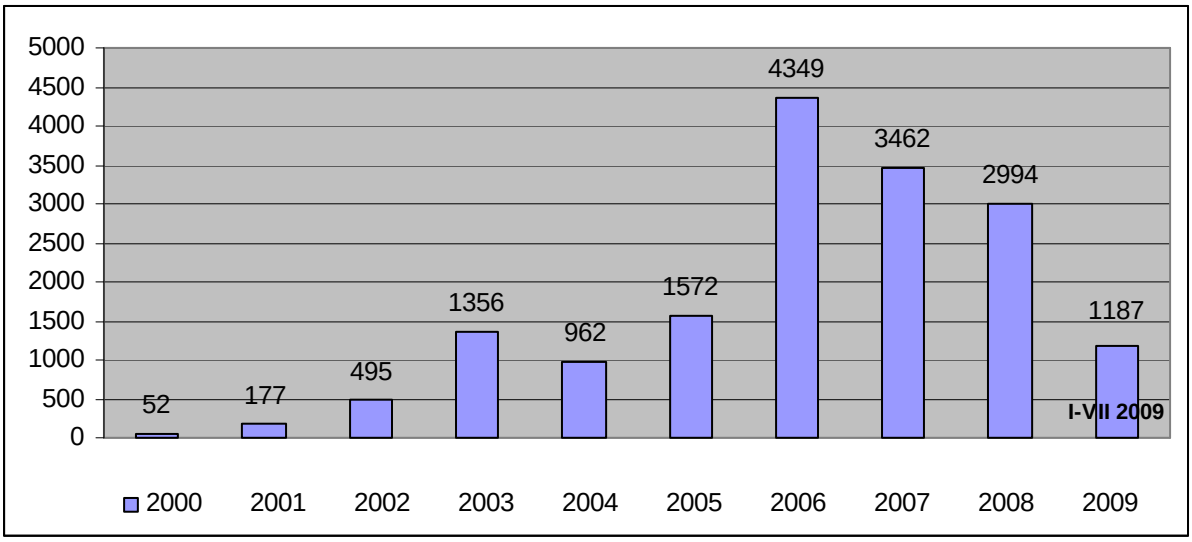


Figure 1: Inflow of FDI in Serbia 2000-2009 (in millions of USD)

In order to join the global economy, Serbia has imposed the need to adapt to global trends and ensure the inclusion of multinational companies in their economic system, because it is the only way to ensure adequate supply of the domestic market and increase exports, which would reduce the imbalance in foreign economic relations and meet both domestic and foreign markets required quality and quantity of products offered and placed. Analyzing the macroeconomic and business environment can be said that Serbia has certain advantages compared to other countries in the region. These advantages are related to exceptional human resources (trained, educated and relatively cheap labor), an excellent strategic and geographic position, externally-oriented accelerated privatization program and the low rate of tax on corporate profit.

The biggest obstacles to attracting FDI in Serbia (a) legal issues, ie. unresolved ownership status and market pricing of use of urban construction land, (b) the absence of specific departments within the courts for specific areas of law, (c) limited institutional capacity for reform and for strategic planning and marketing, (d) late with the reform process, infrastructure deficiencies and limited access to measures to improve competitiveness, (e) the need for better understanding of the importance of foreign investments and programs sensitive to the needs of investors, (f) lack of clearly directed the national program for promotion of investment as opposed to previously established negative image of Serbia in the world. This is why the Serbian government ninth March 2006. adopted a "Strategy for Encouraging and Developing Foreign Investment, which aims at a detailed analysis of the investment environment in order to identify sectors in need of reform. The immediate objectives of the strategy are (a) an overall increase of investors in the productive sectors of the economy, (b) assistance to new investors in the implementation of planned investments in the country, and (c) providing support to existing investors in order that their long stay in the country. The strategy should be to eliminate all weaknesses in the business environment of Serbia and to create a favorable climate for attracting and retaining new foreign direct investments which will further affect the development of business in Serbia. The goals of the necessary regulatory reform, strengthening institutions and developing cooperation between the state and municipal levels as well as additional activities and initiatives to improve competitiveness.

5. CONCLUSION

The importance of foreign direct investment in Serbia is the default setting of strategy and policy as opposed to foreign investment within the overall development strategy. Development strategy of Serbia includes the construction of the assumptions with which to solve the accumulated contradictions and discrepancies in the manufacturing and other sectors of the economy, as well as between regions, with which to protect all the spatial and other characteristics of Serbia. Country's development policy should be set so as to achieve greater liberalization of economic relations in the country and abroad. That implies the free movement of goods, services, people and capital. Of economic development strategies should be expected to identify those branches of production that will best utilize natural resources, geographical location, human resources and their rational management. Foreign investors should be attracted to invest in industries that are interesting to Serbia and multinational companies as investors. Serbia will these investments to accelerate economic effects and benefits that are reflected not only in the rapid development in which investments in this sector result, but also because such investments encourage the development of the whole economy. For the foreign partner's investment in Serbia have the advantage of getting a ready infrastructure, skilled manpower and natural resources.

Although in the past decade, significant progress in attracting foreign investment, continue to realizations Serbia weak as indicated by (a) political instability, (b) low rate of employment, (c) a significant trade deficit that has emerged due to an excessive reliance on state loans (d) lack of economic development strategies, (e) infrastructure deficiencies and (f) corruption. One of the reasons why Serbia has failed to attract large and steady inflow of foreign investment is a poor business environment. What most contributes to improving the business environment is to increase economic freedom and rule of law. That basically means removing barriers and excessive state intervention in the economy, and providing a wider field for doing business (including lower administrative costs), reducing regulation, transparency and the ability to predict the behavior of participants.

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CORPORATE IDENTITY OF BANKS IN A FUNCTION OF MARKET COMPETITIVENESS

Vera Zelenović, PhD
The Faculty of Economics, Republic of Serbia
vzelenovic@rpkns.com
Milivoje Davidović*
The Faculty of Economics, Republic of Serbia
milivojed@ef.uns.ac.rs

ABSTRACT

Strong competition in the banking market increasingly emphasizes the role and importance of Corporate Identities of banks. In the beginning it has been created to allow recognition of the differences between banks, now corporate identity is an essential component of market competitiveness in banks. Contemporary and current trends in the banking industry found its reflection in the corporate identity of banks. The work is divided into three segments, where each of them defines and explores the individual role and importance of each of the elements of corporate identity: name, logo and slogan of bank. Analysis each of the elements of corporate identity will be followed by actual examples from the world of banking, with special emphasis on the correlation between corporate identity and market position of bank. The last segment is reserved for concluding remarks.

Key words: corporate identity, name, logo, slogan, image, competitive advantage

INTRODUCTION

The term "corporate identity" was born during the fifties of the twentieth century by Walter Margeliza, from one of the first consulting firms in America and Lipinkot Margeliz, to describe the activities in which "all of the more visible manifestations of the organization are designed to create a coherent corporate unit which binds to a specific theme, attitude or identity."In order to operate well and to achieve success in the marketplace, bank needs to create its own unique and distinctive identity. Initially created to provide recognition and differences between banks, now a corporate identity (CI) is an essential component of the market competitiveness of banks in its continuing struggle for client's identity. Corporate potential is the sum of the elements that make the visual and acoustic appearances of banks, as an expression of its personality, and that is all what business partners see and hear about bank. Applied in this context, corporate identity (Bogdanovic, 2002) includes also: "understanding of the bank" and "ethics of the bank" and "culture of the bank".

THEORY

Policies of corporate identity is strategically planned and implemented operational activity, oriented towards the interior and exterior of the bank, the phenomenon and behavior which is realized through the following funds: corporate design, promotion activities and public relations-communication of banks, bank's attitude toward coworkers, customers, competitors, shareholders, as well as the norms of behavior within bank. Objectives of corporate identity can be different (Ind, 1996): (1)To improve communication within the bank; (2) To increase the public's perception of a bank , (3) To increase the market value of shares, (4) To announce a new business strategy, (5) To create a public reputation, (6)To determine the position on a global scale.

Key elements and characteristics of the general bank's corporate identity need to be determined at its inception and relate to: (Vunjak, 2008) 1)Bank Name, 2)Trademark-logo of bank and 3)Bank Slogan

1. Bank name

The name is the most important part of corporate identity and often the most valuable capital of the bank, and the first thing what makes the bank different from other banks. Observed from the business point of view, the name embodies the status of the bank and identifies the product quality in relation to competition. The name reflects entrepreneurial philosophy and corporate culture, expands trust and accelerates progression of products and services through the bank's financial currency. Name is, as a rule, constant, permanent value, because it involves constancy in perception, psychological experience of past and current generations, consistent amplitude sound wave, other sensory data and universals, expressing the unity and totality. Bank name should also contain the word bank and it should closer and symbolically represent the essence of its business. There are three types of bank names: (Zelenović, 2008) 1)geographical names, 2)mixed names and 3)initials .It is wrong assumption that all the good names are already taken! In traditional banking, banks often had in their name the name of the territory from which the bank originates, or had the initials of its founder. Prefixes are often added to the names and from them we can conclude in what kind of work is bank primarily engaged in (agricultural, commercial, savings, credit and mortgage). The globalization of the banking market has brought along a universal type of bank, which was read by the names of banks, which are increasingly seeking neutrality, memorable and translatable into all languages, not burdened by geographic, personal or ethical guidelines, thus demonstrating the universal dimension of money.

2. Trademark and logo of the bank

Trademark and logo of the bank are of great importance, as they serve to identify the bank and the absence of its full name. Trade mark is a combination of visual symbols of the brand and brand names marked with characteristic typeface, whose basic function is to transmit name of the bank.

Trade mark and logo of bank define the company and its operations, point to her style and stand out from the competition; this is the first and the right way for bank to be positioned in the minds of consumers. Given that the trademark is a holder of the entire visual identity, and that it rarely changes and in special situations, it is necessary, from the very beginning, to clearly define its meaning, color and symbols and application. The key role of trade mark and logo is to make a brand from a bank in the market, with the aim to differentiate the banking products and services in the market from the competition. Bank logo designs features: (Zelenović, 2008) 1)severity, 2) high standards, 3)privacy, 4) the focus value of the bank's name fonts , 5)formal and 6)standard color

Quality of the logo is seen through the following: 1)a harmonious entity, 2)emphasizes name, 3)elements related to the business, 4) legit font and 5)proper screening in black and white version.The tasks of the trademark: 1)protection from false bank exchange, 2)protection of users with guaranteed quality, 3)speed recognition and 4)guaranteed continuity of quality .

3. The slogan of the Bank

In the chaos of modern markets, particularly on the Internet, where the average consumer has become too exposed to all types of advertising, and other messages, and become over-communicated, the only way to attract his attention is with the over-simplified message - slogan. Slogan represents distinctive business phrase of company, that reflects bank's key point in its operations; it is a motto, a phrase or short sentence that is used for commercial or political purposes. Its goal is to be easily remembered by frequent repetition and also, the idea, that company sells, should be recognized. The slogan is a short advertising message in two or three words, which affects consumer's awareness and explains the benefits and advantages of the

particular product, service of company. The function of slogans is to convey the message to people, which will in their minds clearly and quickly present the proposed idea.A good slogan allows quick, clear and unambiguous communication. The question is how to find a suitable slogan? There should be found a way to describe in a few words or at least one line, what makes a bid (proposal) of the bank unique? Perhaps it is better to get answers indirectly, by asking questions, what are the problems or fears of potential listeners or readers of your slogan that you can solve for them? The slogan has to cause the desired emotion, because, only through an experience, it becomes acknowledgment in the minds of people. Something what is remembered not as a fact, but as knowledge.

The term (Kostic, 2008)"USP, or Unique Selling Proposition is the statement that symbolically communicates your main sales messages to customers. USP can be seen as a kind of a slogan related to the individual selling story, although, it is a concept different from a slogan (which can be connected with any of the ideas). From the very name it is implied that it is necessary that selling bid in question, must be unique, compared to similar offers. Also, it is a proposal where the indirect consumer's awareness drives to identify with a specific name, idea or product."While the slogan will reflect the basic idea and purpose (mission) of the bank, USP will be used for individual sales offers. In devising bank's slogans (as well as USP), it is more practical to use the **AIDA strategy** used in the writing of advertisements. This means that the bank's slogan should: **A (Attention)** attract attention, **I (Information)** provide information, **D (Desire)** challenge desire and **A (Action)** produce action.

Certainly, it is impossible to achieve all these effects in a few words, which is another proof that the real slogan does not come easy[1]. In communication, the less is better. (Kostic, 2008)To reveal what is the essence of the message you want to transfer to the client, you should use the famous suggestion RIES, Al and Jack Trout, a marketing theory of the authors of the positioning "in marketing and in architecture, less is more (better). You must sharpen your advertising message to cut into the consciousness of listeners. Cut out all the contradictions in your message, simplify it, and then simplify even more, if you want to achieve a lasting impression."The most important thing to know when you are creating a slogan is that it is not specifically designed just for bank and its employees. You should keep in mind that it is intended for the ordinary man, who has never heard about the idea that you want to show. Your message should be recognizable to anyone, even if it sounds banal to some of them. To find the right measure between simplicity (the minimal recognition messages) and its volume (length text), it is the best to make detailed testing. A bank should demonstrate the slogan everywhere and ask more people for comment. Effectiveness of slogan will depend only on a reaction in ordinary people’s minds. The slogan should: 1)attract attention and interest of consumers , 2)contain the main idea or thought propaganda messages and 3)encourage the consumer to action.Market searches for slogans that have a rhythmic entity, balance, ease of reading and the possibility of faster memory! The slogan is not a graphic element and form of expression, but it needs a graphic shape and present.It is better to be without a slogan, than with a slogan that says nothing, and that is not simple and is hard to remember. You can build the entire propaganda campaign on a good slogan! Slogan should: be easy to remember, call on a brand name, contain key benefit, differentiate the brand, give a positive feeling about the brand, reflect the brand’s personality, be strategically competitive, original and simple, allow the campaign, be sleek, neat and believable, and assist in determination of the brand. Slogan of bank is a phrase, short sentence that is used for commercial purposes and it expresses the key motto of the bank in dealing with clients. The goals of this kind of slogans are to: a) be easy to remember - frequent repetition and b)recognize an idea or purpose which is placing.Primary function of the slogan is: a)to transmit messages to users; b)fast, clear, unambiguous communication; c)positioning in the customer's minds; d)more effective placement on the market.

[1] Great marketing agencies charge tens of thousands of dollars for a good slogan.

METHODS

Problem: In order to be more effectively presented on the financial market and to gain a competitive advantage, banks have to devote great attention to design their corporate identities. It is in every bank's interest to create unique and distinctive identity, which is of great importance for successful business on market. Based on a fact how serious and professional is a bank about solving this requires of modern banking market, banks can count on a profitable and successful business.
Objective: The aim is to demonstrate the importance and role of the corporate identity of the bank in gaining competitive advantage in the market. By analyzing general corporate characteristics of successful and profitable banks in the world, we can determine the significance which they have in banking.
Subject: The subject of business is defining and analyzing general corporate characteristics of banks, which are a function of the banking. In the first part of this paper, there is given a theoretical overview of these features, while in the second part, there are given analysis of practical examples of corporate characteristics of successful banks in the world. For the purpose of this paper there has been used a common method of content analysis of literature, books and magazines and websites.

FINDINGS

By researching practical examples of successful names and signs of banks worldwide, it has been concluded that on corporate characteristics have been paid exceptionally high attention. The fact that they are at the same time the most profitable banks in the market on the one hand, and very professionally designed and with a message in created names and symbols of banks, on the other hand, it can be concluded that there is a mutual correlation and a close relationship between market competition and names and characters of banks. As an example, there has been given the clarification regarding the name and trade mark of successful banks in the market: (Best Logos-Worlds Best Logos and Brands, 2009)

American Home Bank

"A" indicates that it comes from the U.S.; "H" means force; gold symbolizes quality and value. Two columns represent two main businesses, mortgage banking and community banking. Characteristic differences symbolize: focus, flexibility, speed, fun fairs. Up arrow represents the three basic elements of lending: origination, risk, service. Symbol of mission of their mortgage banking: "Help people to build their homes and to provide them enjoyment in their dream homes. Columns represent their need to collect deposits and with the loan growth to fulfill their mission.

Brand name "RBC Financial Group". The new logo continues to honor tradition and its strong Canadian roots, keeping the traditional symbols of the lion and the world. The new brand also clearly defines the future of RBC Financial Group and points to its growth strategy in North America and in markets around the world.

• slash - a consistent growth and dynamic development
•square - can be interpreted as a sign of security and controlled environment

An example of modifying the character of the bank within the changes on the market, and the bank's business philosophy is best illustrated in the following Table 1, which illustrates the modification of one of these leading investment banks in the world, Citigroup.

Table 1: Variations of the sign in accordance with market changes

Source: www.worldsbestlogos.blogspot.com

These slogans of foreign banks faithfully reflect both the current situation in the global banking market (The slogan of the BNP Paribas Bank), and the specific business philosophy of each bank separately (slogan Citizen Bank**).*BNP Paribas Bank** – The bank for a changing world ***Bank of America** – Think what we can do for you ***Midland Bank** – Together we make a great team ***Citizens Bank** – Not your Typical Bank ***The Royal Bank of Scotland** – Make it happen. Where people matter. ***Barclays bank** – It`s our business to know your business ***Union Bank of Switzerland** – You & Us

Slogans of domestic banks usually reflect the specificity and characteristics of the market activity of the same**.*AIK Bank** - Domestic and Strong, ***BANCA INTESA** - Number 1 in Serbia, ***NLB Bank** - I Know Why, ***VOLKSBANK** - Trust connects, ***KBC Bank** - Life connects us, ***CREDY Bank** - There are unique solutions, ***Hypo - Alpe Adria Bank** - Follow Your Dreams**,*Findomestic Bank** - With us, it is easier, ***SERBIAN Bank** - In the Tradition of the State, ***AGROBANKA** - with us, everything succeeds. In table 2 is presented the evolution of the slogans of the largest banks in the world, in accordance with changes in market and business policies. This evolution demonstrates the best how slogans are the living thing, and how much they need to reflect and monitor the performance of banks, all with the aim of better market position.

Table 2: Ron Shevlin‘s suggestions

	Old Slogan	New Slogan
Bank of America	Higher Standards	Higher Fees
Capital One	What's in your wallet?	Hand over your wallet.
UBS	You and us	You BS, So we BS.
PNC	The Thinking Behind The Money	The Thinking Behind
SouthTrust	You're Not Just Another Customer. We're Not Just Another Bank.	You're Not Just Another Customer. You're Our Only Customer.
Morgan Stanley	One client at a time.	(Stealing from) One client at a time.
Milford Bank	Milford's Best Bank!	Milford's Only Bank!
Citibank	Live richly.	Live richly. We do.
E*TRADE	It's your money.	It's yOur money.

Source: www.worldsbestlogos.blogspot.com

DISCUSSION

Theoretical consideration regarding the name, logo and slogan of the bank, coupled with practical solutions that exist in a globalized banking market, talk about the close connection between the name and slogan of the bank, with market trends and current business policies of banks. This

connection points out the importance of name, logo and slogan on market competition of banks. This is supported by the Table 2, which shows how bank modifies its slogans in line with market changes, all in an effort to more clearly portray and to bring closer its business policies to their clients. This is important because the customer's increased satisfaction gives the bank a competitive advantage in the market, resulting in the successful business. How much banks attach attention to designing characters, and how much are banks aware of previous facts and analysis sign, demonstrates the American Home Bank, which is presented in the paper.

CONCLUSIONS AND IMPLICATIONS

A large degree of influence of names, characters and slogans to the recognition of the bank in the market, its market positioning, and therefore the profitability of the operation, tells how much attention and skill is necessary to pay attention to the general corporate features. They are of crucial importance, not only during the formation of banks, but also later in their business, they are subject to change, because they have to monitor changes in the bank's business policy and the time's spirit .The most successful banks in the world have recognized the role and importance of these corporate characteristics, so that through the changes and modifications thereof, can track changes in their banking operations.

The results reached in this study have practical applications in creating a development strategy of commercial banks, in their performance in the market, in order to get benefits on the competitive market. Experiences of successful banks, which devoted full attention to these corporate characteristics, are of great importance, especially, for the banking markets in developing countries and their banking systems, because they can serve as a good example in which direction and how the Bank should develop, in terms of corporate identity.

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CREDIT DERIVATIVES IN THE FUNCTION OF CREDIT RISK MANAGEMENT

Milivoje Davidović*
The Faculty of Economics, Republic of Serbia
milivojed@ef.uns.ac.rs
Vera Zelenović, PhD
The Faculty of Economics, Republic of Serbia
vzelenovic@rpkns.com

ABSTRACT

Credit risk is the likelihood that a bank creditor will be unable to collect its receivables from the debtor in terms of the principal and the interest earned. although it is inextricably linked to banking business, banks are trying to correct assessment of creditworthiness and credit monitoring performance of the debtor minimize the likelihood of credit risk. Along with the development of financial markets have developed sophisticated management systems and banking techniques to minimize credit risk. It is a prudential mechanism of credit risk management that aims to preserve the quality of loan portfolio in purpose of achieving the projected profitability of the bank. The first part of paper is devoted to analysis of the main determinants of credit risk, credit risk modeling process and the process of managing credit risk. The second part analyzes the performance of credit derivatives as well as modern instruments for managing credit risk. In this section attention will be focused on credit default swap, basket default swap, total rate of return swap as a mechanism of transfer credit risk from one to the other counterparty. The conclusion is reserved for research results.

Key words: credit risk, credit derivatives, credit default swap, basket default swap, total rate of return swap

INTRODUCTION

Credit risk is the esential bank risk that is still one of the key factors of bank insolvency. Because of that credit risk management is set as an imperative. Banking theory and practice are developed different technologies of credit risk management: from kvantnitativnih models for assessing and monitoring to sophisticated technology of transfer credit risk. One of the innovative techniques are credit derivatives - bilateral contracts between buyers and sellers of insurance, which, in exchange for periodic payments of commissions, transfer default risk to the seller of insurance. Credit derivatives are improved instruments for credit risk management, thereby contributing to the stability of financial markets. Also, these instruments are increased the liquidity of financial markets, financial markets have become "deeper", the information efficiently, and therefore more effective in performing its function - the financial resources allocation . The paper is primarily devoted to the theoretical and methodological concepts of credit risk management.. Also, the focus of analysis will be credit default swaps, basket default swaps and total rate of return swap as a hedging tool of protection against credit risk.

THEORY

Uncertain fact whose realization may have direct or indirect impact on financial risk and the bank's position is called risk in the financial business. Financial risk in banks can be defined as the ability to invested funds will not earn an expected rate of return. Manifestation of this risk makes a loss in business. On the other hand, credit risk is the possibility that the borrower will not meet its debt

obligations at maturity, in respect of principal and the interest. The bank measures and evaluates the credit risk in order to effectively manage it in purpose of achieving satisfactory profitability. The risk management process is a „roundabout“. It includes the following stages: risk identification, assessment and risk measurement, monitoring and reporting risk; createing a control procedures in the bank. (Udruženje banaka Srbije, 2004) All banks should have detailed policies and procedures for credit risk. Banks must pay attention to the adequate management infrastructure that is necessary to establish before expanding its operations. This helps ensure adequate control over the growth of business. This refers particularly to the structure of bank loan portfolios. If the control operation failed, it can be concluded that the growth of credit operations grew uncontrolled, which can resulted in catastrophic losses. A typical framework for credit risk management in financial institutions can be broadly categorized by the following main components(State bank of Pakistan, 2003): (a) Credit Committee and the supervision of senior business leader; (b) Department of Credit Risk Management; (c) Systems and procedures for the identification, acceptance, measuring and controlling of risk. In order to get a complete picture about the nature of risk, it is necessary the quantity of risk coupled with information about quality of risk. The quality of risk includes the likelihood of default. This is expressed through a credit rating. Prevalent and traditional assessments of credit risk is the rating system that can be (Djukic, 2007) : a system of external ratings and internal rating system. External ratings are used in assessing credit risk related to the corporate bonds. In order to apply the rating system, it is necessary to define a set of methodologies, processes, controls, data bases that support the classification of borrowers and loan into the risk categories. Internal rating systems are organized in banks in order to systematically determine the rating level of the debtor (obligator rating). This rating is displayed as the interval probability of default. The second objective is to establish the facility rating, which defines the parameters of loss in the event of default, such as *loss given default* and *usage given default.*

If we are talking about credit risk modeling, there was a proliferation of sophisticated models for evaluation and default risk management. It is the models that have been classified into appropriate groups based on their specific characteristics. Thus, we distinguish between Heuristic Models, Statistical Models, Causal Models and Hybrid Forms. It is about software tools that are built in order to properly assess credit risks to minimize the probability of default. Through these models the probability of default is under control; it is subject of measuring and evaluating. The objective of this operations is achieving a satisfactory rate of return. The significance of these models is remarkable for the efficiency of banking operations, as it is today over 80% of the causes of insolvency of banks arising from inadequate credit risk management.

Credit derivatives as a tool of credit risk management

Despite the existence of advanced models of credit risk management, banks are developed the techniques of credit risk transfer. One of these techniques are credit derivatives. Credit derivatives are financial contracts that allow the transfer of credit risk from one party to another. In other words, it is a bilateral agreement between the seller and buyer where the seller sells protection against default the reference assets, and counterparty buys that protection. The logic behind credit derivatives is simple. Investors want to have a debt financial instrument that provide attractive yields. Given that those instruments linked to significant credit risk, investors need to ensure against that risks.

This can be achieved through credit derivatives. The logic from the standpoint of the seller of the contract is somewhat sophisticated. Despite the fact that the seller charges a fee, taking a „short position“ in a derivative arrangement, it also takes some kind of „long position“ in relation to basic assets. Thus, the seller creates exposure to a credit instrument, which may be more efficient, compared to assuming the position with cash transactions. This specificity allows some flexibility of the investment strategy. Considering that the credi derivatives are OTC instruments, they can be designed to satisfy the investment needs of different investors.

The basic advantage of credit derivatives is the ability to transfer credit risk, without obligation of buying and selling of debt instruments, primarily bonds and loans. They also provide the following benefits: they allow the set position in relation to credit risk, allowing exposure in relation to reference assets, without having to purchase these securities, and the ability for investors to access the market of bank loans, based on leverage, the possibility of trading the specific segments of credit risk, through credit derivatives investors can also manage interest rate risk, since the interest rate is an important determinant of credit instruments market value.

Credit default swap (CDs) as a tool of credit risk management

Credit default swap (CDs) is a classic representative of the credit derivatives that is similar to the insurance contracts. Its main purpose is to protect the investment portfolio in case of decrease in market value. It is the OTC financial instrument that financial institutions protect their portfolio of government bonds, corporate bonds, municipal bonds, mortgage bonds, the loan portfolio in case of value depreciation. The CDs uses to protect the referent asset, where the buyer insure his assets. The seller charges one-time or periodic fee but compensate the buyer for loss of credit portfolio value. This happens in case of default

The CDs fee is paid as part of the contract value. The CDs can be based on a financial instrument or basket of financial instruments. CDs based on basket financial instruments is frequent and usually represents the "crude material" for building the complex financial structure: synthetic and structured financial products. The payment arrangement for CDs may be different, depending on the preferences of the parties: it may be related to the price change in the reference assets or other specified assets, may be defined in a fixed amount in relation to the asset price changes, may be defined as a delivered duty of reference assets per specified price.

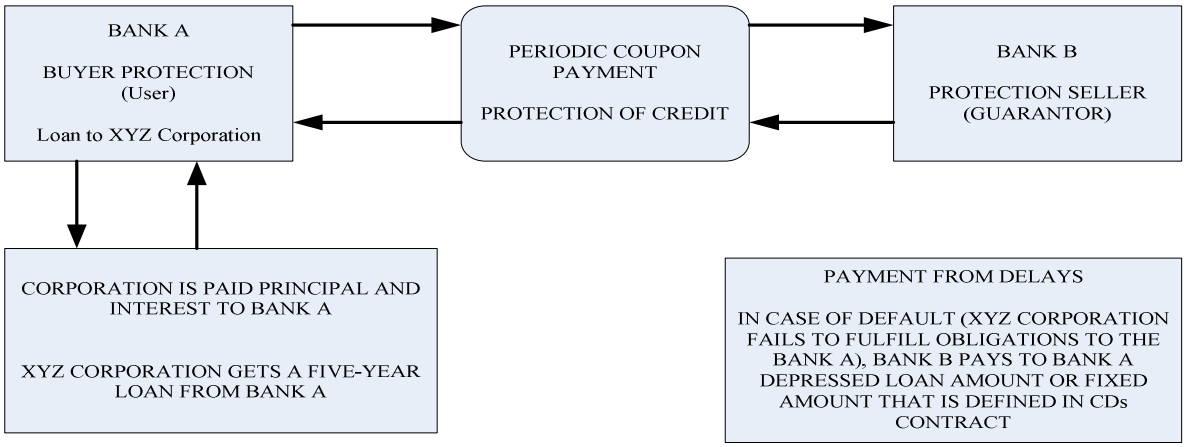

Figure 2: Basic structure of the CDs transaction (Source: www.mnje.com)

In this mechanism, the insurance buyer (Bank A) has agreed to pay the guarantor (Bank B) a commission which is usually expressed by the number of basis points of the reference assets nominal value. This payment has a quarterly or annual frequency. The guarantor has agreed to pay to the insurance market-determined post-default amount or a fixed percentage of pre-specified value of reference assets, when an adverse credit event (default) is realized. The methodology for determining the post-default market value of the reference assets is determined by contract. The default shall be publicly verified in order to start the mechanism of CDs. Swap transaction is turned off in case of default before maturity of the reference asset; otherwise the swap is turned off at the moment of maturity without any payment obligations.

Basket default swap

Basket default swap is a credit derivative that is similar to the CDs. The difference stems from the number of credit instruments that are considered the reference entity. Specifically, the BDS

arrangement is concluded between a seller and buyer of insurance against default of reference assets. The assets includest five to ten reference entity (for example loans). Mechanism of BDS launches default nth entity that is part of reference basket of assets. This financial arrangement has the appropriate flexibility, which enables adapt to investor's preferences. The mechanism of protection starts when the first entity defaults in the asset basket. The BDs involves the delivery of non-liquid assets (default asset) in exchange for a nominal value cash payment. The seller of protection receives a commission (as a spread over the nominal value) to the maturity of the contract or to the default. The advantage of this arrangement is that the investor allows achieving much higher yields than the yield that makes any reference entity that is part of the basket. If the investor decides to contract the second-to-default package (n = 2) then the mechanism of protection starts when the two reference entity defaulted. This is less risky arangement because the lower probability of default of two entities from the basket. Since the financial market risk is always adjusted to yield the investor in case of STDs gets less commission. The commission for protection depends on several factors: the value of n, the maturity of BDS, the number of loans in the basket, the quality of loans etc.

Total Rate of Return Swap

Total Rate of Return Swap (TRs) is also a bilateral financial contract designed to transfer credit risk between the parties. The main difference compared to CDs arrangement is that it protects the overall economic performance of reference assets through contractual payments, if manifested credit event. Therefore, TRS payments between the contracting parties are based on changes in market values of specified credit instrument, irrespective of whether the default occurred. The typical structure of TRs is given in the Figure 3.

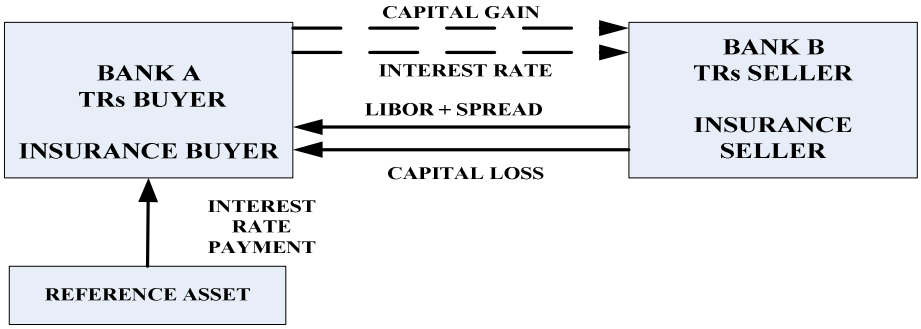

Figure 3: Mechanism of TRs transaction (Source: www.thefullwiki.org/Total_return_swap)

In the TRS arrangement, the insurance buyer (Bank A) agrees that pay periodic interest and potential gain in market value of the reference active (capital gain) to the seller of insurance (Bank B). Insurance seller (Bank B) is required to pay Libor plus a spread to the Bank A. The spread is defined as the number of basis points compared to the value of reference asset. Also, the insurance seller is obliged to compensate any possible loss in value of the reference asset (capital loss).

METHODS

Problem: The risk is a combination of threats and opportunities: the threats from default and earn opportunity in case of loan amortization in accordance with the contract. The existing forms of credit risk include: failure to fulfill contractual obligations; worsening credit rating, spread risk, risk of return in the event of liquidation. (Matic, 2010). Credit Risk Management developed specific methods and techniques: from sophisticated quantitative models to credit derivatives that transfer credit risk to third party.

Subject: Credit risk is the cause of huge losses and a source of liquidity problems, which implies that its management should be the focus of risk management. The first part is devoted to analysis of the main determinants of credit risk, credit risk modeling process and the process of managing credit risk. The second part analyzes the performance of credit derivatives as well as modern instruments for managing credit risk. In this section attention will be focused on credit default swap, basket default swap, the total rate of return swap as mechanisms of transfer credit risk from one to the other party. The analysis used standard methods of reference literature critical evaluation and making their own conclusions based on attitudes from leading specialist materials.

Objective: The aim is to point out the importance of credit risk in the nomenclature of bank risks and emphasizes some of the basic methodological procedures of managing this risk. Also, the aim is to emphasize the importance of credit derivatives as an effective instrument in the function of risk transfer and increase the financial market efficiency.

FINDINGS

Credit risk management is the imperative of modern risk management. Banks are developed sophisticated techniques to manage this risk in accordance with the recommendations of regulators and supervisors. Risk management plays a crucial role in achieving banks profitability and stability of banking system. One way to effectively manage of credit risk is the transfer of risk through the credit derivatives. Default swaps market in recent years has become an indicator of financial instruments risk assessment. Specifically, the spread offered by CDs arrangements (spread above the reference rate) has become an indicator of debt financial instruments and loans risk level. What is the spread higher, it is a risky financial instrument, and the insurance offered by CDs is more expensive. In this way, market participants become very clear and accurate information regarding the level of risk and value of debt financial instruments and financial markets become more efficient and transparent.

DISCUSION

Theoretical and methodological considerations in the context of credit risk management in modern conditions is supported by quantitative analysis and sophisticated risk management techniques. With the credit derivatives one party transfers the default uncertainty of the reference asset to the other party. Also, the other party creates its own exposure to the reference asset without holding that assets on the balance sheet. With the credit derivatives financial institutions are separated functions of origination and submission of credit risk for debt instruments (bonds and loans). Also, the derivatives market are very important „player“ in a process of "price discovery" in the financial market. In this way the derivatives market contributes to efficient allocation of financial resources in the most productive purposes. It increases the efficiency of the economic system.

CONCLUSION AND IMPLICATIONS

Credit risk is the basic banking risk that is a natural satellite of the banking business. Because of its importance the banks have been developed the advanced quantitative and investment techniques to manage this risk. Extremely important to manage credit risk belongs to the various credit scoring models, regression models, simulation models etc. However, an important analytical tool for credit risk management are certainly the credit derivatives. Credit derivatives allow financial institutions, separation of functions of origination (creation) and submitting the credit risk. They are a natural extension of debt financial instruments market, with an important role in separating and repackaging of credit risk. Their role in managing of interest rate risk is indirect, but certainly very significant. Financial institutions without regard to capital constraints can be via credit derivatives exposed to credit risk in relation to the basic assets, without requiring their direct ownership. Also, given that the movement of interest rates is an important determinant value of credit instruments, it can be concluded that through more efficient management of credit derivatives and interest rate risk. Regardless of the capital restrictions, financial institutions through credit derivatives can be exposed to credit risk in relation to the basic assets. Also, given that the changes of interest rates are an important determinant of credit instruments value, it can be concluded that financial institutions through credit derivatives more efficient manage the interest rate risk.

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ANALYSIS OF CREDIT RISK BASED ON FINANCIAL STATEMENTS AS THE DECISIVE FACTOR INFLUENCING THE RISK OF INVESTORS

Nada Milenković*
Faculty of Economics Subotica, Serbia
nadam@ef.uns.ac.rs
Miloš Pjanić
Faculty of Economics Subotica, Serbia
milospjanic@ef.uns.ac.rs
Siniša Ostojić
Faculty of Economics Subotica, Serbia

ABSTRACT

Banks as the key subjects in the financing of investment have a strong influence on the risk of investors, hence the solvency of the bank is of crucial importance for the risk management in the investment process. Given the fact of underdevelopment of financial markets and the lack of trading activities in securities, it is evident that the investments of banks in developing countries mostly include lending investments. Looking at the key categories of risk that influence the overall risk of the banking business in such conditions, it can be concluded that credit risk presents the dominant and decisive factor. The aim of the paper is to select the bank determinant key factors of credit risk and to determine the extent to which non-performing loans of bank credits affect the solvency of banks, and therefore also the risk of investors. This selection of the main determinants will be based on the analysis of financial statements. This is essential, especially taking into account the impact of the global financial crisis and the increasingly frequent falling into insolvency customers. Finally, liquidity of customers is that of the bank, and it is crucial for investors to timely identify possible risks associated with bank loans in order to proactively manage risk investment.

Key words: risk management, credit risk analysis, bank solvency, NPL

1. THE CONCEPT AND IMPORTANCE OF CREDIT RISK

Banks as the key subjects in the financing of investments have a strong influence on the risk of investors, hence the solvency of the bank is of crucial importance for the risk management in the investment process. As it has already been mentioned, having in mind the underdevelopment of financial market and the lack of trading activities in securities, it is evident that investments of banks in the developing countries mostly include lending investments. Looking at the overall risk of banks in such conditions, credit risk occupies a dominant position.

Credit risk presents the inability of the credit user to pay back the granted loan along with the corresponding provision within the maturity date. This inability to pay back the loan and the provision presents a loss for the bank involved. In order to prevent this loss, it is necessary for banks to minimize potential credit risk before granting a loan. However, in theory, credit risk is seen as a more comprehensive term, and it is stated that credit risks occurs in three cases (Ćirović, 2006):

- Firstly, if a debtor does not pay back the loan within at least three months after the maturity date set by the credit contract.
- Secondly, if a debtor breaks one of the security clauses in a credit contract. In that case, the negotiation process between the debtor and the bank is initiated automatically; otherwise the debtor is required to pay the total amount loan back immediately.
- Thirdly, economic risk occurs in the cases when the economic (market) value of debtor's assets decreases below the value of the debt. At the same time, economic value of the debt presents

the value of the expected future financial flows (cash flow), discounted to the present moment, through a suitable discount rate. Namely, if the market value of the debtor's assets drops below the market value of bonds, it means that the current expectations of the future financial flows are such that the loan cannot be paid back. However, in this third case, the creditor (i.e. the bank) does not exercise the right to start a legal procedure against the debtor.

Quantifying of credit risk is a legal obligation of each bank which has a working license and is involved in banking business it was entrusted with. In order to define and successfully quantify credit risk, it is primarily necessary to define the credit portfolio of a bank, upon which the identification and analysis and credit risk is done.

Credit portfolio comprises the total amount of credits within a specific bank institution. It includes short-term, long-term, purpose and non-purpose loans, housing, mortgage, manufacturers', consumer loans as well as many other types of loans which are granted to both legal entities and individuals. Credit portfolio of a bank needs to be as diverse as possible, in order to reduce the credit risk. Defining the credit portfolio of a bank belongs to the bank's top management responsibility. The bank's management is mostly limited in creating the credit portfolio by the bank's credit policy. Namely, the credit policy of a specific bank defines the credit standards, i.e. whether the bank will adopt stricter or more flexible standards, it sets the mix and the size of the credit portfolio, the interest rate as the credit price, delegating of authority etc.

One of the key factors in credit portfolio management, and what is more, in reducing the credit risk of banks, lies in the financial analysis of potential clients and the instruments of credit security. Instruments of credit security are aimed at protecting the bank in the case when the client fails to settle the obligations according to the granted assets. When the need for long-term credits is taken into consideration, more complex analyses and projections are used. This requires the projection of a range of statements for a longer period of time.

It is inevitable to mention at this point the need for the quality internal control system and its capability to provide early identification of weaknesses and problems of a credit situation. Namely, internal controls should assist the bank management in identifying weaknesses ''along the way'', i.e. to identify clients' problems in paying back a credit, enabling the management to respond proactively to those problems.

Bank management should constantly monitor the bank credit portfolio regarding the risk as well as regarding the rating of the granted credits. Rating analysis could be done more efficiently by a credit analyst, due to their constant contact with bank's clients. The analysis of the credit portfolio performances involves (Vunjak et al., 2008):

1. Identification of each element of the credit process
2. Accurate defining of analytical measures
3. Influence of strategies on the credit portfolio performances
4. Assessment of the credit portfolio based on credit categories
5. Assessment of credits and interests payment realization (percent of credit write-offs)
6. Profitability of individual credit executives, i.e. services and administration,
7. Defining of time dedicated to clients and their complaints etc.

Exposure of credit portfolio to credit risks includes wider involvement of the bank management within the credit department of a bank. The task of the credit department assistant is to identify risks, improve the reporting system and set the risk premium according to the types of credit depending on the potential credit risk exposure. The process of observing the credit within the credit portfolio is known as monitoring. Its task is to monitor the performances of both the portfolio as a whole, as well as the performances of individual credits in a specific credit portfolio. By performing the efficient monitoring, bank management maintains the credit portfolio quality, i.e. creates the opportunity to identify problematic credits timely and take necessary measures for risk eliminating of such investments at the department level, or pass it over to the administration, in order to take adequate measures at the bank level, if necessary.

2. CREDIT RISK ANALYSES BASED ON THE FINANCIAL STATEMENTS OF BANKS

For credit risk assessment, and therefore also for the evaluation of the total bank risk, the investors use available audited financial statements of the relevant banks. The audited financial statements with notes are the information database for credit risk analyses for the outsiders such as stakeholders, other financial institutions, as well as investors.

On the base of financial statements the balance sheet of the bank can be decomposed like in the example in the table below. This decomposed balance sheet of a Russian bank shows the relevant items of the audited balance sheet for the analyses.

Table 1: Decomposed balance sheet of the chosen bank (based on financial statements)

Property status	**2.008**	**31.12.2009**			**change 2008/2009**
	Mil. RUB	**Mil.RUB**	**%BS**	**Mil. EUR**	
ASSETS					
Receivables					
1. Clients	39.217	44.890	77,4	1.022,5	5.673
Provisions	-2.138	-4.930	-8,5	-112,3	-2.792
Net loans and advances	**37.079**	**39.960**	**68,9**	**910,2**	**2.881**
2. Credit institutions	1.253	2.928	5,1	66,7	1.675
Provisions	0	0	0,0	0,0	0
Net loans to financial insti	**1.253**	**2.928**	**5**	**67**	**1.675**
I Loans and advances	38.332	42.888	74,0	976,9	4.555
II Securities (including parti	4.154	9.284	16,0	211,5	5.130
III Equipment	1.039	1.055	1,8	24,0	16
IV Other assets	650	440	0,8	10,0	-210
Cash and cash equivalents/Mandatory cash balances with the Central Bank					
V	10.767	4.294	7,4	97,8	-6.473
Reserve by CB	*48*	*250*	*0,4*	*5,7*	*202*
Total assets	**54.942**	**57.961**	**100**	**1.320**	**3.018**
EQUITY AND LIABILITIES					
I Liabilities to					
customers	25.655	30.155	52,0	686,9	4.500
other institutions	13.195	7.929	13,7	180,6	-5.266
	38.849	38.084	65,7	867,5	-766
II Debt securities	6.795	7.323	12,6	166,8	528
III Other liabilities	470	327	0,6	7,5	-143
IV Subordinated debt	3.358	4.902	8,5	111,7	1.544
V Mandatory interest	8	7	0,0	0,1	-2
VI Equity	5.462	7.318	12,6	166,7	1.856
Total equity and liabilities	**54.942**	**57.961**	**100**	**1.320**	**3.018**

Based on the analysis of bank decomposed balance, it can be essentially concluded that there was an increase in total assets of 5%, resp. EUR 1.3 bn. This increase in total assets is explained by expanding the loan portfolio to customers and increasing the portfolio of securities, which is enabled through an increase in customer deposits of the bank.

Bank loan volume has expanded compared to previous year by 12% and in this way developed more than proportionately in relation to the balance sum. Loans granted to customers have increased by 8%, which is also more than a proportionate move in relation to the balance sum. In addition, guarantees and warranties with round 22% are, can be said, of importance for the bank. At the same time, these include standby credit line that allows the client to withdraw credit facilities at any time. For this category of guarantees and warranties there is a provision of 0.1% of total assets (compared to the previous year

were these provisions almost halved). These provisions are reduced due to unreal assessments of the same.

Reduction of provision can be the result of delays in the payment of loans or because there was a large amount of provisions in previous years and the real need for it is reduced**.** In this case, because the auditor did not put a note, it should be considered that there was no reduction due to non-payment but because of inadequate assessment of previous years. If not analyzed in detail, this situation can mislead analysts and is therefore necessary to establish the real cause of provisions.

In the case that there was a decrease in reserves due to rising non-performing loans, the analyst should determine how it reflects the bank's own capital, resp. equity. Then the analyst determines the loss scenario for each loan category. There's a pessimistic scenario, scenario of the central bank and the optimistic scenario (or 25%, 50% and 75% of loss, respectively). After that, the obtained values are placed in relation with the capital equity. In that way the impact of non performing loans to the capital equity can be shown.

By further analysis of the loan portfolio (based on financial statements notes), it can be seen that the three main sectors in which the bank invests are trade (33%), manufacturing and construction machinery (25%), and construction - real property (19%).By the analysis of invested funds it is necessary to take into account the analysis of the sector in a concrete country in which the bank operates. The analysis of loan portfolio, we can conclude that there is no increased risk sector. Namely, the trade involves a multitude of tasks, and the risk is itself diversified, the same is the case with manufacturing and engineering. If we look at investing in real assets, we can argue that it is risky because the movement of asset price variability, especially if we take into consideration the sector of real property that Russia has in recent years, which is characterized by instability of prices and therefore it is considered as the one of the riskiest sector in Russia. However, because the loans in the real estate sector are secured by mortgages and because the concentration in this sector hasn't resulted in observations by the auditors, it should be considered that the loan portfolio is diversified.

When analyzing the loan portfolio it should take into account the personal loan portfolio concentration of a certain number of clients. Personal loan portfolio concentrations have decreased compared to the previous year. Personal loan portfolio concentrations have decreased compared to previous year. At the end of 2009, 14% of the loan portfolio fell out on five major borrowers, while at the end of 2008 this percentage was 13%, also on five recipients. However, calculated in relation on concentrations of equity in assets at the end of 2009 amounted to 10%, while the same at the end of 2008 was 12%. Risks associated with this concentration can be identified as effective.[1]

Last point of analysis of credit risk based on the financial statements is the loan maturity. After analyzing the maturity date of bank assets, it can be concluded that the loan portfolio is 68% short-term. That means that the loans to other financial institutions are to fully mature in the short term. Provisions for individual loans are 11% (previous year 5%), while the allowance of the total loan portfolio amounts to 10% (previous year 5%). In this case the percentage of uncollectible can be justified as the consequence of the crisis and because of this there are provisions in that amount in case of non-performing receivables.

2.1. Non-Performing Loans on the Example of the Banking Sector in Serbia

To ensure efficient risk management, in its Decision on the Classification of Bank Balance Sheet Assets and Off-Balance Sheet Items, the National Bank of Serbia prescribed an obligation for banks to classify on a quarterly basis all receivables that carry credit risk into five categories by the assessed level of their collectability and financial standing of the borrower. This means that banks are required to classify those receivables that constitute the risk-weighted balance sheet and off-balance sheet assets (hereinafter: BA and OA), which includes not only credits, but certain other balance sheet and off-balance sheet items. The most adversely classified assets are those classified in categories D and E.

1 Data are given in the notes of Financial statements by credit risk analyses (below the table "concentration of loans by sector")

Overview of the categories of the classified balance and off balance sheet asset in the fourth quarter of 2009 is given in the table below.

Table 2: Classified balance sheet and off sheet in Serbia banking sector (National Bank of Serbia)

		Total classified assets	Classified assets		D+E / total classified assets (%)
			A+B+C	D+E	
December 2009	Balance sheet assets	1,351	1,051	299	22.2
	Off-balance sheet items	585	512	73	12.5
	TOTAL	1,936	1,563	373	19.3
September 2009	Balance sheet assets	1,284	985	299	23.3
	Off-balance sheet items	589	514	75	12.8
	TOTAL	1,873	1,499	374	20.0
June 2009	Balance sheet assets	1,266	983	283	22.3
	Off-balance sheet items	622	558	64	10.3
	TOTAL	1,888	1,541	347	18.4
March 2009	Balance sheet assets	1,270	1,031	239	18.8
	Off-balance sheet items	656	605	50	7.7
	TOTAL	1,925	1,636	289	15.0
December 2008	Balance sheet assets	1,178	982	196	16.6
	Off-balance sheet items	662	624	38	5.8
	TOTAL	1,840	1,605	234	12.7

As we can see, in Q4 2009, classified assets amounted to RSD 1,936 billion (v. RSD 1,873 billion in September) or 41.7% (v. 38.5% in September) of gross balance sheet assets and off-balance sheet items. After declining for two consecutive quarters, total classified assets rose in the last quarter by RSD 63 billion or 3.4%. It seems that the upward trend in the most adversely classified receivables ended as they came to RSD 373 billion at the end of fourth quarter (v. RSD 374 billion at the end of Q3).

Further growth in classified assets and stagnation in movements of the most adversely classified receivables resulted in a decrease in the share of D and E classified assets that reached 19.3% at the end of 2009 (20% in September).

According to NPL composition reports submitted by banks to the National Bank of Serbia, at the end of 2009 the share of NPLs in total loans approved was 8.53% net (National Bank of Serbia). The most important sector both in terms of the volume of loans approved and its share in total NPLs was the sector of other enterprises. Its share in total NPLs drifted from 14.78% at the end of Q3 down to 11.8% at the end of 2009. This acceptable amount of non performing loans is due to good credit policies of banks.

3. CONCLUDING REMARKS

Therefore, it is crucial for bank risk management, and therefore also for investors risk management to quantify and manage credit risk of the bank. First of all, the bank has to select the lendings by their impairments if there is some. It is necessary to classify the loans according to risk in order to monitor risky borrowings in time to protect the bank against loss.

If a banking institution, however, in order to achieve the higher yields, decides to take higher risk, it must note the risk before it is created. In that way the bank can pay special attention to examining the credit ability of the borrower to identify the weak areas of the borrower and to maintain attention on weak areas of his business, but not to neglect other aspects of the debtor's business. In such cases, the provisions in case of impairment should be the greater and the loans must be secured by some collateral.

Bearing in mind all set out, the investor should, based on financial statements, analyze the sectors in which the bank provides loans. In the next step, in order to successfully manage the risk, they need to determinate the concentrations of related loans (related parts), if there are any, and as mentioned, it is

important to detect whether the provision for credit loans in comparison to previous year increased or decreased. According to this information, the investor draws information from financial statements, witch is the database for the identification of the credit risk and thus a key factor for the identification of the bank solvency as well. If investors in the process of investment financing include a bank whose creditworthiness (solvency) is on the high level, the investors financing risk will be reduced to a minimum and thus will effectively manage the total business risk of the investor.

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ANALYSIS OF MEASURES AND TACTICS OF DEFENSE AGAINST HOSTILE TAKEOVERS OF COMPANIES IN THE STRATEGIC FUNCTION OF MANAGING A COMPANY

Đurasinović Jelena*
Faculty of Economics Subotica, Serbia
jelenadj@ef.uns.ac.rs

ABSTRACT

The beginnings of integration and restructuring of companies is primarily related to the U.S. market, where such forms of business companies decomposition occur at the beginning of last century, while the European market until 1980, can not talk about their significant share. Although the first wave emerged in America early last century, the U.S. market is the most disturbed beginning of the fourth wave, or more frequent occurrence of hostile acquisitions and LBO funds that participated in the financing of a large number of acquisitions using primarily credit line. By creating a single European market and the creation of the euro as the single currency, there was a rapid development of capital markets and all frequent equity takeovers and the market of Europe. Targets are most often companies that have poor business performance, ineffective management team, low P / E ratio in the capital market, but they are often taking could be motivated and factors that do not carry the economic dimension. In such conditions, companies that have become potential targets of takeover have used various tactics and measures of defense, to defend the offers that were on the detriment of their shareholders. The aim of this paper is to show their importance for the strategic management of the company and their impact on the performance of target companies.

Key words:acquisitions, defense tactics, targets, management

1. INTRODUCTION

The first wave of mergers and acquisitions was made early last century, when most of the completed integration was motivated by the economies of scale and are often linked to the company from the same economic activity. However, the U.S. market is the most disturbed beginning of the fourth wave of integration (1965 to 1969) and more frequent occurrence of hostile acquisitions and LBO funds that participated in the financing of a large number of acquisitions by using the first credit line. It is a takeover by a small group of investors, LBO fund or bank, which are largely used borrowing after the takeover the company transformed into an open enclosure.

Junk bonds market growth was particularly accelerate the process of equity acquisitions with high use of debt, because it is these bonds were issued by companies that wanted to acquire so that such emissions were high-risk programs, and high yield, and along with them, strengthens the role of investment banks which guaranteed the right of this high-risk programs.

2. RESEARCH LBO TRANSACTIONS

The appearance of LBO transactions as a form of restructuring of companies linked to the 50th of the last century and the U.S. market, however all 80 of the last century can not be talking about significant LBO transactions. In those years there was a significant development LBO transactions which can be attributed to several key determinants such as market development "junk bonds", the establishment of LBO's leading specialist companies Kohberg, Kravis, Roberts & Co. KKR-New

York, as well as acquisition of RJR Enterprises Nabisco, which was released by noted specialists KKR LBO valued at 24.6 billion USD.

As 80 of the last century and characterized the U.S. market, in the 90 years that there has been a major application of LBO transactions in the countries of continental Europe, the largest European LBO transactions took place in the Danish TDC corporation worth 13mld. EURO, and already in 2004 the number of European LBO transactions surpassed the number of LBO transactions in the U.S. market.

As for the markets of Serbia, the first LBO transaction was realized in 2007 when the company Mid Europa Partners (MEP) in cooperation with the European Bank for Reconstruction and Development (EBRD) took a majority stake in the company SBB in Belgrade from Southeast Europe Investment Fund Equity Fund (SEEF) managed by Bedminster Capital Management.

The company SBB is the leading cable operator's Internet in Serbia, a MEP firm based in London, which manages one of the largest funds for investment in Central and Eastern Europe. This transaction represents the first acquisition of Serbia with the participation of borrowings and bank loans in this case were provided by UniCredit Bank.

Investors in the fund operated by MEP, in addition to the European Bank for Reconstruction and Development and the World Bank, the Investment Bank European and many other leading global insurance companies, banks and pension funds.

Unlike the U.S. market, European Mergers and acquisitions are more friendly character and this kind of integration is stronger than hostile acquisitions, the premiums are lower, and most payments are realized in cash.

Along with a wave of hostile takeovers occur and various tactics and measures of defense against hostile takeovers to protect potential targets of attack. Further work will be analyzed measures and tactics of defense against hostile takeovers, financing mergers and acquisitions and the mutual influence of funding and selected defense tactics on the value of the target company.

3. MEASURES AND TACTICS OF DEFENCE HOSTILE TAKEOVER BIDS

Acquisitions can basically be voluntary and involuntary, that is friendly and enemy. In the case of voluntary merger of two companies managers make decisions about the integration their companies while in case of hostile acquisition, the target company's managers do not approve acquisition of the company acquiring and directly addresses the target company's shareholders through a tender offering a price significantly higher than current market rates.

In the case of hostile takeover target company can take several measures in the case of defense against the unwanted merger . According to (Petrovic et.al., 2007) defense tactics and measures can in particular be:
1. Preventive measures of defense against the unwanted merger
2. Defense tactics after the target company made unsolicited offers for the acquisition

As a preventive defense occur:
- Ingestion of poison pills
- The adoption of special amendments or disperse the snake (shark repellents)
- Golden parachute

Ingestion of poison pills as a defense measures include issuing securities of the target company in order to decrease its value in the eyes of a potential transferee. There are two types of measures such as Fill-plan shareholders over a plan shareholders Fill-in. Fill-over plan entitles shareholders

to target companies in the event of unsolicited offers to buy common shares acquisition of voting company and customer at a significant discount. Far better plan is a plan shareholders Fill-in that allows the shareholders of the target company's purchase of shares of the target company at a significant discount to diluted ownership and thus become very expensive acquisition.

The adoption of special amendments to the statute of companies actually involves changes to the charter of the target company to a potential acquirer to cancel the download. These amendments relate to limitation of board members and the manner of their election, the amendments which limit the percentage of votes needed for shareholder approval for the integration of companies, the amendments governing decisions relating to the broadcasting of different classes of shares, amendments that define the acquisition premium and other measures defense.

Golden parachute contract involves providing the target company's managers incase of unwanted mergers and their changes as a consequence, the enterprise customer is obligated to pay them high fees.

As for the tactics of the defense of the target after the company made unsolicited offers to stand as the most important:
1. Blackmail green
2. White Knight
3. Defensive measures changes in the structures of capital and assets of target companies
4. Pac Man defense

Blackmail green actually mean the purchase of shares of target companies that are already in enterprise customer to pay higher premiums and the amount of pressure on the acquiring company to begin the process of stopping the merger. Also this can be applied as a customer agreement with the company that it will increase its ownership share in the target company to return for compensation.

White Knight is a tactic applied by the target company after the unsolicited offers made when seeking friendly company that would be sent to competitive bidding, and provide better conditions of pre-merger companies and thus realized the defensive merger.

Defensive measures changes in capital structure and assets primarily related to:
- Increase in debt, pay high dividends
- Purchase of assets that are considered to be not attractive for the enterprise customer, or sale of those assets for which the company particularly interested buyer
- Establishment of the ESOP funds
- Purchase of own shares

Defensive measures related to the increase in borrowing means increased debt in order to change the existing capital structure, and thus deter potential transferee. Often the additional funds used to pay high dividends or repurchase its own shares which increases the number of shares owned, and thus impede takeovers.

ESOP funds are established by large companies rather than contribute to the money for their employees pension fund, made the purchase of shares on their behalf in the amount of contributions that should be paid and thus the purchased shares are transferred to the ESOP fund owned by itself companies as long as contributions are not sufficient to settle the entire value of the shares, after which the shares are transferred to the account owner's employees. Often, to finance the purchase of shares by employees using credit funds, and the principal debt is being paid contributions that belong to employees of the company. In this way is to increase the dilution of ownership of existing companies confounding download, because the ESOP shares of the fund are not subject to takeover by attacking the company.

Pac Man defense involves making a counter offer enterprise customers' gain or will be taken ", where target company shareholders receive no premium, but actually pay a premium, and this tactic is not successful if carried out can destroy an initial target company.

4. FORMS OF FINANSING MERGERS AND ACQUISITIONS

Mergers and acquisition process can be funded with cash, exchange of shares, transfer of bonds, but the combination of these forms of financing. Also, the practice is known as Earn-out model that is related to financing with deferred payment.

When it comes to funding the cash, then the company may have different sources of generating cash of which usually can call the accumulated profits, sales of parts of the company that is not of strategic interest for the development of the company, issuing bonds, bank loan, etc.. As each transaction is being financed with cash, to be justified, it is necessary that the future cash flow of the target company to be higher than the price paid for downloading and commitments of the target company.

When it comes to paying by share exchange, it is necessary first to determine the rate of exchange of shares between two companies. Used as indicators of market price of shares of both companies and an indicator of P / E, but the most important role is certainly a premium to be paid on collection. The practice of attacking the company pays more shareholders of the target company than is their current market price because of the premium paid for the expected added value of acquisitions.

What distinguishes these two ways of downloading is definitely the fact that when it comes to money payment transaction the shareholders of target companies do not share risks with shareholders attacking the company, but when it comes to financing the exchange of shares, the shareholders of both companies share equally the risk of acquisition work.

The choice of financing depends on whether the value of the shares of the company underestimated offensive or overvalued, what is the possibility of achieving synergies and what the estimated risk of acquisition. If the value of the stock is undervalued, the possibility of achieving synergy between large and small then the estimated risk is not worth it to finance the acquisition of an exchange of shares, but at the cost of using cash payments.

5. EFFECT OF THE FORM OF FINANCING THE SELECTION OF DEFENCE TACTICS AND MEASURES

After getting acquainted with the most common tactics and measures of defense against hostile takeovers and analysis of two key forms of financing acquisitions, a general description of their mutual dependence and analysis of their impact on the price of the attacking company.

According to research (Petrovic et al., 2007) the most successful defense against the unwanted merger with white knight tactics and defensive measures related to the change in capital structure and assets. As can be seen from a given view, the choice of financing combined with a certain tactical defense affects the success of the defense or the success of the attack.

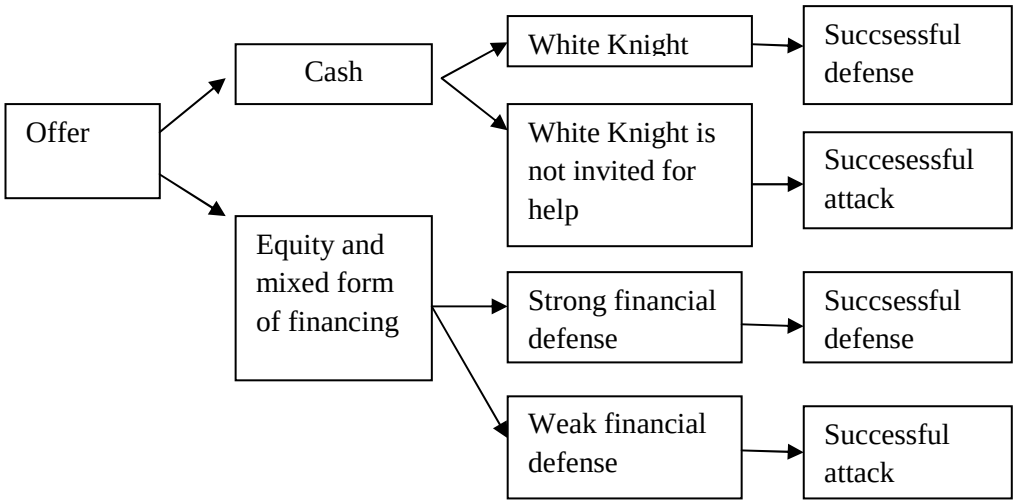

Figure 1: Determinants of success of defense against unwanted merger (Petrović et.al.,2007.)

We conclude that if the choice of financing for cash, if the white knight is summoned to the aid of results in the success of the defense, but this result should be considered with caution. Since the white knight friendly company that is calling for help and that should offer better conditions of competitive bidding attacking the company, acquisition by a white knight may cause adverse effects if the bidding process occurs more companies, and the target company has to offer the highest price a white knight to took over. Such an effect as the end result has a negative impact on the market price of shares of target companies, and thus on its value. If the white knight is not invited for help as the final result, the success of the attack, or attacking the company realized initiated acquisition.

The situation is different if you are in finance acquisitions using shares, or a mixed form of financing. As stated above, if the financing is done by exchanging shares comes to risk-sharing between shareholders of the two companies, and all those activities undertaken by the target companies that increase the risk of the company in fact meant to prevent the download started.

Defense strong financial means such a change in capital structure and assets that are unattractive merger. Increase in borrowing, extra payments of dividends, repurchase its own shares, purchase of assets for which the company customers are not interested in selling those that are particularly interested in activities that affect the change of assets and liabilities of the target company, with aim of preventing the initiated downloads. If the restructuring is successful on the result for the defense, although in these grades should be careful, because the increase in borrowing, reduction of share capital, a high outflow of money and also increase the risk of having a negative impact on the market price of target companies.

6. CONCLUDING REMARKS

We conclude that when choosing tactics and defense measures should be cautious, and analyze what impact each of the measures taken there on the market price of the company and how each affects the risk of the company. The success of the defense, meaning that the target company has managed to defend itself from takeover by attacking the company, but if the defense activities have resulted in a lower market value of target companies, increased risk, and weaker business performance then we should reconsider the very success of the defense strategy.

Each successful analysis actually involves an assessment of all possible scenarios that may result after that activity. Board of the target company should consider what impact have been made to download the particular value of the company, and in particular what impact have on shareholders of target companies. The reason for this attitude is based on the fact that often their own managers

can take action at the expense of shareholders of the company, if they consider that they can for themselves to extract greater benefits. Exactly that tactic defense gold parachute, which involves the payment of high fees if you download the company's managers to be committed. It is in these circumstances managers can take actions that are at the expense of shareholders.

Blackmail green means paying premium on redemption of own shares, restructuring of assets and liabilities include those activities undertaken to prevent the download, call a white knight to the rescue means paying higher prices than the price offered by potential attacking the company, and Pac Man Defense starts of the counter-offer target companies attacking the company

We conclude that all measures affecting the increase in defense outlays of money from the target company and its poor business performance achieved, and managers of target companies with particular caution must determine which strategy ensures the greatest success for the target company.

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RISK MANAGEMENT IN THE INVESTMENT PROCESS

Bojana Vuković, MSc*
Ekonomski fakultet Subotica, Ekonomski fakultet Subotica
bojanavuk@ef.uns.ac.rs,
Kristina Mijić, MSc
Ekonomski fakultet Subotica, Ekonomski fakultet Subotica
mijick@ef.uns.ac.rs

ABSTRACT

Investment decisions are strategic decisions that require a thorough analysis of risk, because the risk management is a basis of decision making. The goal of investing is not just profit in a certain period of time, but depending on the preferences of the decision maker, there should be a compromise between maximizing the expected return on investment and efforts to reduce the risk to a minimum. Analysis and risk assessment is an integral part of any investment process, because during the life of the investment project, there is a risk that the project will not achieve desired result. There is no such situation in which is known all factors that influence the choice and implementation of investment decisions and investors are inevitably faced with certain risks. In order to reduce the risk to the lowest possible level, the risk must be adequately considered, assessed, monitored and avoided. In this way, management of the company are trying to quantify the potential risks of investing and by making rational decisions provide quality and cost-effective investment projects that are undoubtedly a conditio sine qua non for optimal allocation of capital.

Key words: risk management, investment decisions

1. INTRODUCTION

Investment decisions, as decisions of strategic nature which initiate action in the present to improve the strategic position of the company for the foreseeable future, must be subjected to risk analysis that often fundamentally changes the decision. In this way, risk management becomes the basis for decision making. Risk is unavoidable until the moment we do not know what the future brings. As a result, all management decisions are the choice of the size of the risk taken and ways of managing such risk. Accordingly, the assessment of risk in the investment process is a function of investment options for you to decide.

Uncertainty regarding the return of the project determines the risk of investment in relevant projects which should be addressed in the process of making an investment decision. The degree of risk and profitability of the investment project determine its acceptability. Impact of risk on the profitability is multiplied and depends on the nature of the investment project. Decision making under risk is a decision problem in which the decision maker is considering several alternatives and for each of these alternatives determines likelihood. In terms of risk, decision maker has more information than in conditions of uncertainty.

2. DETERMINATION OF RISK IN THE INVESTMENT DECISION

The risk is a function of the length of investment process. Risk analysis should enable more efficient implementation of the investment project, because more realistically looks at the relationship between time, cost and technological parameters. In addition, risk analysis contributes

to more realistic economic and financial evaluation of the project, revealing those risk factors that influence the formulation of decision making criteria.

The risk in the investment decision can be understood as a quantitative measurement of the occurrence of a result, when the likelihood are anticipated. Risk can be viewed from different viewpoints, and therefore made its classification. Risks may originate from known sources, such as the conditions of economic and social environment. These are known sources of risk, but unknown probability of occurrence, so they are more uncertain.

Risk in the investment decision can be viewed as the distribution of probability that the expected return on investment of the project will be realized (Krasulja, 1998). When the probability interval of the possible return of the project is short and dense, the risk of investing in the project is proportionally smaller. The decision maker on investment often revises its decision and faced with the problem of whether to invest or not, due to the presence of risk. Gaving up from investing in the short term may be protect against risks. However, by declining to invest in the uncertain future often take a greater risk than in a situation where investment in terms of risk.

According to Andric (1993), risk in the investment decision can be viewed as: 1. The risk on return initial investment which is a function of time. The investment is risky as the time longer. Investment decision maker provides of this risk by depreciation and revaluation; 2. The risk that the expected return of investment depends on the life of capacity utilization, price changes, the dynamics of market development, investments in the market;

Investment decision maker in terms of risk has to define its own policy in relation to the risk. It may be a policy of taking over or disclaimer risk. Disclaimer risk policy is not consistent in terms of risk. Withdrawal from investment where the risk is present only apparently good in the short term to protect the investment decision maker, but in the long term risk exposure is greater because the competition certainly has a different attitude towards risk. The policy risk is consistent. Investing in terms of acceptable risk is a sure protection against risks in the future, because the attitude towards risk is appropriately placed.

Some research suggests that it would be useful to identify different risk tolerance which would all investment projects reduced to a common ground. Among the riskiest investment projects could be classified projects aimed at producing new products, expansion of markets and integration into the existing competition. Gains are achieved when committed investment in return and investment in modernization and higher productivity, mainly characterized by a minor or insignificant share of risks.

3. MEASUREMENT OF RISK IN THE INVESTMENT DECISION

Estimated level of risk has the same impact on investment decision making by different decision making. Impact of risk will primarily depend on the economic power of the investor and his attitude towards risk.

Risk factors may be classified as:
1. risk events
2. probability of risk
3. the size of losses as the negative effects that may have quantitative and qualitative expression (Malesevic, 2003)

The process of analysis and risk management in investment decision making process begins with identification of risk parameters and dependent and independent variables and their interdependence. After that, there are grouping the sources of risk according to primary goals of the investment project and the primary sources. The first criterion is based on the parameters that

determine the realization of the project, such as time and costs. The second criterion groups the sources of risk to the primary sources of external and internal sources of risk. After that, it analyzes the impact of risk factors by sensitivity analysis and probabilistic analysis. Depending on the results that are obtained by analysis, it should decide whether to accept or not the proper variant. If the option is accepted, it should select the method of risk management in the investment decision. In this regard, the choice of a particular method focuses on the avoidance of risk, risk reduction, transfer or allocation of risks among the participants. In accordance with the chosen method of risk management, there should be the realization of investment decision. Avoiding risk is a method often used by investors to avoid high-risk projects and chose the designing variant that is less risky. Reducing risk means that the already selected projections made some modifications which are directed towards the introduction of time reserves and alternative strategies, corrections costs, and adequate selection of the agreed strategy. It is not rare that risk would be transfered to other participants, but it is not optimal solution.

The introduction of probability theory has the mission to determine the final outcome of a range of projects, which corresponds to the real-present uncertainty in the environment (Cvetkovic, 2004). The degree of risk in the investment decision is measured by the probability distribution and probability of each possible score effect of investment. Assessment of probability based on past experiences, present experiences and possible assessment of the situation and predictions for the future. Probability assessment can be subjective and objective. Subjective assessment of probability is a rating that is based on intuition and personal rating of usefulness of the decision maker. However, the intuition in the investment decision is not sufficient, since it can be used only as a supplement to decision on the basis of available data. In line with this, there is determined objective assessment, which is based on the statistical data and statistical methods.

Based on the distribution of probability, the investor can estimate the size and risk of the expected return, or can determine with much probability would be realized predicted yield. Comparing the probability of net present value of multiple projects, there can be identified how much is the individual value of investment projects risky. The ability to achieve a net inflow is known as its likely which should be determined in the range from 0 to 1. The schedule probability is presented as a set of all possible results for all events in probability. In order to determine the expected net cash yield of projects, each offering will be multiplied with the probability of its realization and the results add up. The expected value of net return does not have to match the average yield, because it is a mathematical hope. The expected value will match the average yield, if the yields are the same and the same schedule of probability exist in the long run.

Depending on the variability of accepted returns, we will depend on appropriate level of risk. The measure of variability of the expected return is the standard deviation. It can not be used for comparison of investment projects with different net cash returns, as an absolute measure. In this case, using the coefficient of variation is a measure of relative dispersion of probability distribution. Coefficient of variation is the ratio between standard deviation and expected value of return. Lower coefficient of variation means accepting a smaller risk.

After determining the expected net cash flows for each year, we can determine the current and net present value of the project. The present value of the project involves discounting expected net cash return per year. Net present value and standard deviation of the probability distribution of possible net present values give us information on which we evaluate the risk of the project. If the probability distribution of expected yield corresponding to approximately normal distribution, we can determine the likelihood of the proposal and get a net present value. Compare the net present value to zero often called the specified amount. If the net present value equal to or greater than zero, the project is acceptable.

Measuring risk in a situation where the expected cash flows are independent of each other is not a special problem, since the yield at time t does not depend on what happened at time t-1. However, in practice, most often the case that cash flows are mutually dependent, which means that the investment risk increases with time. Standard deviation of net present value is usually higher in the dependent cash flows than independent. In reviewing the risk assessment, the degree of temporal correlation of cash flows is very important. The risk of the project will be higher if the cash flows are correlative at a time, but if they are independent of each other under equal other conditions. The independence of the expected cash flow is often assumed in order to facilitate calculations.

Standard deviation, the expected value and coefficient of variation do not bring investors always reliable information. If there is a small number of alternatives among which should choose, it is considered that more efficient means is distribution of probability. If, however, there is a large number of alternatives among which should choose, it is considered that more effective tool for decision making and risk assessment is comparison of the expected value and coefficient of variation.

The attitude of investors towards risk can be quantified by utility function that represents the attitude of investors towards the probability of achieving a decision, assigning a number to each possible outcome of uncertain events. The number attributed to each possible outcome can be determine as an index of relative satisfaction that a person will experience if the result is actually happening. The investor will make a choice that provides the highest expected benefit. One of the main reasons for the investment process is to maximize the personal benefit of investors. Therefore, the investor's satisfaction is a function of wealth that he owns, where the function is to maximize benefits from the wealth of investors in relation to the periodic rate of return. The aim of the maximum magnification of wealth is not clearly defined in terms of uncertainty, unless defined in the form of expected value. In terms of large investments, the use of expected monetary value as the criterion would be completely wrong, since undesirable investment threatens the whole future of the company. The distribution of possible outcomes could be too wide for these companies, regardless of the favorable expected monetary value.

The attitude that the individual decision maker has to risk is an important factor that must be taken into account when considering the favorable investment opportunities under uncertainty. In such conditions, the ability of decision making depends on the comparison of the expected rate of return in an investment project and knowledge of preferences toward risk. In this regard, the investor may not be inclined to risk, to be neutral to risk or to count on a certain risk. Aversion to risk is a common attitude in decision making. This means that decision makers do not like the risk itself and are willing to tackle with risk only if they would get some compensation. If the utility function of the individual is concave in relation to the vertical axis in the coordinate system in which the horizontal axis indicates a potential value at the end of the period, and the vertical axis measures the utility, will be one who avoids risk. So, anyone who avoids risk, will avoid investment with uncertain expected return. Preference for risk is a willingness to depart from the expected earnings due to increased risk. Such individual is characterized by a concave utility function, or the knowledge that the marginal benefit of each additional unit earned money grows. Neutrality towards risk is measured by the indifference to risk or constant marginal benefits of money. The decision maker who has a neutral attitude towards risk investments elected investments solely by the criterion of expected repayment from them.

Using the utility function makes possible to guantify the benefits and risks, and it also reflects investors' preferences in choosing an acceptable investment alternatives (Malesevic, 2003). Utility function shows that investors prefer an investment that brings greater benefits and observe investor attitude towards risk in two ways. The first way is taken as a criterion the amount of total capital, or consideration of how investing in risky business investor can increase the total capital. The second criterion is based on the height of part of the total capital that is intended for investment, which is accompanied by risk. Therefore, it is the realization of benefits to increase capital, looking at the risk of total capital and risk capital to be invested. If investor’s equity increases by investment in

risky jobs, investors are characterized by decreasing absolute risk aversion. If the investor's attitude towards risky investments does not change, it is considered that the investor has constant absolute risk aversion. If, however, the investor invests in less risky projects than in the previous period, it is considered that it shows an increased absolute risk aversion.

Employer's relative aversion to risk is proportional to the ratio of capital in relation to investments in risky projects. Growth of relative risk aversion implies that the percentage amount of investment decreases with the increase of capital. If the percentage amount of investment unchanged with the change of capital, investors are characterized by constant relative risk aversion. Decreasing relative risk aversion implies that the percentage amount of investment increases with the capital. It was pointed out that subjective attitudes toward risk should play a dominant role in making investment decisions under uncertainty. However, when we look at a company where are multiple groups with different interests such as owners, managers, workers, it is difficult to determine whose views play a dominant role. If the owners are clearly separated groups, their interests dictate business in order to allow them legal and regulatory frameworks. However, the company may be that there are several sub-decisions so that one group of owners controlled, and the other group owners do not control the operations of the corporation, but has a stake in the company-owned business. In such circumstances, it must be clearly defined whose attitudes towards risk will prevail.

In making investment decisions under risk, there should be a clear idea of whose attitudes towards risk are relevant and how much should be considered. If the group, whose attitudes toward the risk are dominant, relatively small and cohesive, it is possible by decision makers to communicate and present a risky alternative. In this way, people whose attitudes toward risk are relevant may be directly included in the process of investment decision. If the group whose risk preferences are relevant, large and diverse, it is not possible effective use of communication and people whose attitudes towards risk are relevant can not directly be involved in the process of investment decision.

4. CONCLUSION

The goal of investing is not just profit in a certain period of time, but depending on the preferences of the decision maker, there is a compromise between maximizing the expected return on investment and efforts to reduce the risk to a minimum. The degree of risk in the investment decision is measured by the score of the probability of every possible effect of investment in accordance with the constant uncertainty in the environment. Some studies have shown that the investment decision in most cases can not use statistical data and past experience in the assessment of probability because it is subjective probability. At what probability will be achieved provided yield and how much the individual values of investment projects are risky, are issues of particular importance for investors to measure the risk of investment projects and selection of the most adequate solutions. Taking into account the net financial returns of the project, the likelihood of achieving these yields, the discounted expected net cash returns, standard deviation and coefficient of variation, the investor will be able to estimate the standard deviation of net present value or the risk of investment alternatives between which choose the most appropriate. Depending on whether the cash flows are correlative in time or not, under equal other conditions, there should be assesses a greater or lesser risk, taking into account the importance of assumptions about the degree of temporal correlation of cash flows in the risk analysis.

Basis for rational investment decisions under uncertainty and risk are sufficiently reliable, timely and relevant information. As each investment is challenge with risk, efforts to make rational and appropriate decisions will ensure quality investment projects that are undoubtedly a conditio sine qua non for optimal allocation of capital.

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THE EFFECTS OF ECONOMIC POLICY ON ECONOMY OF SERBIA COMPETITIVENESS

Dragan Radović, Ph.D*
Alfa University, Belgrade, Faculty of management, Novi Sad, Serbia,
drarad@open.telekom.rs
Jugoslav Aničić, Ph.D
University Union of Belgrade, Faculty for Enterpreneur Business in Belgrade, Serbia
ajugoslav@yahoo.com
Branka Radović, M.Sc
National employment service, Belgrade, Serbia,
branka.radovic5@gmail.com

ABSTRACT

The transition crisis and crisis transition are the key occurrences Serbia is facing today in the field of socio-economic changes. The fall of economic activities in 2008 has been characterized by hypotecate crisis of global proportions, caused by financial market deregulation, has created additional initial impacts and increased the pressures on the financial section and the risks of investment placements. Until the occurrence of the new crisis, the modest investments have not substantially influenced on the change of the economy structure, one could say that they have been a part of the reallocation process of social wealth through the ownership transformation. The model of economic policy in practice has lead to deindustrialization of the economy and the growing domination of the production sector of non-tradeable goods, disturbances in the monetary sphere, has created a huge resource gap, which has, according to the author of this paper, especially negatively reflected on development of innovation activities, job availability, employment and the economy of Serbia competitiveness. In this paper the effects of implementation of the model of economic policy on the economy of Serbia competitiveness are analyzed and also the importance and function of the investments for development and promotion of competitiveness. The starting point is that the competitiveness depends on the factor of innovation and sophistication, that it is conditioned by establishing and implementing the effective production strategies so that, by combining and associating the resources with these factors, the economy would decrease the decade gap between the projected and realized value. Eliminating the causes of stagnation on the long run would contribute to establishing the balance on the short and long run; the companies would improve their competitive position on the market and contribute to the economic growth.

Key words: economic policy, innovation, competitiveness, economic growth.

1. INTRODUCTION

Serbia is in a deep economic crisis which is primarily the consequence of the strategic choice and implementation of the existing model of economic policy. Instead of gradual adjustments and inclusion of the economy on the free market space, with maximum safeguarding of the manufacturing capacities in the period of transition, a concept of development has been accepted based on privatization, liberalization and deregulation, which has lead the total economy and especially its real sector to a highly unenviable situation. The basic economic indicators (GDP per capita, level of earnings, unemployment rate, inflation, etc.) show that the economy of Serbia is at the very bottom of the scale in comparison to the economies of not only of the region but also of the EU countries, the integration to which we strive. The absence of necessary in-depth reform processes, significant presence of monopolistic structures, corruption on all levels in Serbia, the down fall of innovativeness and the outdated technology in the processes have contributed that the economy is ranked on the 96^{th} place according to the competitiveness, according to the latest Report of World Economic Forum "The Index

of global competitiveness"[1], with the tendency of further downfall according to this index of an economy's strength (Radovic et al.,2011).

The increase of national competitiveness is the primary task for all the countries because only a competitive economy can resist to the challenges and pressures of the other participants on the market and provide the sustainable economic development, namely, the economic growth, better living standards, macroeconomic stability and settling the due obligations. There has come to an enormous downfall of economic activities in the transition period in Serbia, which has arisen as a consequence of implementation of the solutions in the economic policy model, not fully built and "immature" institutions of the state, low developing technologies, absence of the factories' innovation activities and unjustifiably high expenses of the current and developing projects financing.

The growth of GDP in the transition period has been based on the growth of the financial services sector, traffic and trade, whereas the level of the industrial production in 2007 reached only 50% of the production in 1990. The whole of the transition period is characterized by the absence of developing economic policy and low investment activity of the real sector of economy, indicating that Serbia needs a strategy of development based on the realistic grounds and efficient systematic solutions alike those in developed, stable and competitive economies.

This paper's aim is to point to the basic causes of worsening of the economy of Serbia competitiveness, the necessity of change of the economic policy model, the construction of a long-term developing strategy which would stimulate first of all the growth of export oriented production in the process of reindustrialization. The technological modernization of the process along with the synergetic effects of the scientific-research and manufacturing work could contribute to a greater share of the products from Serbian factories on the international and domestic market, whereby the conditions for the repair of the existing crisis would be created and the prerequisites for a long-lasting and sustainable economic growth would be made.

2. THE ECONOMY OF SERBIA COMPETITIVENESS IN THE PERIOD OF TRANSITION

The economic policy of Serbia in the transitional period has given extremely modest results, far weaker than the expected and really possible. According to basic growth indicators, Serbia is nowadays far from not only the EU countries, but also from the neighboring ones. Even worse, the relative position of our country is getting worse in time according to the reports of the rating agencies and institutions. Thus, for example, according to the Report of the World Economic Forum "The index of global competitiveness", for 2010, Serbia has fallen down from 89th position in 2004 to 96th position in the world, with the tendency of further fall according to the indicator. The facts that the GDP in Serbia of cca EUR 4.000 per capita are among the lowest in Europe (EU (15) EUR 29.000, Slovenia EUR 18.000, Croatia EUR 14.000), that the net earnings are below EUR 400 are also the lowest in the area (Slovenia EUR 950, Croatia EUR 725), that the external debt, according to the data of the National Bank of Serbia, at the end of 2010 is amounting to EUR 23,8 milliards and that the unemployment is among the greatest in the area, speak enough about the results of the economic policy of the transition period. As a reminder, in the beginning of the transition the creators of economic policy have decided on the policy of privatization, complete liberalization and deregulation, with placing behind the development of the real sector, especially the industry.

The isolation of the economy of Serbia in the pre-transition period has influenced on the technological delay for global movements and the fall of competitiveness of domestic products on the global market. The foreign competition has suppressed domestic companies from certain segments of global market, first of all from the market of EU. Foreign buyers have increasingly stricter demands with regards to quality, design, technical support, crediting of sale and similar. For annulling the technological lag, the import of technologies from the developed countries is necessary as well as improvement of domestic research-developmental foundation. The inflow of foreign capital through foreign direct investments

[1] World Economic Forum: The Global Competitivness Report 2010-2011

and debiting has not qualitatively changed the structure of the overall economy and thereby neither the export segment. That is why the investments into revitalization and construction of the new capacities are the necessity, which will lead to the structural changes of the real sector of the economy, a stronger growth of export and greater coverage of import in the following years.

In the structure of the merchandise export of Serbia still dominating are the products not demanding the application of advanced technology and engagement of intellectual work (Table 1.). The export based on these products does not represent a basis for achieving a respective competitive position on the EU market. Serbia needs a vital change of the exporting structure directed to the increase of the share of products of greater finalization, such as has been done by the advanced countries in transition, now members of the EU.

Table 1: The products of Serbia according the indicators intensity, expressed in %

	Export				**Import**			
	2005	2006	2007	2008	2005	2006	2007	2008
A Primary products	32,4	33,1	30,3	28,6	34,7	34,5	30,1	33,1
B Resource-intensive products	19,2	20,7	20,0	19,3	6,7	7,6	8,4	7,9
C Labour intensive products	11,6	11,1	11,3	11,0	6,6	6,7	7,2	7,1
D Technologically intensive products	23,7	23,0	25,7	27,4	39,9	39,7	42,6	40,7
E Man capital intensive products	12,8	12,1	12,6	12,8	11,7	11,3	11,6	11,1
Unclassified products	0,2	0,0	0,0	0,8	0,3	0,1	0,0	0,0
	100	100	100	100	100	100	100	100

Source: The Republic Institute for Development- The Report on development of Serbia 2009

The growth of GDP in the transition period has been based on the growth of tertiary sector and the sector of financial intermediation and services. The real sector of economy, especially the industry and agriculture has been completely neglected by the economic policy measures, which has had as the consequence much greater import than export in the overall transition period (Table 2). Too large deficit of the exchange of goods, on its side, carries the danger of increase of the level of indebtedness of the state and economy, negatively reflecting on the credit rating at the potential creditors and investors. The announced new model of economic growth since 2011, based on the support to the export oriented economy from the real sector and increase of investments, is a good theoretical basis for leading developmental policy and strengthening of the competitive position of Serbia on international market.

Table 2.Export, import and goods exchange deficit in Serbia in period 2001-2009 (expressed in mill.EUR)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Goods export	1.922,2	2.201,7	2.442,4	2.831,6	3.608,3	5.102,5	6.532,2	7.428,3	5.961
Goods import	4.759,2	5.956,8	6.589,3	8.623,3	8.439,2	10.462,6	13.506,8	15.494,5	11.504
G.e.deficit	-2.837	-3.755	-4.247	-5.792	-4.831	-5.360	-7.074	-8.066	-5.543

Source: The Republic Bureau for Statistics

3. INVESTMENT ACTIVITY IN THE FUNCTION OF COMPETITIVENESS' ADVANCEMENT

Primary component of a long-term sustainable development of a country is represented by the investments. It is also the case with the countries undergoing transition, the experience of which show that each of them has performed the transformation of the economy with the share of investments in the GDP which was not less than 25%, with a great share of foreign investments. The investments into modernizing the equipment and technological processes are the key presupposition for the improvement of competitiveness and on the grounds of a greater export, because the increase of the exporting incomes on its side, is the first condition of settling the

external debt and providing the assets for financing of the import of equipment and technology, meaning also the condition of the economic development in the coming years.

Serbia is found in the group of countries which take a long time to surpass the gap of the economic backwardness. Only the additional investments into modern technology and human capital (knowledge, specialization, etc.) could raise the growth rate to a higher level and thus simultaneously ensure two goals: a) raising the living standard (per capita GDP) to a higher level and b) enable regular settlement of the debt towards the foreign creditors. Although in the period 2001-2009 direct foreign investments amounted EUR 12,243 milliard or on average annually EUR 1,36 milliards, their inflow has not contributed to the growth of industrial production, increase of export, deficit decrease, employment growth, building of significant infrastructural objects nor to the steadier regional development. Meaning, foreign direct investments have by most its part been poured over into the consumption and import of consumable goods and not into the investments and development. Domestic saving and accumulation are not sufficient for more serious investment undertakings, and thus the foreign direct investments will have a more significant role in the following ten-year period. The great indebtedness and illiquidity of leading domestic companies as well as of small and medium enterprises do not provide a real adequacy for the predicted growth of the investments and their share in the GDP, as projected in "The post-crisis model of economic growth and development of Serbia 2011-2020."

The level, quality and structure of the investments are the most important long-term determinants of the economic growth and promotion of the economy competitiveness. The comparative analysis of the investments per worker and per company in the surrounding countries and the EU-27, points out to a significantly lower level of these indicators in Serbia, both for the sector of the small and medium enterprises and for the overall economy (Table 3). The ground for a sustainable economic development under conditions of competitive market activity is technology, and it has been practically destroyed in the previous two decades in Serbia. For the new technologies development, as it is showed in practice in the EU countries' industries, it takes on average 7-8 thousands of EUR of the investments annually per employed (owing to which the average worker realized about EUR 80 thousand of the newly added additional value a year, and in the technologically developed sectors it takes much more).

Table 3: Non-financial sector investments of the European countries (expressed in 000 EUR)

		Investments per worker		Investments per company	
		MSPP	total	MSPP	total
EU 27	2007	7,4	8,5	31,7	54,4
	2008	7,7	8,8	33,4	56,7
Bulgaria	2007	4,2	4,7	23,0	35,5
	2008	4,4	4,8	24,2	35,7
Hungary	2007	5,6	6,6	17,5	29,2
	2008	4,4	5,4	14,6	25,1
Slovenia	2007	8,3	10,0	35,0	63,8
	2008	9,4	10,8	39,3	67,1
Romania	2007	6,5	9,3	39,2	90,9
	2008	9,9	12,9	59,2	121,1
Serbia	2007	4,1	4,5	12,2	20,7
	2008	3,0	3,9	9,2	18,2

Source: Eurostat, the Republic Institute for development, 2009.

4. NEW STRATEGY OF ECONOMIC DEVELOPMENT

The chosen strategy of the competitiveness should enable accomplishment of competitiveness and its subsistence on the long run. From the point of view of separate companies, two key strategies are possible in the policy of competitiveness increase: decreasing the expenses of business operations and/or offering differentiated products and services. In both cases a modern

technological base and the appropriate systematic, namely macroeconomic presuppositions are necessary: the prices and rate stability, functional legal protection, efficient financial system, prevention of monopolistic structure, inhibition of corruption, etc.

The experience of the transition countries of the Central and South-East Europe show that the companies have three strategic goals as the most significant ones for increasing the competitiveness. They are: improvement of the employed qualification structure, decrease and control of the operating expenses and improvement of the products' quality. These goals can be comprehended also as the key presuppositions for achieving the competitive advantage on the international market.

Every country's economy can conditionally be divided into two segments: the first, manufacturing predominantly for domestic and eventually for the regional market, which are of equal or approximate degree of development and structure of consumption; and the second is the segment of the economy, primarily directed to the more developed, international market and which, in order to survive on such market, has to raise the competitiveness on the level corresponding to the criteria and demands of the international market. Developing countries depend more perceptibly on the exporting part of the economy, and it, on its side, pressures the earnings and prices in the remaining part of the economy, so that it is by itself forced to introduce modern technology and rationalize the manufacturing organization in order to survive in the competitive game; in that way the export competitive companies influence on the increase of the overall economy efficiency. In that sense, encouraging seem the announcements from the Government of Serbia that the export oriented companies from the real sector of the economy will get the priority in the economic policy.

For the increase of the economy competitiveness a package of timely synchronized measures is necessary, functionally adjusted and directed towards the same goal, meaning that the economic policy cannot be lead partially as was the most frequent case in the transitional period in Serbia. The market transparency, introduction of modern technology and organization of production, management coordination, the measures of the economic policy on national and local level- these are all the measures necessary to be implemented simultaneously. Only when the conditions for an efficient functioning of the market, strict and uncompromising legal protection of operations, innovative management and modern technological base are ensured- then the economy transformation will be able to be completed and provide its lasting competitiveness and continuous economic growth based on it.

The strengthening of the competitive capability of the economy and its positive effects on the economic growth and employment can, amongst other, be accomplished by acting in the following directions:

1) the intervention of the state in industry should be focused on development of the activities in which Serbia can undoubtedly realize dynamic development and qualitatively improve the export structure, such as: the following industry in engineering, electrical engineering, electronics, car industry, telecommunications and similar,

2) the state has to redefine the fiscal policy for certain activities in different segments of the economy: decrease the tax charges on the workforce and charge more the use of natural resources,

3) the industrial cooperation should be encouraged with the surrounding countries and realize a functional association among formerly associated companies (forming of the strategic alliances),

4) the development of clusters of competitive activities should be encouraged for the purpose of strengthening the regional advantages and a more equal regional development, and special attention should be dedicated to development of the small and medium companies and their clusters that could in many cases realize also a greater level of competitiveness than the large companies.

5. CONCLUSION

After two decades of transition and three years of the great global economic crisis, the economic policy in Serbia has not been defined this could have, at the appropriate degree of trust, neutralized the long-lasting effects of the crisis business operations. The reasons are numerous and according to the weight, each individually is respectable enough so that the individual non-respect will surely lead further to delay of the solution, if not to the deepening of the crisis as well. The political instability and "soft" coalition governments are one of the causes of delay of completion of the reforms and the transition process in Serbia, postponement of public consumption rationalization and narrowing its share to about 35% to 40% of the GDP. The downfall of domestic production, primarily of the export oriented one, further contributes to worsening of the products' competitiveness on the global market and the technological lagging. The economy of Serbia has lost significant segments of the global market, primarily of the one in the EU countries, as the result of the drastic lagging with regards to the used technologies, lagging in the innovation development. Non-pricing factors, such as the products' quality, design, and technical support, sale crediting and similar are increasingly coming to the expression on developed market, which can be underlined as a serious threat for domestic products regarding their competitiveness. The technological lagging can be alleviated by the transfer of technology from developed countries but also by promotion of the scientific research work in Serbia, both within the science-research organizations and by stimulating the development of the research work in the companies themselves. Therewith, the investment policy should be one of the major supports of the new model of economic policy, implying investments also as stimulus to the companies to develop and encourage invention and innovation in the economy.

The economic policy of Serbia, which in the transition period has mainly been implemented partially, was not able to, under the circumstances of the associated and conditioned systems, lead to the increase of the economy's competitiveness, namely of the economic growth. Necessary for it is a long-term developing strategy, comprised of the package of timely synchronized measures, functionally adjusted and directed to the same goal. The study "The post-crisis model of economic growth and development of Serbia 2011-2020" represents a good theoretical basis for leading the developing economic policy, because as the priorities it has the strengthening of the exporting segment of the economy from the real sector, and those are precisely the measures that have been completely neglected in the transition period which has at the most contributed also to the unenviable position of the economy of Serbia at the moment. On the other hand, any model of the economic policy not placing as the priorities the constraint of public consumption, reorganization and adaptation of the institutions to the strength and needs of the economy has no chances to succeed both on the short and the long run.

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DOMESTIC ENTERPRISES AND GLOBAL COMPETITION CHALLENGES

Dejan Đorđević, Ph.D
Professor, Serbia
e-mail**:** djole@rocketmail.com
Dragan Ćoćkalo, Ph.D
Assistant Professor, Serbia
e-mail: cole@tfzr.uns.ac.rs, coledra@yahoo.com
Savina Đurin, BSc*
Teaching Associate, Serbia
e-mail: savina@tfzr.uns.ac.rs

ABSTRACT

New competitive conditions require new approaches in the area of an organization's management and competitiveness development. Standards and best practice are the road to excellence in the long run. Achieving competitive ability in the short run requires innovation, as well as the improvement of labour productivity and knowledge. The main factor underlying the new model of organization management is knowledge. The basic imperative of modern economy and crucial global competitive factor lay in continuous improvement of knowledge and work productivity. In order for domestic enterprises to become competitive in international terms, a change in the ways of thinking and the adoption of contemporary world achievements in the field of organization management are necessary.

Key words: management, competitiveness, innovation, productivity, knowledge

1. INTRODUCTION

Global competitiveness is becoming increasingly intensive, noticeable and offensive. The current moment of global economy can be marked by slow but sure rise of enterprises from newly industrialized countries, such as China, India, Brazil, South Africa, Turkey, etc. Enterprises from these countries are becoming global competitors. Their competitive ability is based on lower business costs, first of all because of lower labour costs, but also for their readiness to accept foreign investments and the most modern methods and management techniques. The main stimulus for these economies is increased domestic consumption as well as a numerous young population. The latter represents an advantage not only concerning education but everything else as well – as the income rises, people become more educated and they change their preferences.

The world economic crisis and its long lasting effects emphasize the need for permanent improvement of knowledge – in recent years only the best, no matter where they come from, can win. The winners are usually the companies which have performed optimization between the price and the quality on the grounds of reducing costs and permanent productivity increase by applying standardized QM concept and intensive innovativeness. Chinese and Indian companies are such examples.

This implies the necessity for developing new business models aimed at establishing competitiveness on the global market. Rapid changes, short-lived advantage, disruptive technologies, revolution-bringing competitors, disturbed markets, omnipotent clients, rebellious shareholders – are all the 21st century challenges, putting the worldwide projected organisational constraints on test and bringing the management model flaws, unable to keep the pace with time, into spotlight (Hamel, 2009).

Modern business implies restructuring business functions. From a traditional concept, characterized by linear way of thinking in which all business functions had equal significance, companies have to turn towards proactive thinking which implies understanding and creating the changes as well as giving the preference to those business functions that enable the companies to achieve, keep and improve their competitive position on the global market.

According to the wide-spread opinion, full advantage of global economy must be followed by full commitment to innovations. Companies must turn to innovations as never before (Ohmae, 2007).

2. ANALYSIS OF COMPETITIVE CONDITIONS ON THE GLOBAL MARKET

Elementary features of the modern society are creating and distributing information. Therefore, organizational management is becoming the process of information management. Starting from the assumption that information represents sublimated knowledge on the move, knowledge becomes the basic pillar of the new society. There have been considerable changes on the organizational level. Tissen, Andriessen and Depres (2006) think that the new logics of an organization is in the following:

- Dynamics, readiness to study,
- Information abundance,
- Globalism,
- Small and big,
- Orientation towards products/customers,
- Orientation towards skills,
- Team work,
- Orientation towards inclusion,
- Lateral, network,
- Orientation towards buyers.

Knowledge is becoming a product and corporative intellectual ownership is more valuable even than physical resources today. Modern organization must create knowledge but it must increase the value as well. The challenges which follow establishing, keeping and developing competitive abilities on the global market are much greater today than 20 years ago. The following reasons are considered to be crucial:

- New companies are mostly based on services,
- New companies are mostly from the field of knowledge economy,
- The change of techno-economic paradigm causes considerable changes,
- The number of allowed mistakes is far smaller than before,
- The new paradigm is, in great extent, in the phase of pre-standardization, which makes choosing the winners impossible (Reinert, 2010).

In modern business conditions the following business functions with the strategic role are particularly emphasized in organizational management because of their market orientation: marketing, quality, research and development. The company's growth, development and success are determined by tight interdependence of these three functions and their synergistic effect.

Marketing, as a business function, should create marketing program according to defined needs and customers' requests with the aim to fulfil customers' requirements, to make profit and satisfy all other interest groups within a society. Marketing management becomes knowledge management – it makes possibilities for increasing knowledge productivity of other busines functions. Marketing represents the key instrument which makes knowledge more productive.
The result of research-developing function is development of new technical-technological solutions. Since innovation represents output of research-developing function, the most accepted definition of innovative process would be "innovations = invention + exploitation". It means that each successful innovation must coordinate technological as well as the whole marketing function. Marketing is essential for total process of technological innovation.

Quality, alongside with product diversity and marketing communications, represents the key element for creating a successful brand with a stable market position. Quality is becoming a primary developing aim expressed in the form of business excellence and achieving world class product and services. Customer satisfaction and organization's performances should be monitored permanently in order to identify the chances for improvement. Quality management concept is predominantly a market concept based on improving all business functions, from market research, product and production development, logistics, marketing communications to evaluation of business effects.

According to Reinert (2010), one of the most important things is to understand that innovations and new knowledge have been the essential driving force in the history of economic development. Innovations and productivity are the main forces in the struggle for competitiveness and improvement of knowledge productivity represents an imperative for achieving long-lasting competitive ability.

3. DOMESTIC COMPANIES' BUSINESS BASIC CHARACTERISTICS ANALYSIS

Since the early 1980s domestic economy has had problems with improving quality and productivity. The productivity problem did not appear in domestic economy only in the time of transition but it was present before, as well. These problems were the result of inappropriate business performance which was not based on market principles. Certain products had unjustifiably high prices which were not competitive on the world market. Therefore, Serbian companies reduced export prices in order to gain competitiveness on the world market, while domestic customers had to pay this cost of unproductiveness through high prices. Old technology, poor quality, unattractive packaging and high prices are thus the main reasons for uncompetitive appearance of Serbian products on international market.

The analysis of Centre for research in the economy (Bojadić, 2010) show that the effective work time is three hours and 45 minutes per day in state companies' administration; there are 25 minutes more in factories. At the same time, in private companies there is the effective work time of seven hours and 18 min., which is almost twice as long. Serbian productivity carries 42% of the European average. The reasons are: insufficiently good work organization, technological obsolescence and lack of knowledge, and the consequences are incompetence, decline in consumption and unemployment.

Technological equipment also represents a significant element of productivity rising. The average machine age in Serbia is about 30 years. Compared to the situation in the region, this represents the approximate 12-year obscolescence. Serbian economy is, technologically, 29.5 years behind European Union, which was confirmed on the representative sample of 154 small, medium and big companies within six economical branches with similar production programs. The comparison was carried out in textile, food-processing, pharmaceutical, machinery, chemical and building material industries. Austria was taken as a criterion because of its similar natural, social and demografical characteristics in relation to Serbia (Ringier, 2009). The greatest obscolescence was noticed in

textile companies (35 years), then in machine industry (34.5 years). Pharmaceutical companies were best ranked with 21 years' delay. Considering the regions, the equipment, tools and other production means are most obsolete in south Serbia (41 years) and the least in Backa (18.5 years' delay). In Belgrade the delay is 20.5 years.
The most productive companies are those with the equipment and machines of the highest quality. These are pharmaceutical companies, some companies from the field of food processing and companies with foreign capital, which is totally 8.5 to 9% of the whole Serbian industry. Metal industry is in the worst situation, with 35 year- old- machines in average, and reject of 36%, which is more than double compared to the average in EU countries. Even Croatia and Romania with the reject of 19 and 24% respectively are much better than Serbia. Serbian bad competitive position, showed in Table 1 (pto), is a direct consequence of the problems mentioned above.

Table 1: Ranking West Balkan countries according to competitiveness in 2010.
(Source: World Economic Forum, 2010)

COUNTRY	PLACE
Slovenia	45
Montenegro	48
Croatia	77
Macedonia	79
Serbia	96
Bosnia and Herzegovina	102

4. DIRECTIONS FOR IMPROVING DOMESTIC ENTERPRISES' BUSINESS

The future success will depend on organization's ability to use collective knowledge which represents accumulated opinions, intuition, experiences and intelligence. Improving knowledge productivity is certainly a crucial problem of transitional countries and the problem of our economy as well. Since education and productivity are interdependent, the fact that our companies have a low productivity rate is not surprising. Masaaki Imai (2008) emphasizes: "Quality is managers' responsibility. Poor quality is the result of poor management".

The opinions of future executives and experts are extremely important for defining development directions in relation to competitive improvement of domestic companies. The research results, which deal with the analysis of young people's attitudes related to their involvement in entrepreneurial process, as well as with comprehension on business practice success of domestic companies depict these ways of future experts and executives' thinking. The research was carried out in the end of 2010 (November – December), on Serbian territory (12 towns and municipalities – Beograd, Novi Sad, Zrenjanin, Kraljevo, Čačak, Kikinda, Vršac, Bačka Palanka, Alibunar, Jagodina, Nova Varoš, Novi Pazar). It included 580 students oriented towards management. When asked to evaluate competitive ability of domestic companies, 47.93% of them thought that they partially satisfied the requirements imposed by international market, 43.28% thought that domestic companies did not satisfy these requirements while only 5.69% of the interviewed considered domestic companies to satisfy the conditions necessary for achieving competitiveness on the international market. The most significant factors which are missing in developing competitiveness of domestic companies are the following: new technologies (12.94%), employees' motivation (11.41%), education (9.93%) and financial support (9.21%). Considering the level of innovativeness within domestic companies, the majority of them (60.17%) thought that domestic companies partially fulfill this factor, 30.52% of the interviewed thought that our companies were not innovative while only 6.55% of them considered our companies innovative.

According to the interviewees, the following elements are necessary for developing competitive ability of domestic companies: standardization of business quality (17.22%), implementation of modern management methods and techniques (17.08%), investments in development of national brands (17.08%) and buying modern technologies (13.02%).

According to Norvegian economist Erik Reinert (2010), when companies' paradigm is changed, the companies themselves are changed and restructured – which happens with the executives as well. It is not possible to achieve and maintain a significant position without prosperous and successful management. In competitions it is always skill and not capital that wins in long terms. Taking all this into account, business performance of domestic companies must be based on implementation of management techniques supported by competitiveness, innovativeness and flexibility as well as on fast knowledge improvement of all employees, especially executives. Also, it is necessary for our enterprises to detach from the limitations of local-market way of thinking, domestic perception of business and domestic business experience (following the formula „if something functions, it should not be changed“).

5. CONCLUSION

Competitive advantage cannot be achieved as it could have been before the crisis in 2008. The world economic crisis has changed business conditions, which is particularly related to resource management and market competitiveness. A successful company in the global economy must become a new phenomenon which does not owe much to its „predecessors“. It demands deep reconsideration of marketing methods. A traditional market approach must be left behind and the advantage given to simultaneous breakthroughs on all markets together in combination with a firm decision related to 'insiderisation', through introducing sub-performers in companies with the help with information sharing and co-operation on shaping strategies and other activities, training etc., (Ohmae, 2007).

A lot of factors contribute to forming the strategical inertion, but the three represent a particularly interesting threat to a well-timed renewal (Hamel, 2009). The first one is the leading teams' tendency to disclaim or ignore the urge to restart the strategy. The second one is the lack of convincing alternatives to the unchanged state. The third one is the allocation rigidity, which complicates talent placement and regrouping behind the new initiatives.

Innovations, flexibility and productivity are guidelines for the future development in the field of competitiveness and organizational management. The very essence of the struggle for competitiveness lies in accepting changes. Knowledge is the main driving force of permanent productivity growth in the companies from these countries. Companies from transitional countries are faced with numerous problems – among them the most important are those related to improving knowledge and organization. Economic progress and development of Republic of Serbia require creation and development of competitive economy based on knowledge, new technologies and innovations, as well as on overall implementation of integrated management systems.

The main problem in domestic enterprises lies in inadequate use of knowledge, by domestic managers in the first place, as well as the lack of will for constant improvement. Domestic enterprises have to design their development strategy in a clearer way, especially in accordance with European and global integration trends, while the contemporary management methods and techniques, such as integrated management systems, marketing relationships, corporate social responsibility etc. represent the basic precondition for successful market development. Overcoming the problem of inadequate managing the business subjects lays in educating the executive managers.

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Session D: R&D MANAGEMENT

Papers (pp. 265-332):

DEVELOPMENT OF INSTITUTIONAL CONTROL OF CORPORATE SOCIAL RESPONSIBILITY IN THE REGIONS OF RUSSIA

Larisa Nikitina*
Voronezh State University, Russian Federation
e-mail: lanikitina@yandex.ru

ABSTRACT

The international experience of corporate social responsibility (CSR) has the history of more than fifty years. Nowadays, Russian companies are actively developing this new activity for them. The problem is that many entrepreneurs and managers interpret this activity in the context of their own experience. As a result of issues of social responsibility the company gets narrow and is often associated only with the situation of workers in a company or charity. Enterprises should strive to present to the public testimony of their social responsibility activities. The most affordable way of self-evaluation and informing the community about the socially responsible behavior of companies is to follow the requirements and recommendations of codes and standards applicable in this area. The acceptance of the documents which regulate corporate social responsibility in the regions and take into account their specificity is a requirement for activation the social activities of enterprises. This article presents the experience of the development of CSR standards for enterprises of Voronezh region. The standard includes a informative description of CSR and the corresponding system of indicators that will allow to rank the companies by level of responsibility.

Key words: Corporate Social Responsibility, Code, Indicator, Social Accountability, Enterprise

INTRODUCTION

Currently, the requirements for the social side of business are increasingly growing. This applies to companies of all patterns of ownership, size, organizational and legal forms, regardless of their geographic position, activity, cultural and national traditions. Corporate social responsibility is understood as the organization's responsibility for the impact of its decisions and activities to the society and the environment. CSR requires a transparent and ethical behavior, the assistance of persistent development, health and welfare of society; the legislation and progressive standards of behavior.

In countries with developed market economy models of CSR are well adapted, widely used and guide companies to the majority of stakeholders. In Russia at the moment, the number of companies that carry out activities in all areas of CSR is still relatively small. There are even fewer companies that represent the social reporting on a regular.

It can be assumed that the traditional Russian skepticism about the need of formal documents, which regulates social and economic activities, has acted as an important factor of poor development of social reporting in various forms. The assumption can be suggested that this is demonstration of such institutional features of Russian society as the dominance of the informal component of his organization. Otherwise should be assumed the obligatory documentation in reports of socially important actions maybe with some exaggeration of achievements in this field.

Meanwhile, corporate social responsibility is a complex system, implemented by many entities, that affects their interests in the economic and social spheres. Therefore, one of the fundamental problems that all researchers and practitioners face is to measure corporate social performance and

fixation of the results in accordance with the values of society and companies. It should be noted that not all documents are equal in this sense. It is important to provide data fit presented in reporting the general declarations and indicators.

INSTITUTIONAL FRAMEWORK FOR CORPORATE SOCIAL RESPONSIBILITY IN RUSSIA AND ITS REGIONS

The most available way of self-evaluation and informing the public about the socially responsible behavior of companies is to follow the demands and recommendations of codes and standards applicable in this area.
Codes and standards of corporate social responsibility are developed taking into account the principles stated in the documents of authoritative international organizations: OECD Guidelines for Multinational Enterprises; UN Human Rights Norms for Business; UN Global Compact; ILO Conventions; Global Sullivan Principles.

The main Russian documents, describing social responsibility and regulating social behavior of enterprises are:

- The Social Charter of Russian Business, developed by the Russian Union of Industrialists and Entrepreneurs (2004);
- Memorandum about the principles of corporate social responsibility, approved by the Russian Managers Association (2006);
- "12 principles of doing business in Russia", formed by the National Fund "Russian Business Culture" under the auspices of the Chamber of Commerce of the Russian Federation (1997).

There are some international and national level standards in the fields of social responsibility and social reporting:

- Standard "Social Accountability 8000" (SA 8000), which is developed on the basis of recommendations of the International Labour Organization and establishes requirements for management of social responsibility;
- Guidelines for reporting on sustainable development of the Global Reporting Initiative (GRI) - an international standard for the voluntary use reporting of organizations reporting on sustainable development. The Guide, a list of indicators for reporting on social, environmental and economic activities of the enterprise;
- Standards of AA1000 series, developed by the Institute of Social and Ethical Accountability – "AccountAbility"). Their part, in particular, is a standard verification AA1000, which is the standard management reports and ensure its quality and covers the whole range provided by the organization of reporting information in the field of sustainable development;
- Standard "Guidance on Social Responsibility" (ISO 26000), the International Organization for Standardization (ISO) provides guidance on the principles underlying the social responsibility and how to ensure social responsibility in the organization;
- Standard "Social responsibility of the organization. Requirements - CSR/KSO-2008" developed by Russian Organization for Quality, which establishes requirements for the organizations in the field of the right to work and occupational safety, social guarantees for the staff, the production of goods (works, services) of appropriate quality, environmental protection, resource, participation in social activities and support for community initiatives;
- Standard "Social reporting by enterprises and organizations registered in the Russian Federation. Methodological recommendations, proposed by Russian Chamber of Commerce". This standard assumes the existence of a social report of the introductory part (General Provisions) and 7 thematic sections, a description of topics and indicators contained in them;
- "Basic indicators of effectiveness. Recommendations for usage in the practice of governance and corporate non-financial reporting ", prepared by the RSPP to promote the ideas of the

Social Charter of Russian business. The document presents the indicators and their corresponding indicators of economic, social and environmental performance of the company.

In the Russian regions there are their own development in the area of corporate social responsibility and its evaluation by the state authorities, civil society organizations.

All submitted documents are advisory in nature, and the fulfillment of their demands is voluntary. Businesses can use them to formulate objectives, policies and programs of action the company's corporate social responsibility, self-esteem in the area of corporate social responsibility, conformity of the company recommended by standards, preparation of social reports, etc.

Reported guidelines and standards can also serve as the basis for the development of provisions of national and regional competitions in the field of social responsibility when making decisions on state support to enterprises, the Bulletin of the best practices of socially responsible activities and other purposes.

All the above documents constitute the institutional framework for monitoring and formation of internal rules of CSR in particular companies.

INTERNAL INSTITUTIONS FOR CONTROL OF CSR IN COMPANY

In our opinion, the basic document required to manage CSR in the company, is a code of socially responsible behavior. Codes are more flexible than laws. According to experts Russian legislation does not correspond to the level of development of corporate relationships at the current period (Lavrov, 2006). More over, there is no way to regulate every aspect of corporate activities in the economic and social spheres legislatively. The legislation defines the minimum requirements for social responsibility. The extended provisions of the codes in comparison with the legislation can facilitate adoption of best practices in corporate social responsibility, although they are generally little verifiable. According to P. Combs, S. Wong (2004) legislations of most countries do not require companies to follow the codes accurately, so there is a risk that regulations will not be fully respected. At the same time, the authors noticed that the codes are useful in practice. In particular, the increasing professionalism of boards of directors professionals directly connected with the introduction of codes. In countries with low levels of corporate relations appearance codes have made them the subject of public attention, and now the managers and directors have a better understanding of what is expected of them.

Many researchers assume if a company adopts codes or other documents of a declarative type it is an official promise to follow them. Therefore, creating by a company of its own code of social responsibility looks like a positive factor for both companies and for investors. As a result, different countries appear set of voluntary standards adopted by domestic companies, establishing and regulating corporate relations and social responsibility (Panfilova, 2008, Guriev, 2004). For the real application of the code as a reference document for the control of corporate social responsibility it should include regulations governing the operation of corporate and executive bodies that determine their competence and responsibility. In addition, the Code is a tool not only internal but external control. Therefore, it should contain enough specific commitments, addressed to the owners, employees, managers, creditors, customers, suppliers and other business partners, local community, government.

There are substantial differences in the documentary database containing general declarations (such as codes), and controlled performance. So the next step in the formation of an institutional framework for control of CSR in a company is to adopt CSR standards, which are fixed indicators of development in this field. Indicative planning in this case seems to be most appropriate because

it involves both qualitative and quantitative indicators and a relative freedom in the ways of achieving them. Indicators should have the following characteristics:

- verifiability - the reported data and information should be organized, analyzed and presented in such a way that their authenticity can be verified through internal or external audit;
- completeness - the information provided corresponds to the declared boundaries, areas and time frame of the document;
- significance - the statements should include the figures important for the corporate social responsibility;
- accuracy - reported information should be provided with such precision that allows to use it to make effective decisions;
- objectivity - in the selection and presentation of information is necessary to avoid bias and strive to present a balanced picture of performance for different groups of stakeholders;
- comparability - the information should allow self-evaluation and compare results over time and with the values recommended by the regulations, agreements reached in the practice of other companies, the average;
- clarity - information should be understandable to the most of users and at the same time maintain an acceptable level of detail.

The control of CSR in companies should be completed with the regulation of social reporting. In the position should be reflected in the procedure of collection and verification of data on CSR, powers and responsibilities of organizational units performing the procedure, as well as the shape and structure of a social report. The report must be submitted to the actual figures, the relevant indicators adopted in the company standard.

In countries with developed market economics, believes that social reporting is an important tool for analysis and control of socially responsible business. Experts believe that these corporate reports allow understanding and assessing the contribution of business to the solution of socially important problems, in the case if their comparability on key performance indicators (Non-financial reports of companies operating in Russia…, 2006).

It should be noted that some data which are the subject of social accountability of Russian and foreign companies nowadays, were using by the Soviet companies. Therefore, for the Russian companies with a history, longer than twenty years, some elements of accountability are familiar. The purpose of the centralized collection of information about the social aspects of the enterprise in the Soviet period has been associated with problems of governmental regulation of social policy. Public enterprises are the subjects of its implementation by the organization of society. Goals of modern social accountability are fundamentally different. Statements used as a tool, which is accessible, accurate and balanced description of the associated key activities and results of achievements related to values, goals, sustainable development policies on issues of greatest interest from key stakeholders. At the same time the variety of risks posed by new economic conditions that have changed significantly with the introduction of information technology and globalization of economic processes are taking into account.

EXPERIENCE IN DEVELOPING CORPORATE SOCIAL RESPONSIBILITY FOR ENTERPRISES IN VORONEZH REGION

We have developed the CSR standard for enterprises in Voronezh region in order to form a systemic vision of corporate social responsibility and strengthen socially responsible behavior of businesses.[1]

[1] The project was implemented with the support of the Economic Development Department of the Government of the Voronezh region (contract 6 / 11 on 02/01/2011)

This standard covers the objectives, principles and content of corporate social responsibility and includes minimum amount of required indicators to assess the level of social responsibility of enterprise.

Indicators of corporate social responsibility, that presented in the standard, reflects the technical-technological, organizational-economic, and non-production performance of the company. In our opinion, in this case are formed integral on the contents blocks, which can distinguish the interests of stakeholders in collaboration with the company.

Technical-technological sphere form of industrial safety, protection and safety of work, resource conservation, recycling, quality of products, development of innovative processes. In other words, it is responsible for the condition and use of the tangible assets of the company.

The content of CSR in organizational-economic spheres are social partnership at work, relationship with employees, staff development and training, organization and level of wages, compliance with contractual obligations with the partners, pricing, fulfillment of obligations to pay taxes and fees.

Non-production sphere of CSR includes an additional social security of employees, their families, the formation of civil society, philanthropy, community development, participation in the social and economic problems of the region, information transparency.

It is obvious, that the list of relationships within the appropriate sphere of CSR is not exhaustive. It is intended to show that with the use of our approach to formulate the areas of interaction with stakeholders the framework of responsibility can be internally consistent with disjoint elements and open to additions.

In the most cases indicator value of each sphere based on the specific values of parameters that allows us to compare performance of enterprises regardless of their size. In some cases, "barrier" values are adopted described by "yes" or "no" attributes. These values are applied in cases where the amount is not important for qualitative assessment. For example, delayed payment of wages characterizes the company as socially irresponsible; with no matter how small was the value of a particular debt. The same approach applies to the payment of taxes and fees.

Indicators rank the activities of the company's corporate social responsibility by levels. Activities are ranked on the basis of the mandatory implementation of socially responsible practices: mandatory and voluntary

The first level indicates the failure of mandatory action, which automatically excludes the company from those responsible ones, whatever voluntary socially significant operations it produced. If at least one indicator has the "zero" value, the enterprise can not be considered as socially responsible.

The second level is regarded as initial in the field of corporate social responsibility. When it is reached the company's activities focused on the assimilation of already developed provisions of socially responsible behavior and getting quite typical results for companies in the region in the adaptation to the generated rules.

The third level of corporate social responsibility is not only voluntary but also proactive social activity of enterprise. Therefore, their own initiatives and achievements are highlighted that define the company as a leader in corporate social responsibility.

The minimum value of the indicator sets the lower limit of the compulsory level. The basis of the minimum value of the indicator are the requirements of normative documents (laws, government regulations, state standards, regulations and regulatory bodies, etc.), contracts and agreements, values of the state statistical reporting. As a rule, demarcation takes into account the average

statistical values of the index for the region. In the case of use of quantitative values, the lower boundary of the recommended values of the indicator provides the excess of actual values over a well-established in the region or the achievement of the best results the company social activities.

It is important to notice that the content of corporate social responsibility reflects the society expectations at a particular time. These expectations are constantly changing along with the problems of society. Therefore the provisions of the standard composition and quantitative values of the indicators of corporate social responsibility are subject to periodic review.

CONCLUSION

We believe that you should follow the following approach for the control of the company in the CSR.

Managing corporate social responsibility should be comprehensive and therefore based on three types of instruments: the Code, which contains general declarations in CSR; CSR standards, which records performance indicators; social report, which reflects the actual figures. This approach can not only compare companies with each other, which is not always appropriate due to their differences in many aspects, but also reflect the activities of the enterprise in dynamic.

The amount of indicators must be about 20-30. This will allow characterizing the real activities of the company in the field of CSR and reducing the costs of record keeping.

Documents that regulate corporate social responsibility must be verifiable on the "crossover" status. Thus, the provisions of the Code should be grouped by stakeholders, and social report - by sphere (technical-technological, organizational-economic, non-production). On the one hand, this will allow to evaluate, to whom we have (or do not hold) the obligations. On the other, you can check the sphere in which the company has made progress and where the positions are weak.

Such a structure enables documents to provide three levels of control: self-control company (in accordance with the competencies of its institutions, agencies, units); control by the stakeholders, and monitoring of state authorities and public organizations through a regional or industry ratings or competitions.

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The International Standard ISO 26000:2010, *Guidance on social responsibility*

RUSSIAN REGIONS' INNOVATIVE DEVELOPMENT ANALYSIS

Dmitriy Treshchevskiy
Voronezh State University Economics Department, Russia
stormhammer@mail.ru
Igor Risin*
Voronezh State University Economics Department
risin@mail.ru

ABSTRACT

The article describes the problem of Russian regions ranging by the indicators of innovation development. Author suggested step-by-step analysis of the regions' innovation conditions. As the result the homogeneous groups of regions have been found out. Author called them "clusters". There are five clusters: the capital city, leading regions, active developers, active producers of innovative production and the passive ones.

Key words: region, innovative development, cluster, an indicator, clusters type.

1. INTRODUCTION

The innovation strategies of enterprises depend on the regional conditions as well as on the country's socio-economic conditions and innovative development. Especially it is very important to take the regional particularity into account for so big and economic diversified country as Russia. Today the attempts to differentiate Russian regions by the innovation development level are made by several scientists. In 2006 two sets of three clusters were marked out by E.Koveshnikova and I.Shchepina: three by innovative potential and other three by innovative potential implementation. The 79 regions were analysed (Koveshnikova, Shchepina, 2006). In our opinion, it is a problem that all clusters, formed by the innovative potential, were heterogeneous. It is difficult to make any conclusions even for the first cluster which included Moscow, Saint-Petersburg, Moscow region and Nizhny Novgorod region because Moscow passes ahead of other regions by completely all parameters. Clusterisation by innovative potential implementation brought to forming of two small clusters (just 12 regions) and one big cluster (67 regions). We do not deny that most of Russian regions could be united into the one big homogeneous group, but this would be inefficient in terms of regions' innovation policy elaboration. We need to detect the important distinctive characteristics which identify innovation processes in Russian regions. That is why the further analysis is necessary. In the sequel O.Golichenko and I.Shchepina suggested to range regions by the participation in the processes of innovation adsorption and diffusion on different territorial markets. Separate groups (cores) characterised by different innovation diffusion level were marked out of clusters (Golichenko, Shchepina, 2009). As a result the clusterization by other indicators was needed; the quantity of clusters was increased to 4; clusters were considered as independent meso-objects (Shchepina, 2009). First analysis's clusters were braked out. That let us suppose the further cluster analysis is necessary.

2. THE METHOD OF THE RUSSIAN REGIONS ANALYSIS BY INNOVATIVE DEVELOPMENT INDICATORS

The indicators of innovative development represented in the official statistics were taken for the analysis (Regions of Russia..., 2008). The specific character of Russian territorial organisation was considered. In addition few regions have unstable statistics. That is why we chose 78 regions with stable

socio-economics and innovative statistic indicators. There are 11 indicators. Nine of them show the innovative development in terms of used resources (organisations, personnel, expenditure level): the amount of organisations with R&D (units); the amount of personnel in R&D (persons); the internal costs in R&D (millions of roubles); the amount of researchers with academic degree (persons); the amount of organisations realising innovations (units); the specific weight of organisations realising innovations (%); the technical innovations costs (thousands of roubles); the volume of innovation goods, works, services (millions of roubles); the volume of innovation goods, works, services (%). They are accordingly numerated as 1, 2, 3, 4, 7, 8, 9, 10, 11. In addition there are two indicators which show the results of innovation implementation: the amount of created AMT (advanced manufacturing technologies; units); the amount of used AMT (units). Their numbers are 5 and 6.

The most interesting period for the analysis is the period of 2000-2007. It is a period of favourable business conditions. Russia and its regions as well as organisations in tote had all the resources they need for the innovative development. We analysed the regions' conditions to the beginning (2000) and to the end (2007) of chosen period. In consideration of different dimension of the indicators we made their normalization:

$$\frac{x_i - x_{min}}{x_{max} - x_{min}}, \qquad (1)$$

where: x_i – value of the indicator, x_{min} – minimal value of the indicator in the array, x_{max} - maximal value of the indicator in the array.

As the positions of the regions were changing during the analysis so we gave the constant number to all of them. All numbers correspond to the regions' positions in the initial information collection that was formed on the base of the official Statistical Year-Book. We used MS Excel and Statistica 6.1 software to the goals of cluster analysis. The step-by-step approach for clusters selection was used.

Regions in clusters were appointed in Euclidean space. The normalization was made by formula 1. The derived dendrogram let us select at least five clusters, but three of them demonstrated similar trends of the innovative development. So we decided to appoint three clusters. This situation peculiar to Russian regions in 2000 as well as in 2007. As we mentioned earlier, E.Koveshnikove and I.Shchepina confined themselves to consider three clusters one of which consisted of big group of regions. In spite of indicators difference the obtained results were almost the same. In our analysis we obtained the first cluster, consisted of Moscow, the second one consisted of seven developed regions: Republic of Tatarstan, Perm Territory, Moscow region, Nizhniy Novgorod region, Samara region, Sverdlovsk region and Saint-Petersburg. The derived result made us to select Moscow as separate cluster and to exclude it from the further analysis.

3. THE INNOVATIVE DEVELOPMENT CLUSTERS' STRUCTURE

Moscow as separate cluster has all necessary conditions for the regions' and organisations' innovative development.
Without Moscow the new clusters' structure was formed in 2000:
- 1st Cluster – Moscow region and Saint-Petersburg;
- 2nd Cluster – Republic of Tatarstan, Perm Territory, Volgograd region, Nizhniy Novgorod region, Samara region, Sverdlovsk region and Chelyabinsk region;
- 3rd Cluster contains 68 left regions.

The Moscow region's and Saint-Petersburg's leadership expressed by 9 indicators. At the same time they are behind the cluster 2 regions by indicators 8 and 9.
In 2007 the clusters' structure changed a little:
- 1st Cluster – Moscow region, Nizhniy Novgorod region, Saint-Petersburg;
- 2nd Cluster – Republic of Tatarstan, Perm Territory, Samara region, Sverdlovsk region, Tyumen region and Chelyabinsk region. As we can see Nizhniy Novgorod region moved to the more developed cluster, Tyumen region entered this cluster and Volgograd region exited the cluster.
- 3rd Cluster contains 68 left regions. Like in earlier stages third cluster has absolute majority of regions. That requires isolating of this group for more detailed analysis of the development trends.

Thereto we exclude the leading group of regions besides Moscow. They are: Republic of Tatarstan, Perm Territory, Moscow region, Nizhniy Novgorod region, Volgograd region, Samara region, Sverdlovsk regon, Chelyabinsk region and Saint-Petersburg. By virtue of leading positions of these regions we called them "leading regions". This group is characterised by high level of economic, industrial and innovative development.

The excluding of the leading regions let us to make the third step in our analysis – dividing the biggest group of regions into separate components. At this step in 2000 the group was divided into three clusters:

- 1st Cluster – Rostov region and Novosibirsk region;
- 2nd Cluster – Republic of Bashkortostan, Udmurt Republic, Krasnodar Territory, Altai, Khabarovsk Territory, Vladimir region, Voronezh region, Kaluga region, Orel region, Tver region, Tula region, Yaroslavl region, Vologda region, Novgorod region, Saratov region, Ulyanovsk region, Tumen region, Kemerovo region and Tomsk region;
- 3rd Cluster contains 47 regions.

The excluding of the leading regions brought to the "new leading group" forming – Rostov and Novosibirsk regions. They are characterised with "capital" trends – cluster passes ahead of other regions by the majority of indicators (1, 2, 3, 4, 5, 6, 7, 9). The first and the second clusters are almost coinciding with each other in the indicators 6 and 9. The second cluster leads in the 8th indicator. The third cluster is falling behind the first and the second by every indicator except the 11th.

In 2007 the clusters' structure changed:

- 1st Cluster – Krasnoyarsk Territory, Voronezh region, Kaluga region, Rostov region, Saratov region and Novosibirsk region;
- 2nd Cluster – Republic of Bashkortostan, Republic of Mordovia, Udmurt Republic, Chuvash Republic, Krasnodar Territory, Altai, Belgorod region, Vladimir region, Tula region, Yaroslavl region, Vologda region, Kaliningrad region, Volgograd region, Orenburg region, Ulyanovsk region, Irkutsk region, Kemerovo region and Tomsk region.
- 3rd Cluster contains 44 regions.

As we see, in the leading cluster over the period of 2000-2007 entered Krasnoyarsk Territory, Voronezh, Kaluga and Saratov regions. The third cluster is characterised by the lowest level of all indicators.

During the analysis we mentioned the relative convergence of the third cluster with the others by the indicators 7 and 8 (the amount of organisations realising innovations/units; the specific weight of organisations realising innovations/%). One can see the pronounced regularity on the every step – leading regions have low level of these indicators and vice versa. Probably the problem is that they are registered by sample observation and the objectivity of the results could be different depending on the representativeness of sample.

So we excluded these indicators from the analysis and got the clusters' structure change.

Table 1: Russian regions' three clusters division (2007, w/o leading-regions, w/o indicators 7 and 8)

Indicators	Clusters' average normalised indicators		
	Cluster 1	Cluster 2	Cluster 3
1	0,571759	0,197531	0,176482
2	0,443871	0,097296	0,084372
3	0,450100	0,100848	0,083844
4	0,260385	0,030922	0,051781
5	0,545455	0,280303	0,070000
6	0,318325	0,187100	0,124901
9	0,517410	0,286363	0,134288
10	0,313770	0,736491	0,102804
11	0,093190	0,375896	0,071129
Sum	3,514265	2,292750	0,899601
Regions	3, 4, 6, 17, 35, 38, 39, 40, 52, 63, 66, 68	1, 22, 23, 42, 53, 65	50 regions

In the Table 1 we can see the following clusters' structure.

1st Cluster – Republic of Bashkortostan, Krasnodar Territory, Krasnoyarsk Territory, Vladimir region, Voronezh region, Kaluga region, Yaroslavl region, Volgograd region, Rostov region, Saratov region, Novosibirsk region and Tomsk region. These regions have relatively high level of innovative develop-

ment in 2000-2007. By seven of nine indicators (1-9) and by the sum of normalised indicators it passes ahead the second cluster. This cluster has high innovative development potential, activity in producing and implementing AMT and low level of innovation production. We can describe this cluster as "active developers".

2nd Cluster – Republic of Mordovia, Belgorod region, Vologda region, Kaliningrad region, Ulyanovsk region and Kemerovo region. It is characterised by following conditions:
- low level of the indicators which describe the innovative potential (1, 2, 3, 4);
- middle level of the innovation producing indicators (5, 6, 9);
- high level of production indicators (10, 11).

In general terms the regions of this cluster we can describe as active producers of innovative production.

3rd Cluster contains 50 regions and can be characterised the following way:
- low level of all indicators;
- the similar level of indicators 1, 2, 3, 4 with the second cluster and 11 with the first cluster;
- high homogeneity of all indicators (0,05 to 0,18).

We can describe this cluster as "passive".

4. RECOMENDATIONS

The results of step-by-step cluster analysis show us the possibility of the division all Russian regions on five different groups. The first group consists only of Moscow. It differs by its development from all other regions. It falls behind only by the production level. But this seems natural and does not need to be changed – there is no matter to concentrate great values of manufacturing. Vice versa it is necessary to intensify those components of innovative development which are specified by its competitive advantages (first of all – the financial resources). The second group consists of developed industrial regions. In consideration of great manufacturing concentration and as a result strong inertia in production structure the most acceptable strategy is the strategy of allocating of the innovative development zones – zones of innovations generating and implementing. The third group consists of regions with relatively high level of innovation generating. As the innovation production is its weakness, it is necessary to intensify the innovation implementation in those regions. The forth group is notable for low level of innovations generating, relatively high level of innovative production and sufficiently developed industry. It is not necessary to increase the innovation generating volume. It requires long period of time, considerable financial, material and human resources. That could become a problem for the regional strength – innovation distribution. The recommended strategy – the faster production and distribution of innovations which were made in other regions and abroad. The fifth group – the biggest one, consists of majority of Russian regions. It has low and poorly used innovative development potential. The recommended strategy – the forming of innovative growing points with the goals of institutional environment improvement.

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SEVERAL TIPS TO TAKE INTO CONSIDERATION BEFORE DECIDING TO DO BUSINESS IN CHINA

Mariagrazia Poli, M.Sc
University of Bergamo, Bergamo, Italy
Tatjana K. Andrejevic, M.Sc*
Zadužbina Andrejević, Beograd
tatiana.andrejevic@alice.it

ABSTRACT

In this paper we will try to treat only some of the very basic cultural aspects of doing business in China, omitting long introductions and notions of a general nature. In order to successfully do business in any foreign country, business persons must invest not only in common marketing and research actions, but should take into serious consideration cultural issues of the country they choose for their next business destination. Trying to understand the cultural practices in both business and social environments is essential in order to minimize potential problems regarding business dealings caused by differences between our own culture and cultures of the other people with whom we are trying to work. The Chinese business culture and deliberate style of negotiation are much different from the direct Western approach. It is easy to lose perspective and patience and ultimately fail in obtaining the desired aim. Many foreign business people have failed in their attempts because they expected the Chinese to do things their way.It is obvious that cultural diversity makes communication more difficult. We all interpret and evaluate our worlds differently. The more we are aware of cross-cultural differences, the more we understand them, the easier it becomes to communicate and thus have more success in doing business.

Key words: China, culture, cross-cultural communication, negotiating

1. INTRODUCTION

The world is a small place, after all! A couple of hours on an airplane and suddenly we are in another little world that can prove to be quite different from our own, and yet we still have our feet on our good old Earth. Traveling has never been as easy as it is today. Technology has changed a great deal but has the human mind followed? And in which ways?

With no intentions to start opening such an immense topic, we will concentrate merely on business people who must become proficient cross-cultural communicators if they wish to succeed in today's global environment. Cross-cultural (or intercultural) communication explores the ways in which people from different cultural backgrounds try to communicate. It combines several other fields of study (including anthropology, cultural studies, psychology, communication), and tries to establish some guidelines in order to help people improve their communication. On this occasion, we have chosen China as a destination; its culture, history and traditions are undeniably fascinating and intriguing, but so is its other reality: China is the factory of the world which continues to grow at an impressive rate.

2. DOING BUSINESS IN CHINA

Napoleon called China a sleeping dragon and said there would be woe to the world when it awakes. Well, this beautiful, glowing, colorful dragon has been awake for a while now, evidently causing fear, daring, teasing. It has been raising slowly but steadily. This reminds us of an old Chinese

riddle: "How do you change an iron bar into a needle?" By striking the iron bar over and over again. Meaning: perseverance, tenacity, repetition. After all, the Great Wall was built brick by brick. In China, time, thought and action are different from what we might be used to.

Doing business with China and in China is certainly an exciting and challenging undertaking for any foreign individual or company. China is an enormous country with diverse culture and an economy that is expanding at incredible rate. The opportunities for doing business are great, but so are the drawbacks. The Chinese business culture has many long held practices and traditions which are very different from Western business cultures (not to mention that they are also different in various regions of the country).

A foreign business person cannot afford to come to China without any prior knowledge of the Chinese business culture. This is of utmost importance and requires a very serious approach. One wrong step and what was otherwise promising to be a successful venture suddenly fails. And he or she will not even realize what happened! A good deal can unexpectedly fall apart for no apparent reason and no one can tell what the mistake was. An understanding of the cultural practices in both business and social environments is essential in order not to see doing business in China turn into a nightmare. Many foreign business people have failed in their attempts because they expected the Chinese to do things their way. Wrong! The Chinese culture is long established and does not change quickly, although some shifts in all the fields (including business as well) can be noticed.

Building a long-lasting relationship with the Chinese parties is a pre-requisite. The Chinese are suspicious of foreign business persons (they do not know them, and knowing people is important in China) and will remain generally closed until a personal relationship is established leading to mutual trust and openness required for further negotiations. A large part of all Chinese business practice is based on past relationships and recommendations from others (who can be trusted and who cannot). Foreigners come to China without such a network of contacts, so they have to expect not to be trusted until a comfort level is established, meaning that significant efforts must be made in order to become "trusted friends" with the Chinese counterparts. If this does not prove to be the case, they will remain suspicious and will never really open up in discussions or negotiations.

In business meetings, one of the aims of foreign business persons is to be seen as competent and reasonable. Intelligence is valued very highly in China but so is modesty, meaning no boasting about the past achievements and abilities. Foreigners should try to be relaxed and attentive at the same time, and should not forget to be honest, personable and nice.

3. PRACTICAL ADVICE

A simple mistake business people make before going overseas is not making an effort to understand the basics, such as how to make a positive first impression. However, creating such a positive first impression is not enough. Attention must be paid to many things normally not considered very important in Western cultures. In this section, we will try to make a short summary of the very basic things to do and not to do, no matter how trivial they may sound.

Chinese company structure: The corporate structure of most Chinese companies remains a very traditional pyramid shaped organization with the decision making power focused at the top. A few companies, under Western influence, have begun to introduce team dynamics and delegate some decision making authority and responsibility to lower levels in their organization. This is not the norm, however, and in most negotiation situations the final position of the Chinese side will be made by the top person in the company or division. However, this does not facilitate decision making, as a foreigner coming from West might think; getting a quick decision is never the case. Most negotiations will be held with managers who are junior and the final decision maker will not even be present during the business meetings.

Letters of introduction: Presenting letters of introduction from well known business leaders, overseas Chinese, or former government officials who have dealt with China is an excellent way of showing both that a person is of high standing and that he/she has got serious business intentions. Chinese are very concerned about social status, and anything that a person can do in that direction is a plus. Only, one should be careful not to appear arrogant or superior, as Confucian morality condemns such behavior.

Appointments and meetings: Being on time is of crucial importance in China, being late is considered a serious insult (though one sometimes gets caught in the very intense Chinese traffic). Contacts and appointments should be made prior to the trip. A person must have an invitation to do business in China. The status of the people who make the initial contact with the Chinese is very important; sending someone with a low rank will insult the Chinese partners. Since Chinese value rank and status very much, observing seniority and rank are extremely important in business. Therefore, the most important member of the company or group should lead important meetings.

The decision making process is slow, and foreign business people should not expect to conclude their business quickly. Also, many Chinese adhere to old beliefs such as astrology and geomancy and will want to consult with the stars or wait for a lucky day before they make a decision. This applies even to serious senior executives. During a business meeting there may be periods of silence that are not to be interrupted, and that do not mean anything bad. The Chinese side might be only thinking about what has been said. A contract is considered a draft subject to change; Chinese may agree on a deal and then change their minds (especially if a foreign partner has a time deadline, such as a plane to board). A signed contract is not binding and does not mean negotiations are over.

Conversation: The Chinese may ask intrusive personal questions. Frank answers are a sign of familiarity and closeness, but if a person does not want to reveal this information, he or she should remain polite and give an unspecific answer without expressing irritation which would cause the person asking to lose face. On the other hand, unless one is a very familiar personal friend, the Chinese hosts are not to be asked about their family except things such as "How old is your child?", "For how long have you been working here?" or "Where is your child studying?" as a means of determining their marital status and age. The Chinese are rather curious about Western habits, their questions relate to what they consider important in life. They could inquire, for example, about salary. Since the sizes of incomes in the West can be incomprehensible to the Chinese, if talking about income it is advisable to make a reference to the cost of living.

"Small talk" is considered especially important at the beginning of a meeting; any of the following topics will be appropriate for the occasion: Chinese landscape, weather, climate, travels in other countries, positive experiences of traveling in China, Chinese art, food, hobbies, sports. When speaking with a woman a good idea is to ask about Chinese food; she is usually glad to offer some cooking advice. Chinese men would generally feel comfortable to speak about current affairs, stock market etc. There is no need to be worried about mentioning Taiwan. If the subject comes up, it is important to use the correct term "Taiwan Province", or just "Taiwan". Topics such as Tianamen Square, Tibet or human rights should be avoided, as well as all forms of criticism of the country (communism, etc.). As to the Cultural Revolution, if the issue ever comes up, some Chinese may be willing to discuss it freely.

3.1. Negotiating

Business negotiation in China can be a very frustrating experience. The Chinese business culture and deliberate style of negotiation are much different from the direct Western approach. It is easy to lose perspective and patience and ultimately fail in obtaining the desired aim. The Western way means that both parties generally agree on the objectives and attempt to take a direct path to reach those goals in the shortest possible time (time is money, save time!). Business negotiations in China require a different approach. The Chinese culture makes people suspicious of strangers, both

Chinese and foreign. The initial meetings in any negotiating session in China may seem to be going nowhere, but this time should not be considered lost, it is required for establishing relationships and, ultimately, gaining the trust of the Chinese participants. Personal relationships are the key to business success in China.

Unless dealing with a small company in China (one owner/manager), the decision maker will usually not participate in negotiating sessions. Final positions of the Chinese side on any proposal will be reached at private meetings and brought back to the negotiating table later. Therefore, "We'll consider it" will be heard frequently (or nothing at all!) and means "We must talk to the boss". Successful business negotiation in China requires lots of patience and appreciation of Chinese business and social culture. The Chinese are changing in many ways but will not adapt to Western negotiating ways soon and failure to understand and adopt their practices can ruin an otherwise successful venture. During negotiations, humbleness and patience are the keys to success. The Chinese sense of time means that they use it knowingly (to make pressure on the time-constrained counterpart) and there is always plenty of it. Nothing will happen quickly and whoever tries to force things will either fail or the Chinese will take advantage of him/her. One should always try to stay calm, cool and patient, to never lose one's temper, to never raise one's voice, to show very little emotion and not to mention deadlines. There is never a straight path from beginning to objective; it is a curved line which takes more time but avoids obstacles (=avoids conflict). A lot of time should be allowed for negotiations; one should be prepared to stay as long as it takes (and it might take quite a while) or, if that is not possible, have a representative who will continue to negotiate after he/she leaves. The Chinese are accustomed to negotiating with foreigners with deadlines and do take advantage of it. Several trips to China may be necessary in order to achieve the determined objectives. Chinese business people prefer to establish a strong relationship before closing a deal. The Chinese tend to extend negotiations well beyond the official deadline to gain advantage. On the final day of visit, a common practice is that they may even try to renegotiate everything or cancel the deal previously agreed upon. Even after the contract is signed, the Chinese will often change their mind and continue to press for a better deal. The person leading the negotiation for the Chinese side must "win" the negotiation in order not to lose face with his boss and co-workers. This is very important and a foreign business person must have this thought in mind. It is OK for the final result to be win/win from a business perspective, but the Chinese negotiator must not lose face by being perceived to have lost the negotiation. So, the concern should be "How can I win, but appear to lose?"

In summary, the keys to successful win/win negotiating when doing business in China are: patience, recognition of various face issues, no time limits and flexible negotiating positions. In Chinese business culture humility is a virtue. Exaggerated claims are regarded with suspicion and will probably be investigated. One should always be very careful not to say or do anything that could embarrass the Chinese participants and cause them to lose face. Causing embarrassment or loss of composure, even unintentionally, can be disastrous for business negotiations. In Chinese business culture, the collectivist way of thinking still prevails in all in sectors. Except for those educated in the West, Chinese business people largely rely on subjective feelings and personal experiences in forming opinions and solving problems.

In accordance with Chinese business protocol, people are expected to enter the meeting room in hierarchical order and the Chinese will assume that the first foreigner to enter the room is head of the delegation. The most senior person on each side will sit in the center of the table, surrounded by subordinates and assistants. It is very important to watch the body language and other nonverbal signs during the meeting to decide who the people with real influence on the Chinese side are. Sometimes there might be an older gentleman sitting quietly and observing without saying a word; he might well be the main person, only it will not be discovered until the end.

3.2. Saying "no"

In Chinese business negotiation, one of the most difficult challenges is to know when the Chinese party is saying "no" to a proposal. The Chinese do not want to cause the other party to lose face by saying "no" directly, so one must be very attentive to all the other comments and nonverbal behavior and try to figure out the real meaning in that way.

For the Chinese saying "no" is embarrassing and causes loss of face, especially if asked for a favor. Instead, they will say something like "It is inconvenient" or "under consideration", ignore the request or pretend nothing was asked. If "We'll think about it" or "We'll consider it" is heard repeatedly in different negotiating sessions about the same issue, it probably means "no". The first time it may just mean that they have to talk to a higher authority, but repeating the phrase normally means refusal. "Yes, but it will be difficult" means probably not. Saying yes and following this with a hissing sound of sucking breath between the teeth means no. When the Chinese counterparts smilingly and politely or even enthusiastically say "No big problem" or "The problem is not serious", they usually mean "There are still problems".

Foreigners should also follow these rules. Instead of giving negative replies, they should answer "maybe", "I'll think about it", or "We'll see" and get into specifics later.Another problem: the Chinese generally tell a person what they believe he or she wants to hear, whether or not it is true; therefore, a foreign business person should explain that he or she wants direct communication and will not be upset with those who communicate bad news. What's more, forcing the Chinese to say "no" will quickly end a relationship.

3.3. Nonverbal communication

There are thousands of cultures around the world, and countless varieties of nonverbal communications. Becoming sensitive to the subtle gestures of the environment can help a person avoid insulting other people by what might be an innocuous motion in his/her country; the very same gesture could happen to be a taboo in theirs. When in doubt about a gesture, the hands should be kept still. Here are some of the very basic hints. Eye contact has to be maintained with the interlocutor, a person who fails to do so is considered untrustworthy. A nod does not mean agreement, it signifies that the person is simply listening. Large hand movements are not to be used; the Chinese do not speak with their hands, and such movements may be distracting to them. Chinese do not like to be touched; lightly touching someone's arm is a sign of great familiarity. Personal contact must be avoided at all cost. Shaking hands is now standard, but traditional etiquette calls for making a fist with the left hand, covering it with the right palm and shaking the hands up and down (this is a formal thank you).

Beware of the saying "You’re never fully dressed without a smile on your face" - smiles are not always the universal signal for friendship or happiness. Although smiles invite communication in much of the Western hemisphere, in the Far East, a smile can be used to hide embarrassment, dismay or fury. Laughing or smiling can mean different things. If it is nervous laughter, Chinese tend to cover their mouths with their hands, e.g. in response to an inconvenient request, a sensitive issue, or a social *faux pas*. When negotiating with Japanese, Chinese or Indonesian people, an inscrutable smile is used to communicate far more than pleasure; it is a form of polite behavior, which masks anything from sincere enjoyment to menace. When accompanied by an extended period of silence, a mysterious smile can bother Western business people, but... it is acceptable to sit respectfully in silence, and smile back.

4. CLOSING REMARKS

Acknowledging cultural differences is only the first step. Managing them is, however, something quite different. They play a very important role in all international dealings and negotiations. People tend to either attribute too much (culture is the only thing that matters) or too little (everything that is to be known is found in the "quick guide" books) significance to culture - and they are wrong. Companies often concentrate on all kinds of market research, invest a lot of time and resources in business strategies and consider themselves ready to go abroad, but frequently

something goes wrong. Why? All the hard work is useless if no one has paid attention to culture and cultural diversities. The percentage of failures of cross-cultural business projects is quite high, as is the percentage of failures in overseas postings of individual senior managers. The more the culture of the "other side" is understood, the better communication is. Cultural differences however are apt to cause misunderstanding, and that the initial goal should be improving the efficiency and effectiveness of the negotiation by becoming aware of the fact that such differences lie not only in what is being said (content) but also in how it is said (linguistic and nonverbal behaviors) and in the social context of the negotiation.

It is obvious that cultural diversity makes communication more difficult. We all interpret and evaluate our worlds differently. The more we are aware of cross-cultural differences, the more we understand them, the easier it becomes to communicate. And this is of utmost importance for a company that decides to do business in China. Once we have invested in getting acquainted with some aspects of a culture that is so different (not better, not worse, just different) from our own, there is a question that comes naturally: What shall we do to minimize potential problems regarding business dealings caused by differences between our own culture and cultures of the other people with whom we are trying to work? We shall first try hard to understand them (given the fact that we are conscious of our own mental and cultural models) and then reconcile them having in mind that no culture is better than the other, only different, and that there is not only one "correct" way of thinking, living, doing.

Before going to China, it is a good idea to do some preparation work by studying aspects of Chinese culture, history, geography. This initiative will surely be appreciated. It is highly advisable to make a further effort and actually learn some greetings and phrases in the various languages used as it makes a very good impression and will certainly amaze the Chinese counterparts (even if a foreigner is not really able to pronounce them correctly) thus proving one's intentions to establish long lasting relations. In addition, Chinese have a higher appreciation of foreigners who demonstrate a real interest in their country and people, and are certainly more eager to engage into business talks.

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UNDERSTANDING THE CHINESE MENTALITY - SOME BASIC HINTS

Tatjana K. Andrejevic, M.Sc*
Zadužbina Andrejević, Beograd
tatiana.andrejevic@alice.it

ABSTRACT

Trying to understand the Chinese mentality seems to be an issue often ignored by those who wish to do business in China. Commonly other aspects are on business persons' minds; they are rightly concerned about all the necessary resources, all kinds of business strategies, etc., they would even get acquainted with the most basic cultural facts, but would generally fail to consider the issue of mentality. However, putting serious efforts into trying to understand the Chinese mentality proves to be a good investment. Building a long-lasting business relationship with the Chinese partners (commonly suspicious of foreign business persons) is a pre-requisite for whatever further steps in the direction of cooperation.To successfully do business in China and with the Chinese requires lots of patience, knowledge and appreciation of their business and social culture, as well as understanding of their moral values and traditional views. In this paper we will try to present the starting kit for the beginners: some of the basic notions about Confucianism, collectivism, and concept s of face and guanxi.

Key words: Chinese mentality, Confucianism, face, guanxi, collectivism

1. INTRODUCTION

China - the most popular destination for business persons, no matter the field of work interest, and the most common country of origin of just about any product one can name. The so called "factory of the world" does not seem to give up, it has been moving ahead and growing for years at an impressive rate, and the mere fact makes it an obligatory destination for an increasing number of entrepreneurs coming from all over the world. China is an enormous country with diverse culture and an economy that is expanding at incredible rate. Therefore, the opportunities for doing business are great, but so are the drawbacks. The Chinese business culture is very different from Western business cultures and, in addition, it also differs from one Chinese region to another. Doing business with China and in China is certainly a time and resources demanding undertaking for any foreign individual or company.

Once a decision has been made to go to China, it is advisable to spend some time studying a few of basic aspects of Chinese culture, traditions, history, geography... This initiative will surely be appreciated by the Chinese business persons one will have to deal with. Such efforts may seem useless to foreigners used to quite different ways of doing business, but they are worthwhile since showing genuine interest in the host country, its people etc. certainly helps to make a good impression and proves one's intentions to establish long lasting relations, which can be a basis for a good start.

It is quite difficult for Westerners to fully understand the Chinese mentality, their moral values and traditional concepts. However, this is a must for those who wish to do business (preferably with success) in China. In this paper we will present briefly some basic notions about Confucianism, concepts of face and guanxi, and collectivism.

2. CONFUCIANISM

Confucius (K'ung Fu-tzu, lit. "Master Kong") was a philosopher who lived about 2,500 years ago, and whose teachings still shape the mentality of the Chinese people (although these ideas were officially banned by the Communists). Confucianism is not so much a religion as it is a code of social conduct. Its influence is so pervasive and omnipresent that Chinese people unconsciously function in a Confucian manner. The basic canons of Confucian thought are obedience to and respect for superiors and parents, duty to family, loyalty to friends, honesty, humility, sincerity and courtesy. These norms should be taken into serious consideration, given the fact that they are applied in the business world as well. Age and rank are respected in China, and young people are expected to obey their elders unquestioningly. In the workplace, respect and status increase with age. Therefore, older foreign business people do have an advantage in this regard, and they are likely to receive more serious attention than younger people.

Some key concepts in Confucian thought

According to Confucius, the path to happiness for any society lies in the degree to which individuals understand and obey their given roles in the order of things. Individuals should not desire to change their place in the world and should not seek individual acknowledgment based on individual achievement; everything must be done with constant consideration for how it impacts others and the correct/imposed order of things.

A distinction between people should be made always, everyone must know at all times who is the younger and who is the elder, who is the guest and who is the host and so on. This means that every person must know his/her duty relative to others and what he/she can expect from them. Everyone is assigned a defined place in society as well as a set of behaviors related to that place. People are divided into categories, and a hierarchical structure of relationships is built within the group. Confucius's teachings comfort and reassure those who follow them, make their lives more complete and their sufferings bearable. An interesting thing is that religions in Chinese culture are not mutually exclusive entities; one can be a Taoist, Christian, Muslim, Shintoist or Buddhist and still profess Confucianist beliefs.

Xiào (filial piety, "of a son") is considered among the greatest virtues and has to be shown towards both the living and the dead. This term denotes the respect and obedience that a son should show to his parents, especially to his father. It is important to mention it because this relationship was extended by analogy to a series of five relationships: those between father and son, ruler and subject, husband and wife, elder brother and younger brother, and between friends. Specific duties are prescribed for each of the participants in these sets of relationships. Such duties, being also extended to the dead, led to the veneration of ancestors.

Humaneness (*Rén*) is another great virtue that can best be translated as human heartedness. Confucius's moral system is also based upon empathy and understanding of others. Virtue is based upon harmony with others. The famous Golden Rule instructs that a person should not do to others what he/she does not want done to him/herself and that one's inferiors must be treated just as one would want to be treated by the own superiors.

Confucius used the family as a basis for an ideal government and insisted on strong familial loyalty. One's first duty is to the welfare of one's family and working family members often pool their financial resources. In many ways, Chinese view themselves more as parts of the family unit than as free individuals. Confucianism honors humility and courtesy. Chinese are seldom excessively boastful or self-satisfied, even if their accomplishments are impressive or praiseworthy. The word individualism has a decidedly negative connotation in the Chinese language, and people can create enemies simply by standing out of the crowd. To function as an individual is to invite criticism of being selfish and opportunistic. Communist rule and Confucianism have homogenized

Chinese culture and slowed development of new inventions and new ways of thinking. Unquestioning acceptance of the *status quo* used to be the norm - this seems to be slowly changing nowadays. People in China do desire change, improved living conditions, better quality of life in general. They look to the West for new ideas, particularly regarding technology, business, management, as primary objectives. Together with them come other things too: persons exposed to a different environment (whatever happens to be the reason) are also exposed to a culture different from their own, to new points of view, to different value systems, etc. Consequently, people think about these new things and make comparisons; some small and imperceptible changes of the own ideas may slowly begin to take place in their minds. Nevertheless, we can expect the basic social structure to remain the same regardless of economic or even political change.

3. FACE

Chinese mentality cannot be fully understood without a comprehension of the concept of face. Face refers to two separate though related concepts: *lian* (the confidence of society in a person's moral character) and *mianzi* (represents social perceptions of a person's status). The Chinese and Asian concept of face is a cultural phenomenon quite different from what the Western people are used to in their own culture. It can be described as "personal dignity" or "public respect" that a person has in the eyes of his/her peers. Chinese are highly sensitive when it comes to face: to have and maintain face in all aspects of social and business life is a categorical must. Anything said or done which causes someone to lose face in the eyes of those around them is a very serious issue from which recovery of the relationship is very difficult (at times impossible) and which could result in ruined business prospects.

If one does or says something which causes a business associate to lose face, it is a double-edged sword: both persons involved lose face and this inevitably affects all future business dealings with anyone who has witnessed the event. Such a situation can occur everywhere, not necessarily during business meetings. For instance, if one is having tea with a business associate and one says or does something which causes the waiter/waitress in the restaurant to lose face, then he/she may lose face is the eyes of his/her business associate also. Paying attention all the time to all the face issues is not easy for the people coming from West but there is no alternative, it just has to be done.

Face can be given, lost, taken away, or earned

The easiest way to cause someone to lose face is to insult the individual or to criticize him or her severely in front of others. For example, Westerners can offend Chinese unintentionally by making good-natured jokes as they normally do with their friends back home. Another sure way to cause someone to lose face is to treat them as inferior when his/her official status in an organization is high. People must always be treated with proper respect. If not, both the "transgressor" and the "target" lose face for all others aware of the situation.

Face can be also be given by praising someone in front of peers or superiors or by thanking someone for doing a good job. Giving someone face earns respect and loyalty, and it should be done whenever the situation allows it, only very carefully, since exaggeration can be dangerous. Excessive praise may offend their collectivist culture or jeopardize their relationship with their superiors (the latter risk to lose face if their subordinates are praised too much). However, a person who praises others too much may appear to be insincere, so caution is required here as well.

It is also possible to save someone's face by helping him/her to avoid an embarrassing situation. The person whose face is saved will not forget the favor, and will remember to do something in return when the time comes. It is an important non-written rule. A person can lose face also by not living up to other's expectations, by failing to keep a promise, or by behaving dishonestly. In business interactions, a person's face is not only his own, but that of the entire organization that he represents.

In order to avoid losing face a foreigner should always be aware of the implications of what he/she says and does at all times: he/she should think twice before saying something, should listen carefully (lack of attention means disrespect). The key rule is: treat everyone with respect all the time. Let us add that face saving is not an issue regarding merely the Chinese, it is important absolutely everywhere, it is only a matter of degree and nuance. For example, in the same situation a European might feel a bit guilty, but a Chinese might feel ashamed or humiliated; or what a Westerner understands as constructive criticism, for a Chinese could represent a serious offense and hurt his/her pride. Also, saving somebody else's face as it is done in Chinese culture is more foreign to the Western concept of face (we care more about our own face without worrying too much what happens to somebody else's).

4. GUANXI

Gūanxì (literally translated as "relationship"), is a one of the central concepts in Chinese society and describes a personal connection between two people in which one is able to prevail upon another to perform a favor or service. The two people do not have to be of equal social status. The term is generally not used to describe relationships within a family, and is also generally not used to describe relationships which are defined by bureaucratic norms (i.e. a boss and an office worker; a teacher and a student). The relationships formed by *guanxi* are personal and not transferable.

Guanxi has been extensively studied and described in studies of Chinese economic and political behavior, and sociologists have linked it with the concept of social capital. When a *guanxi* network violates bureaucratic norms, it can lead to corruption. *Guanxi* can also form the basis of patron-client relations.

Guanxi presents the key element of doing business in China, Taiwan and Hong Kong. As it has already been mentioned, little or no distinction is made between business and personal relationships. The person who wishes to succeed in China must cultivate close personal ties with business associates and must earn their respect and trust. Attempts to establish long term businesses in the country have often failed because foreigners did not recognize that business relationships were also very much personal relationships.

In order to get things done in China one needs to know people. This means that those who do not have *guanxi* do not have anything. Any successful person in China is a member of a loose network of personal friends, friends of friends, former classmates, relatives, associates with shared interests, and so on. These people do favors for one another and always seek a rough balance between help given and help received. The importance of *guanxi* has its roots in the traditional concept of family. For the Chinese, individuals are parts of the collective family whole. The family is the source of identity, protection, and strength. In the difficult times (wars, social chaos etc.), the Chinese family structure was a bastion against the brutal outside world, in which no one and nothing could be trusted. As a result, trust and co-operation were reserved for family members and extremely close friends.

The tradition of personal connections is as strong as ever. To be accepted into a network of personal or business relationships in China is an honor for foreigners. In the new business environment of China, executives and entrepreneurs work constantly to maintain and expand their networks of connections. Networks extend to other companies and individuals, to Hong Kong, Taiwan, and even abroad to Europe, the U.S.A. and Southeast Asia. Although it is done for mutual financial profit, the criteria are the same as for personal networks: trustworthiness and loyalty. Unlike many other societies, Chinese tend to see social relations in terms of networks rather than boxes. Therefore, people are perceived as being "near" or "far" rather than "in" or "out". Personal obligations and the degree to which individuals promote such obligations present the driving force in Chinese daily life even nowadays. Working in China today still requires recognition of *guanxi*'s

power. For example, gifts are given as a token of respect and to allow individuals to build obligations between themselves and others who can assist them in China's business and social world.

5. COLLECTIVISM

About eighty percent of the Chinese population inhabit rural areas. For the majority of them life is a difficult daily struggle against the poverty. Eternal, it seems. Such harsh and merciless conditions reigning since the oldest days have induced the people to learn to live together in an everlasting state of inter-dependence in order to survive. As we know, Confucianism (respect for seniority, obedience to authority etc.), Buddhism (denies the individual ego; fortune, social position, family, body, and mind are only momentary manifestations of life) and Taoism (all beings and things are fundamentally one) presented a very firm foundation for Chinese collective ethics and behavior.

After 1949, the Communist party introduced another collectivism (political) to the already existing traditional one. Both of them had their own continuation and transition in these nearly sixty years, constantly interfering with and penetrating each other. In recent years, with the expansion of the market economy and the weakening of central planning, Chinese collectivism is facing new challenges. Chinese cultural and political collectivism both have a hierarchical structure and appear vertical. The majority of Chinese accepted the new Communist rule, just like they used to obey to other authorities in the past.

However, in spite of all the changes which occurred over the years, collectivism on the political level maintained certain continuity. Since market economy may put ideas of individualism into people's heads, the Party continued to advocate socialist collective morals in the same aggressive way. Nevertheless, individualism is becoming very popular, especially with the younger generations (Chinese are very much impressed by wealth in general), which represents one of the new challenges in recent years. An "alarming" example is that the children are no longer taught to share with others, on the contrary, selfishness is encouraged. Such a strong individualist tendency in contemporary China (so far from Lei Feng's famous words "A person's life is limited, but serving people is unlimited, and I am willing to devote my limited life to unlimited service for the people") might have several causes: transition to a (capitalist) market economy (profit oriented); numerous cultural exchanges with the West (the government sent a great number of students abroad who brought home not only the expected technology and science, but also various ideas, values, ways of thinking, etc.); the power of the mass media including the internet (notwithstanding censorship); and the one-child policy (children becoming "little emperors" in their families). In addition, a great number of foreigners (business people, intellectuals, educators, politicians, tourists) on Chinese soil certainly contribute to the increase of individualism. Some of the above may not apply to the entire country, but could be more characteristic of the parts of China where business is done more extensively (the more developed parts that are very different from those non developed ones) and where ties and exchanges with the West are strong and frequent.

6. CLOSING REMARKS

Cross-cultural issues exist everywhere, in every aspect of our lives and at all times. We "cross cultures" with every person we come into contact with, no matter to which culture he or she belongs. Within the business context, cross cultural communication refers to interpersonal communication and interaction across different cultures, and has become a *sine qua non* in the age of globalization and internationalization.

Becoming conscious of cultural differences and exploring cultural similarities help communicate with people belonging to cultures different from our own. We should first try to think about the ways in which culture shapes our own thinking and doing, and then try to see the world from the

other people's standpoints. In order to be really successful cross-culturally it is not enough to know what the culture of our business partners is, what matters more is why it is like that. Once we find that out, we will have more chances to understand why they do things in certain way (and not in some other), and "walk in their shoes". Concentrating on similarities rather than getting trapped in the differences makes life a lot easier, saves time and energy that otherwise would be wasted in trying to "solve" things that cannot (and should not) be solved.

When China decided to finally start opening doors to the rest of the world it was well aware of the great need to create an investment environment which would encourage the necessary foreign capital, technologies, and production capabilities that would then permit the country to raise living standards and transform its economy. China's desperate need for capital and economic development met with foreign firms' operating needs. In order to survive and resurrect, China was forced to begin with important economic and social reforms which would, along with increased exposure to foreign cultures, initiate a slow inexorable cultural change. Although it is premature to speak about real, specific and profound changes in the culture of China, one thing is certain. The awaken dragon is still raising. However, despite the fact that some traditional values seem to be getting lost (society taking care of its members; difficult to speak about honesty when so much crime and corruption is going on), some others are still very much alive and apply a great deal to doing business (the importance of face issues and personal relations, respect for age and hierarchical status, group orientation, etc). We should also mention generational change and increasing exposure to global media as factors that are contributing to change of some aspects of Chinese culture. Another interesting phenomenon is witnessed: tourism. The Chinese have been going abroad intensively in the recent years and the trend is expected to bloom (the favorite destination: Europe). And vice versa, it seems like the entire world is extremely curious to explore on the spot the great Chinese civilization. Traveling and getting in touch with other persons and their cultures enrich people in various ways, make them think over about many things which can contribute to some small alterations regarding their viewpoint, for example; it is a two-way street that leaves traces in all the persons involved. And the real changes are said to begin in the heads of individuals, then to slowly enter the society.

To really understand the culture requires an understanding WHY the culture is the way it is and this, particularly for China, involves a deep study of the history of China and its people. However, the country is changing, but how and how fast? And how can we preempt these changes in order to be successful in business there. Additional and more detailed research is needed in order to find out about the changes that are happening in the Chinese society and their possible impact on China and the world in the future.

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STATE OF IMPLEMENTATION OF CORPORATIVE GOVERNANCE PRINCIPLES IN COMPANIES IN THE REPUBLIC OF SRPSKA

Igor Todorović, MSc*
University of Banja Luka, Faculty of Economics, Senior assistant
igor.todorovic@efbl.org
Branka Zolak-Poljašević
University of Banja Luka, Faculty of Economics, Assistant
branka.poljasevic@efbl.org
Siniša Rakita
University of Banja Luka, Faculty of Economics, Head of student administration
sinisa.rakita@efbl.org

ABSTRACT

Corporate governance is about the way in which boards oversee the running of a company by its managers, and how board members are in turn accountable to shareholders and the company. This has implications for company behaviour towards employees, shareholders, customers and banks. Good corporate governance plays a vital role in underpinning the integrity and efficiency of financial markets. Poor corporate governance weakens a company's potential and at worst can pave the way for financial difficulties and even fraud. Companies that insist on the highest standards of governance reduce many risks. Such companies are able to attract investors whose investments could help finance further growth and development. The study will assess the situation of implementation of principles of corporate governance in companies in the Republic of Srpska. Results of implementation of the principles of corporate governance in companies in the Republic of Srpska will be presented using Scorecard analysis for evaluation of the implementation of (good) practices and principles of corporate governance in a sample of 19 companies which are listed on the Official market of the Banja Luka Stock Exchange.

Key words: Corporate governance principles, Scorecard analysis, Implementation of corporate governance principals, The Republic of Srpska

INTRODUCTION

Corporate governance is a key element for improvement of investors' confidence, increase of competitiveness and improvement of economic growth. Corporate governance is on the top of agenda for international development as stated by James Wolfensohn that "the governance of the corporation is now as important in the world economy as the government of countries" (Wolfensohn, 1998).

Good corporate governance can help to prevent corporate scandals, fraud, and potential civil and criminal liability of companies. Good corporate governance enhances image and reputation of a company and makes it more attractive to investors, suppliers, customers and other stakeholders of the company. There is evidence from many researches that good corporate governance produces direct economic benefit to the company, making it more profitable and competitive.

Research problem of this paper is determining the level of implementation of corporate governance in the Republic of Srpska. For investors one of the most important aspects when making an investment decision is level of implementation of corporate governance principles, transparency (that is public disclosure of information), as well as protection of shareholder rights and equal treatment of shareholders.

The paper will describe importance of implementation OECD principles of corporate governance, while level of implementation of corporate governance in companies from the Republic of Srpska was determined using Scorecard analysis for evaluation of the implementation of (good) practices and principles of corporate governance developed by the Banja Luka Stock Exchange with the assistance of the International Finance Corporation (IFC). Research was done on a sample of 19 companies which were listed on the official market of the Banja Luka Stock Exchange.

Starting assumption of the paper was that companies from the Republic of Srpska had a low level of implementation and compliance with principles of corporate governance and therefore would have lower performance and poor relationship with investors.

THEORETICAL ASPECTS OF CORPORATE GOVERNANCE

Work on corporate governance has been done for many years, but mostly by the Organization for Economic Co-operation and Development (OECD). The OECD gathers representatives of 34 member countries as well as other countries which are engaged into the OECD work. Together these countries make around 90 per cent world market capitalization. Their governments have interest to work in best interest of their citizens, to ensure good practice of corporate governance as a vital element in promotion of prosperity and economic growth. The OECD has published Principles for corporate governance in 1999, which are first international code of good corporate governance approved by governments. The OECD Principles focus on publicly traded companies, both financial and non-financial, and have a goal to help governments in their efforts to evaluate and improve the legal, institutional and regulatory framework for corporate governance. They also provide guidance and suggestions for stock exchanges, investors, corporations, and other parties that have a role in the process of developing good corporate governance.

The OECD Principles of corporate governance are comprised of six main principles (OECD, 2004):

I) Ensuring the basis for an effective corporate governance framework;
II) The rights of shareholders and key ownership functions;
III) The equitable treatment of shareholders;
IV) The role of stakeholders;
V) Disclosure and transparency; and
VI) The responsibilities of the board.

Arrangements, implications and responsible institutions for corporate governance vary from country to country, and experience from developed and transition countries shows that there is no universal framework for all markets. Therefore the Principles are non-binding or obligatory, but voluntary in form of recommendations, so every country can adapt and implement them in accordance with specific circumstances of individual countries and regions, that is to individual tradition and market conditions. From 1999 they are widely recognised and accepted as a benchmark for good practice of corporate governance. They are used as one of the 12 Key Standards for Sound Financial Systems by the Financial Stability Forum for ensures of international financial stability, and by World Bank in they work on improvement of corporate governance in developing countries.

In last few years corporate governance has become subject of the large interest in theory, as well as in practice. Parker stated that “corporate governance has commanded the highest levels of attention and debate among legislators, regulators, professions, business bodies, media and in the general community” (Parker, 2007:1). Despite existence of many different approaches and definition of corporate governance, it can be broadly defined as “basically the system by which companies are directed and controlled” (Cadbury, 1992). Structure of corporate governance determines distribution of rights and responsibilities between various actors in company, such as boards, managers, shareholders and other stakeholders, and lays rules and procedures for making corporate decisions. This way, it provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined (OECD, 2004).

As said earlier, most basic and widely used definition of corporate governance is given by Sir Cadbury by whom "corporate governance is the system by which companies are directed and controlled" (Cadbury, 1992). More accurately, it is the framework by which interest of various stakeholders are balanced, or as stated by the International Financial Organization (IFC) it „concerns the relationships among the management, Board of Directors, controlling shareholders, minority shareholders and other stakeholders"(IFC, 2005). The Organisation for Economic Co-operation and Development (OECD) also defines corporate governance in its Principles of corporate governance „corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined "(OECD, 2004).

Implementation and compliance with principles of corporate governance in companies has certain costs, but also has certain benefits. Good corporate governance can be implemented cost-effectively by focusing efforts on important risks which are facing organisation, rather than attempting to cover all possible risks, by implementing best effective practice into organisation. Resources must be concentrated into areas with largest potential benefits, such as improvement of corporate culture and implementation of efficient functioning of internal controls. Creation of ethical and regulatory culture in company provides largest potential benefit for company in comparison with relative low costs for implementation of such culture. Advantages of good corporate governance, such as avoidance of investigations, suits, as well as damages to company's reputation and image, should largely outbalance costs of good corporate governance.

Advantages of good corporate governance are long term, but costs of good corporate governance arise in short term, that is upon implementation. Executives who are focused on short term results can only see costs, but not benefits of good corporate governance. Therefore, management tends to be sceptical in achievement of these costs and tends to do nothing more than is required by law.

Good corporate governance plays a key role in enhancing integrity and efficiency of companies, as well as financial markets in which company operates. Poor corporate governance weakens company's potential and in worst case can open the way for financial difficulties and frauds. Companies which follow the best practice of corporate governance usually raise capital easier and by lower price and in long term are more profitable and competitive than companies that have poor corporate governance. Companies that insist on the highest standards of governance reduce many risks that arise from daily operations. Such companies are able, by better performance and returns, to attract investors whose investments could help finance further growth and development.

SCORECARD ANALISIS FOR CORPORATE GOVERNANCE

The Scorecard for the Standards of governance of Joint Stock Companies (The Banja Luka Stock Exchange, 2009) was developed by the Banja Luka Stock Exchange with the assistance of the International Finance Corporation (IFC) based on the model of the Scorecard for German corporate governance (DVFA Corporate Governance Working Group, 2002).

The purpose of the development of the scorecard is to facilitate the work of analysts and investors by providing a systematic and simple overview of all relevant issues with regard to good corporate governance, enable companies to easily determine the scope and quality of own corporate governance and enable comparison with other companies, industries and countries.

The structure of the Scorecard analysis contains the main criteria which are included in the standards and recommendation of best practice of corporate governance, with the relevant set of questions for each area.

The structure of the Scorecard analysis consists of seven areas:

1. Commitment to corporate governance principles;
2. Rights of shareholders;

3. Equal treatment of shareholders;
4. Role of stakeholders in governance of joint stock companies;
5. Publishing and transparency of information;
6. Role and responsibility of the boards; and
7. Audit and internal control system.

These seven areas of the Scorecard analysis are comprised of 42 questions on which every tested company should give an answer (yes, partially or no).

Conceptually, the evaluation of the implementation of the principles of corporate governance should have the score between 65% - 75%, which is possible by the implementation of mandatory principles of corporate governance defined in the Standards of Governance of Joint Stock Companies, i.e. in the legal framework of the capital market of the Republic of Srpska. Achieving the total score of 100% should be an incentive for companies to implement higher principles of corporate governance (Strenger, 2002).

STATE OF IMPLEMENTATION OF CORPORATE GOVERNANCE PRINCIPLES IN COMPANIES FROM THE REPUBLIC OF SRPSKA

Results of implementation of corporate governance principles in companies from the Republic of Srpska determined using Scorecard analysis are shown in Figure 1.

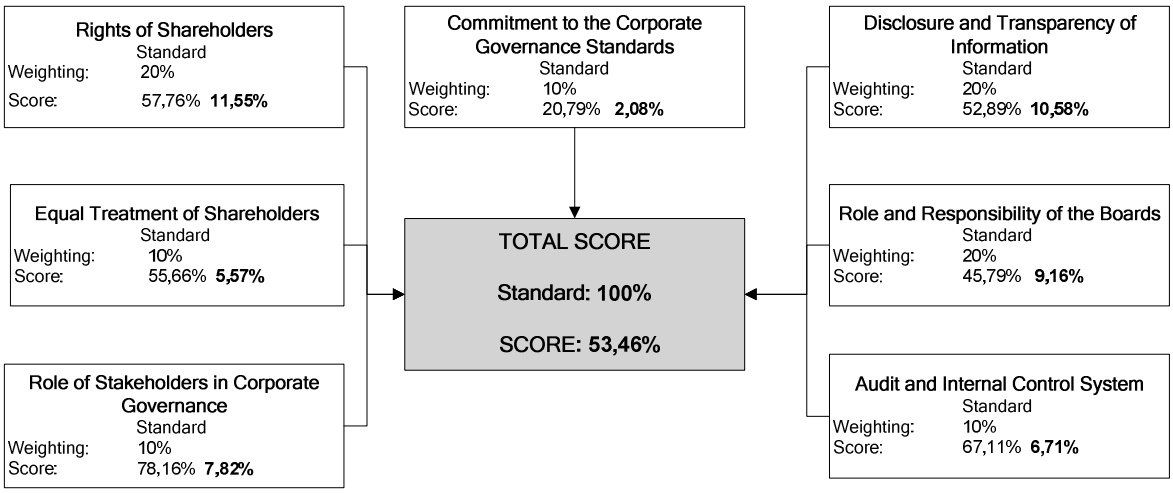

Figure 1. Results of Scorecard analysis for evaluation of the implementation of practices and principles of corporate governance for companies in the Republic of Srpska (Source: The author's research)

Total score of the implementation of practices and principles of corporate governance for companies in the Republic of Srpska is 53.46% which shows that implementation of principles of corporate governance in these companies are not on satisfactory level, taking into account that companies that apply basic principles of corporate governance should have the score between 65% - 75%. Particularly low level is showed in commitment to the corporate governance standards, role and responsibility of boards, disclosure and transparency of information and rights and treatment of shareholders.

Results show that score for commitment to the corporate governance standards is 20.79% which is lowest score in analysis. Only one of 19 analysed companies has adopted corporate governance code. Therefore, companies have not shown willingness to promote good corporate governance and implement corporate governance principles intro their business activities and decision making.

Low result has also been indentified for role and responsibilities of the boards, which score is 45.79%. Efficient, professional and independent management board is important for good corporate governance. Management board has to work in best interest of company and its shareholders. It determines company's strategy, protects shareholders rights and monitors executive boards and financial

performance of company. Management board has to insure that professional management in companies with dispersed ownership works in the best interest of owners, not in its own interest (principal-agent problem).

Problems which are indentified in this area are: lack of independent members, board members remunerations were not associated with company performances, procedures for appointment of board members and board members training.

Score of 52.86% for transparency and disclosure of information is not satisfactory. With further analysis of web pages of analysed companies it was determined that very little information regarding the corporate governance of companies was disclosed. Companies should, on their web pages, disclose further information and document: founding act and all its changes and annexes, annual reports with financial statements, external auditor's report, information about important decisions and events, information about shareholder assembly meetings and important management board decisions. However, regarding earlier researches in this area largest improvement was made. Companies disclose certain information about corporate governance on the Banja Luka Stock Exchange web page, but rarely that same information disclose on their web pages which presents the largest problem in this area.

Score of 55.66% for equal treatment of shareholders is not satisfactory, which shows that large shareholders can independently make business decisions and therefore there is a threat of exploitation of minority shareholders. It is important to further strengthen minority shareholders position and internal governance, more precise regulate conflicts of interest, and more detailed and timely inform shareholders about the companies operations and performance.

Score of 57.76% for rights of shareholders is also not satisfactory. Protection of shareholders rights is key element of corporate governance and is of particular importance for companies and investors which consider possibility of investment in company. Research has determined that none of the companies has corporate calendar. None of the companies has adopted dividend policy and few companies distribute dividends. This shows that availability of information in analysed companies is not satisfactory and therefore there is a possibility of exploitation of minority shareholders rights.

These results indicate that state of corporate governance in companies from the Republic of Srpska is not satisfactory, and that implementation and compliance with principles of corporate governance is still in primary stage. Low level of implementation and compliance with principles of corporate governance increases business risks, lowers completeness of company and increases investment risks for potential investors.

There are many segments which should improve to reach satisfactory level of corporate governance, lower business risks, attract new investors and raise capital at lower price.

CONCLUSION

Corporate governance has become one of the main and most important factors for domestic and foreign investors when making investment decisions and strategies. Good corporate governance ensures fair business environment, transparency, protection of shareholders and investors, as well as that companies are hold accountable for their actions due to which it becomes the key factor for all investors.

Potential benefits of implementation of corporate governance principles concern: improvement of operational efficiencies of company, easier access to capital market, lower price of capital, formation of positive environment for domestic and foreign investments, better company's reputation, as well as acquiring competitive advantage.

Total score of the implementation of practices and principles of corporate governance for companies in the Republic of Srpska which are listed on the Official market of the Banja Luka

Stock Exchange is 53.46%. This shows that implementation of principles of corporate governance in these companies are not on satisfactory level, taking into account that companies that apply basic principles of corporate governance should have the score between 65% - 75%. Particularly low level is showed in commitment to the corporate governance standards which score is 20.79%, companies do not have adopted corporate governance code.

Implementation and compliance with principles of corporate governance in companies from the Republic of Srpska is not on satisfactory level and is still in primary stages. One of the main barriers for implementation of principles of corporate governance by companies in the Republic of Srpska is seeing corporate governance as a good will and not as an essential part of responsible business practice. They view corporate governance only through cost of implementation. Moreover, companies do not understand positive influences which corporate governance can have on company's performance, especially on relations with investors.

Therefore, companies in the Republic of Srpska must implement corporate governance principles and standards in their strategy and decision making process by implementation of the Code of corporate governance. Responsible institution of capital market should draw attention of companies to potential benefits and advantages of implementation and compliance of corporate governance, as well as give them support for implementation of corporate governance.

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THE PUBLIC HEALTH INSTITUTE'S NEED FOR CONTEMPORARY TENDENCIES IN OUTSOURCING

Milena Djurovic*
University of Belgrade, Faculty of Organizational Sciences, Jove Ilica 154, Belgrade
djurovicmilena86@gmail.com
Sanja Milosevic
University of Belgrade, Faculty of Organizational Sciences, Jove Ilica 154, Belgrade
sanjadmilosevic@gmail.com
Marija Kuzmanovic
University of Belgrade, Faculty of Organizational Sciences, Jove Ilica 154, Belgrade
mari@fon.rs

ABSTRACT

This study indicates the growing need of organizations to carry out some of their activities that they can not perform themselves. For this purpose they are seeking for a help from a company that is specialized in those necessary activities. Many worldwide health care institutions must consider for which part of business is the best to use outsourcing. Primer aim of this study was to show how important outsourcing is, on the example of The Institute for Public Health in Zajecar. The Institute for Public Health is responsible for the maintenance and improvement of public health. The very fact that outsourcing is increasingly present in all business areas shows that it is a profitable activity and that contributes to the richness of society and social progress. Therefore, based on detail studies, The Institute for Public Health in Zajecar, defined activities that could not perform itself, so it was necessary to engage some other organization. These outsourcing activities are chemical and bacteriological analysis, as well as sanitary services. Besides receiving outsourcing services The Institute also provided services to The Health Center, City Hospital and to The Water Supply Company.

Key words: Outsourcing, The Institute of Public Health in Zajecar and The Health Center

1. INTRODUCTION

The current economic crisis has forced the governments of the world, and also the companies, to maximally rationalize operations. The need for cost reduction, without it reflecting on business results, makes outsourcing one of the ways in which achieving this goal is possible.

Outsourcing is a process of transferring the responsibility for a specific business function from an employee group to a non-employee group. Outsourcing is an increasingly important initiative being pursued by organizations to improve efficiency (Vining and Globerman, 1999). To be able to survive and be profitable in current globalization era, companies tend to use outsourcing in larger extent (Brannemo, 2006). In today's business environment, companies considered outsourcing to empower business focus, mitigate risks, build sustainable competitive advantage, extend technical capabilities and free resources for core business purposes (Bartell, 1998).

Outsourcing decisions may affect company's cost structures, long-term competitive situation and can also alter the nature of risks that the company must manage (Brannemo, 2006). Outsourcing is an important business process that is used by the most successful multinational companies who intended to respond the growing market demands. By using this kind of business policy they could achieve business success in a ruthless competitive environment. Companies are increasingly faced with the dilemma of whether to delegate some business duties or not, which is not an easy decision. Each company is unique for itself, so what is a right solution to one company, can be a bad one for another and can result in irreversible loss. Applying of outsourcing as well as suggestions for improvement of the implementation

of this process are described on the example of The Institute of Public Health in Zajecar. This study is organized as follows: The first part is concentrated on the concept of outsourcing and its key activities. It reveals both positive and negative sides of this business process. The topic was completed with the concrete example related to The Institute for Public Health in Zajecar.

2. OUTSOURCING

Companies often hire the other specialized firms to work on their whole business activities or on just a part of them. Because of that the main company decreases activities that do not belong to its core competencies, so it can focus on better performance of its key processes.
However, the transfer of certain operations to the perpetrators is a complex and serious issue, so there are many reasons why every company should consider outsourcing as a way of unburdening the business process.
Therefore, the main reasons why companies decide on outsourcing are: (Bendor-Samuel, 2000)

1. Cost savings,
2. Focusing on core activities and core competence,
3. Increasing the level of quality on which the service is performed,
   3.1 Increase quality of service,
   3.2 Increase of business effect or increasing the quality of service that the customer feels,
   3.3 Increase of strategic effect.

The benefits of outsourcing can be observed at the macro and micro level. Regardless of the level, lower costs and higher quality of services or products are the main benefits of outsourcing. Therefore, companies are having dilemma if they should burden management with business of secondary importance, or to delegate this responsibility. Both of these options has its advantages and disadvantages.
Outsourcing key activities are: (Alexander, Marcus and David Young, 1996)

1. Standard activities that are traditionally managed within the company,
2. Activities that are critical to business operations,
3. Activities that are the source of actual or potential competitive advantage,
4. Activities that are the source of future growth, innovation or rejuvenation of the companies.

One of the questions is where Serbia is on the outsourcing market? Since the nineties outsourcing has been used on the territory of Serbia, although it is far from the position that the use of outsourcing services can be transformed to important foreign trade business. Today's environment which is categorized with constant changes and permanently need for increasing knowledge, flexibility and responsiveness, force companies to change the traditional paradigm in which the ownership of production factors was the best way to achieve competitive advantage. Outsourcing concept, which involves the relocation of resources and activities outside of the company and their performance by the service provider, presents a direct challenge to centuries of tradition and experience.
In addition to the many benefits that outsourcing offers to companies, it brings some disadvantages (see Table 1).

Table 1: Disadvantages of outsourcing

Lack of managerial control	It is harder to manage outsourcing companies than with your own staff. There is a possibility of hidden or open resistance by the employees that will affect outsourcing decisions. There is a risk of losing control over costs and quality of service if the outsourcing arrangement is not properly managed.
Termination of the outsourcing company and the uncertainty of the outcome of outsourcing arrangements	If outsourcing company fall into bankruptcy, the company would need to quickly make the transition to another company or to handle the job alone. This can be a big problem when a company becomes totally dependent on outsourcing company, or loses its knowledge and most of the information networks
Outsourcing services can be expensive	Sometimes it's cheaper to keep a job within the company
Data Security	There is likely to be abuse of strictly confidential information
Lack of motivation for outsourcing company	As a result it may happen that the job be poorly done or that the time limit has not been accomplished

Outsourcing application fields

The very fact that outsourcing is increasingly present in all areas of business shows that it is a profitable activity and that contributes to the richness of society and social progress. Business areas that are

usually being outsourced are: information technology, human resources, accounting, customer service, manufacturing, engineering and health. Outsourcing application fields are wide, and health is considered to be one of the most dynamic areas of outsourcing.
The starting point during deciding about outsourcing refers to the process of research and analysis of the collected data. Outsourcing can be applied wholly or partially, whether it comes to nanotechnology research or researches in field of genetics. These are mostly large research projects that are divided into smaller sub-projects or tasks. Using the competitive advantages around the world, one large project is being completed.
Data analysis includes allocation of necessary information from large amount of collected data. The result of this process is development of new trends and it is essential, whether it comes to banking transactions, sales or even research relevant to the field of medicine. Huge number of qualitative and quantitative data depends on the processing, as well as their own analysis. Data from different fields should be first collected, and then analyzed in order to predict trend changes.

3. HEALTH CARE

Health care is considered as the most dynamic area of outsourcing. The subject of outsourcing may be medical certificates, bills, and even physical transport of patients to another country for treatment. This also involves sending materials to remote, but compatible countries for further investigation. Two large areas of outsourcing that belong to the biological area are bioinformatics and biotechnology.

The Institute for Public Health in Zajecar

The Institute for Public Health is a health institution in charge of preservation and improvement of public health through participation and joint efforts with all relevant partners in creating and developing opportunities for the promotion of health, disease prevention and improved quality of life. Public health encompasses achieving public interest by creating conditions for the preservation of public health through organized comprehensive social activity aimed at preserving physical and mental health. Accordingly, The Institute for Public Health does the activities conducted in the field of management and coordination in health care, epidemiology and health information, health promotion and disease prevention, environmental health, and Microbiology and Parasitology.
The Institute for Public Health collaborates with other health institutions in the territory, and with relevant local government institutions, as well as with other institutions and organizations important for improving the public health. Organization of The Institutes for Public Health departments:
Departments and Institutes for Public Health in Serbia are divided on three levels:

1. The Republican-Institute for Public Health of Serbia "Dr Milan Jovanovic - Batut"
2. The Institute for Public Health who meet the conditions stipulated by the law on scientific-research activities and which are medical schools teaching base
3. The District Institute for Public Health, on which will be showed some of the outsourced activities

4. OUTSOURCING ACTIVITIES OF THE INSTITUTE FOR PUBLIC HEALTH

The Institute for Public Health is unable to perform chemical and bacteriological analyses, and it must engage another company.
The chemical analysis includes water and food analyses. This process examines presence of pesticides, mineral oils and fats, radioactivity, polycyclic aromatic hydrocarbons, polychlorinated biphenyls. This analysis is necessary to perform, so The Institute engages The Main Institute for Public Health of Belgrade and the Republic Institute for Public Health, Milan Jovanovic Batut. The reasons for this are:

1. There is a fifty per annum of this type of analysis (which is a very small number of samples),
2. Equipment is expensive (several tens of thousands of Euros) and difficult to maintain
3. Complexity of technology means the presence of professional staff, which is a big cost to the department because employees need additional training.

Bacteriological analysis explores the clinical material. This material is sent to a reference laboratory, which confirms the quality and safety of services provided by the Institute. Interests in quality are regulated by legislation.

Another outsourcing activity is maintenance of sanitary services. This service includes inner and outer space sanitary maintenance. The Institute hires specialized companies for this purpose and their main activity is to provide this kind of service according to arrangement. The Institute of Public Health in Zajecar, with this innovation has managed to achieve a several number of advantages:

1. Labor costs reduced and reduced number of workers who have been hired for this type of job (from 4 to 2 people)
2. Avoided overload of capacity and achieved time savings that was spent on the planning of sick leave, paid holidays, insurance of workers, etc.
3. Reduced fee spends for work performed, including various allowances to salary,
4. Reduced social costs that are related to investments in the entire social part of one organization and its other parts (cost of pension and health insurance, the cost of food in the office, the cost of transport on arrival and departure from work, etc.)
5. Outsourcing the activities such as hygiene maintenance, The Institute of Public Health focused on their core competence
6. Achieved a very satisfactory level of hygiene maintenance, due to the professionalism of the company hired for this purpose

The Institute for Public Health in Zajecar, besides receiving services of outsourcing provides the following services to health center, hospital and water supply companies:

1. Health Center and City Hospital due to lack of their own laboratories use laboratory for required testing services of clinical material.
2. Water supply companies, whose main task is properly water supply, control and all the necessary analyses of water quality examine in The Institute.

Charging for this service, The Institute makes additional revenue.

5. CONCLUSION

Globalization brought different changes in business, and one of them was outsourcing. This business activity is present all over the world and it will be used in the future as long as the participants in this kind of business receive benefit from it. During any kind of change there are those who profit from it and those who lose, but if this change brings progress in society then it needs to be accomplished.

On example of The Institute for Public Health, we pointed to an existing application of outsourcing, and the reasons for choosing this business alternative. Our proposals for future activities in the field of outsourcing are:

1. Hiring agency for equipment maintenance (computers, machinery, equipment, microscopes, refrigerators and other appliances). In this way can be taken a concrete insight into the machine work which results with savings of time and allows the maximum commitment to the demands of patients.
2. Engagement of professional agencies for conferences and seminars in purpose of training personnel and staying in trends, witch also results in a maximum focus on core competence.

Companies are under pressure watching rapid development of technology and the increasing demands of the market. In order to maintain competitiveness on global markets companies turn to global sources. On the other hand countries that want to become the preferred outsourcing destinations have to specialize in what they do best and to become more competitive. Therefore, only those companies that can adapt the fastest can “survive”.

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CONTROLLING IN THE FUNCTION OF RESEARCH AND DEVELOPMENT MANAGEMENT

Vukasin Ilic*
Megatrend University, Faculty of Business economics Valjevo, Serbia
wuky10@gmail.com
Danijela D. Ruzicic
Megatrend University, Faculty of Business studies Belgrade, Serbia
danijela.ruzicic@yahoo.com

ABSTRACT

A large number of companies lack the information that will enable an efficient making of business decisions and running business successfully. Local experiences show that companies have not established an efficient way of managing which would be based on application of reliable and relevant information. Thus, it is of paramount importance, from the aspect of increasing efficiency and efficacy of all business processes and business segments that controlling and its systems be applied. In Serbia, the concept of controlling represents a relatively new notion in the professional literature and domestic subject management practice likewise. In the state of global competition and striving for accomplishing existential goals of companies, we are being faced with an increasingly greater necessity to apply controlling, its systems and instruments in research and development management. The central goal of this paper is to pinpoint the necessity and significance of the successful application of controlling and its instruments in research and development management.

Key words: controlling, management research and development, planing, finances

1. INTRODUCTION

In Serbia, controlling is still in the process of development and is applied in the practice of economic subjects. In the business practice, controlling is seldom applied, and even where it exists as an organizational unit, it is disputable in what way it is organized and which activities it pursues. A vast number of our economic subjects are not in possession of adequate controlling methods and instruments which may be conducive to the operational and strategic management. This means that even today, in appalling conditions our economy is in, every level of management bases their decisions upon intuition and guessing. However, wrong decisions are nowadays considered expensive and can severely jeopardize the overall business management and bring into question the basic goal of a company – which is its survival. Put simply, wrong decisions are out of the question when it comes to the contemporary management and running a company.

Operational and strategic planning, the analysis of the success rate, organizing the informational process and reporting to the management represent crucial prerequisites of the successful research and development management, besides running a company in the market economy. In the state of dynamic environment, the ever growing competition on the market, the presence of various sorts of risk that could negatively impact business, all impose the necessity to point out the significance of the process of controlling and its development to successfully running a business. As a process of expert support to the management in the process of making business decisions, controlling brings about more efficient coordination and integration of all business processes. In this way, controlling enables the establishment of the efficient process of obtaining information and reporting to the management and provides an adequate basis for the proper decision making process.

2. THE MISSION OF CONTROLLING IN THE FUNCTION OF RESEARCH AND DEVELOPMENT

Research and development management represents an important function of running a business, which has been lately pointing out to the necessity of the greater systematization and correlating the research and development and other activities that comprise running a business. The thing that is particularly pointed out is the connection of research and development with controlling. This approach enables the creation of an efficient system required for running an entire business. Firstly, we will consider basic definition of controlling. Thus, controlling entails an efficient system that provides information necessary for managing and making business decisions (Horvath, 1998.). On the other hand, controlling stands for a process of defining goals and monitoring every management process, that is to say, planning, supervision, and management, in addition to seeking responsibility for achieving goals. (International Group of Controlling, 2005.)

The chief goal of controlling is to continuously ameliorate business' performances. The tasks of controlling include the gathering and analysis of the data associated with the results of managing a business. Then, the data is sent in the form of report to the management, who make the business decisions taking the data into consideration. Thereby, controlling constitutes a function of management by which efficiency and management efficacy are increased, and with that, the ability to adapt both inside and outside a company. (Weber, 1995)

The most important tasks that belong to the field of controlling are (Eschenbach, 1998):

- Coordination of activity and cooperation in establishing realistic and attainable goals which depends on the evaluation of future strategies designed for achieving short-term and long-term goals,
- The implementation of the comprehensive and systematic planning, as a basis for goal achievement,
- Monitoring plan realization, identification of deviation from an in-depth analysis of inner and outside causes, as well as application of suitable measures for altering the working conditions,
- Coordination in all levels of management and
- The introduction of novel methods, instruments and tools for achieving greater rationalization, productivity and business profitability.

Taking into account that controlling is closely connected to management, it appears in all sorts of processes that are concerned with a business activity. This is how we differentiate between the top management controlling, the controlling on the level of organizational units and particular functions, the project controlling and others.(Lebefromm, 1997.)

The basic functions of controlling are (Horvath, 2006.):

1. Coordination,
2. Planning,
3. Managing
4. Supervision and
5. Gathering and processing of data.

Kinds of controlling and basic methods for its application

Depending on the management level we differentiate: operational and strategic controlling.

Operational controlling – The analysis of the business policy and operational decisions with which current managing is determined, i.e. managing during the business year, it breaks down to supervision and the analysis of deviation of the accomplished results in contrast to the planned ones. So, during evaluation, the annual financial budget(plan) broken down to months, weeks and the days of the week is used as an index. Each negative deviation from the plan is a clear sign that

it is necessary that causes and repercussions from the deviation be immediately determined and proper decisions made. This is also a task of operational controlling. If this is not the way it is done, this means that the operational decision making is not efficient. The quality of business decisions, overall, is best assessed based on accomplished business results and the success rate. On the operational management level, the basic strategies are familiar, already defined on management planning level. What is defined on this level are operational management rules, and their effects are supervised and assessed in real time. Operational management demands fundamentally different approaches, techniques and tools when compared to planning management. Making operational decisions entails the existence of the proper informational infrastructure and application of predetermined parts of informational technologies. If a system's strategy is familiar, operational decisions are based upon the simulation of managing actions and determining consolidation with the global strategies.

Strategic controlling - has got to be based upon incessant monitoring, supervision and analysis of the accomplishment of the strategic plan which represents a written document whose chief goal is a long-term orientation of a business system. In this way the management is proactively encouraged to defining, clarity, accomplishment, measurability, relevance, and deadlines – each individual dimensions of the strategic planning.

Application of controlling is based on the application of operational and strategic instruments (Osmanagic-Bedenik, N., 1998.) Strategic instruments are: the vision and mission, success factors, bad experience, lifespan, SWOT, strategic balance, portfolio, quality control, development analysis.
Operational instruments are: goals, expenses, investment calculations, deviation analysis, cause analysis, reporting, expense invoices, plans, programs, motivational and rewarding systems, management styles.

In practice, there are a vast number of tools, methods, and instruments that can be used both in operational and strategic marketing and those are: ABC analysis, Activity Based Costing, Balance Scorecard (BSC), Benchmarking, BCG Matrix, Break Even Point (BEP), Brainstorming, Brainwriting, Bridge**,** Controlership, Cost Benefit Analysis (CBA), Cost Waterfalls, Direct Costing, Du Pont analysis, Economic Value Added (EVA), Market Value Added (MVA), TSR –Total Sharehodler Return, CFROI - Cash Flow Return On Investment, Shareholder Value – SV, FGV - Future Growth Value, Shareholder Value Added, Life Time Cycle, Management by Objectives (MBO), Mind Maping, Pareto analysis, Rolling Forcast, Scoring modeli , SWOT analiza, financial analysis, Trend analysis, XYZ analysis.

Anticipated benefits of controlling implementation are (Osmanagic-Bedenik, 2004.):

- the advancement of management (strategic and operational),
- a more facilitated accomplishment of visions and goals of a society,
- successful financial management
- efficient planning and goal accomplishment
- an increase in ability to adapt, and environment demands and the future,
- faster development, integration and better exploitation of informational systems,
- better management with the human potential and career pursuit,
- integration and coordination of business units,
- smoother adaptation to change.

From the benefits of controlling listed above we may well see that controlling is implicated in virtually all business areas: management, finances, planning, flexibility of a society, informational system, the course of documentation and report, human potential, organization, hierarchy, etc. From this reason we can see a paramount significance of controlling in managing companies.

3. CONTROLLING AS A SUBSYSTEM OF RESEARCH AND DEVELOPMENT MANAGEMENT

Controlling cannot and must not be considered separated from the research and development management, nor can we generally say that there is a successful research and development process without the application of controlling. Controlling as a subsystem of research and development management highlights the necessity of their mutual interrelation and expert collaboration. Their common goal is to successfully and efficiently manage a company, but the ways by which this is realized are different. While the management's obligation is to define goals through operational and strategic planning, organizing, conducting, managing human resources and business supervision, controlling is on the other hand obliged to fulfill basic tasks by means of applying its methods and instruments, which includes:

1. providing transparency in all business areas,
2. providing high-quality business information, and
3. enabling perpetual business advancement and success rate.

By virtue of applying controlling, business information from all parts of managing (procurement, production, selling, marketing, accounting, finances, investments, etc.) become usable, measurable, and available to the management in the form of report. By means of controlling, it is possible to monitor and measure all processes continually. From this connection of research and development management and controlling stems the fact that it is these two very areas that the success and management development in all parts depend on.

3.1. Controlling as a function in a company

As the previous part of the text highlighted the mutual interrelation of controlling and management, we conclude that managers are users of information provided by controlling on all levels. Controlling achieves best results as the very part of the management, but now we come to an extremely essential question, which is, where does controlling belong, that is to say, where should it be positioned in the organizational structure of a company? It is well worth noting here that controlling has been developing out of functions of accounting and finances in developed countries. Later on, as it progressed in modern conditions, it institutionalized and became an individual function of management. However, it is fairly hard to compare the practice of developed countries around the globe and even harder to apply it immediately in Serbia. In our economic practice we should seek practical, applicable, and acceptable solutions which will enable controlling to take the place it belongs for quite some time. Accordingly, an acceptable solution in the initial development of applying controlling in our companies is its presence within the frames of individual business areas of a company, which in most cases are: accounting, finances, a plan and analysis.

3.2. Controlling and other business areas

Since controlling is often misinterpreted and falsely related to various business areas, it is necessary that differences and similarities be made among certain business areas. Controlling as a support to management is closely connected to various business areas of a company which is functionally complemented to all related organizational units.
This connection is related to the following areas:

1. Controlling and accounting
2. Controlling and finance
3. Supervision and control
4. Controlling and internal auditing
5. Controlling and business analysis

This connection refers to the next areas: Based on the given connection we can say that controlling is not accounting, finances, supervision, internal revision or analysis of business as it is commonly thought, but rather, all the aforementioned business areas are part of controlling and represent its

chief sources of information. In the next part of the text, the basic similarities of controlling and certain business areas are listed.

1. Controlling and accounting

Accounting is oriented to information from the past, that is to say, all the business events from the past with the goal of closer prediction, planning, and determining future activities. The company's accounting is the chief source of information for controlling since accounting notes all business changes and events in relation to the company's business. The chief goal of controlling is to shape the available data from accounting into usable information, both in terms of form and content, for the needs of the management's decision.

2. Controlling and finances

It is in the companies' finances that controlling is most widely applied. Starting from the fundamental principle of financial function, which is keeping the liquidity and long-term financial stability of a company, controlling in finances has the task to provide efficient managing of the financial policy through proper operational and strategic planning, budgeting the business, establishing an efficient system for measuring performances, monitoring, and overcoming financial risks, reporting, as well as consolidating activities of the financial function with activities of other business functions in order to attain determined goals of a company as a whole.

3. Controlling and control

Supervision as a phase in management is only a part of controlling. Supervision entails processing all the information from a company so as to determine whether there are deviations between observed figures, as well as the analysis of these deviations, whereas controlling is focused on the comprehensive and continuous support to the management, and is an important part of it. From all above, it is necessary to distinguish supervision from controlling, because supervision is just a single task of support to the management and primarily refers to overseeing whether all the activities have been carried out, whereas the task of controlling is taking certain remedial actions in case deviations are not in accordance with the already defined standards. The European literature on economics, especially that of Germany, joined by the English literature, defines the term 'supervision' with controlling for the sake of comparison with certain figures and processes. Prof. Frese, E. (Frese, 1968.), analyzing the function of control, pointed out that supervision should mean comparison between planned and realized values for information about results of economic influence.

4. Controlling and internal auditing

Controlling and internal auditing are functionally convergent. Some developed countries demand their rigid distinction, in other words, the necessity for the institutionalized independency. For instance, in the USA revision is a part of controlling, whereas in Germany it is insisted that these two be completely separated. The basic purpose and goal of revision is to increase objectivity and reality of information about managing a company, whereas on the other hand, the basic purpose of controlling is to increase the success rate and the faster adaptation to internal and external changes in the environment. Accomplishing revision's tasks contributes to the success of controlling and vice versa.

5. Controlling and a business analysis

The basic principle of applying controlling and a business analysis is the business analysis which is realized by means of various methods and indexes. The subject of analysis is running a company observed from different aspects of the success rate. The analysis alone is realized by employing various qualitative and quantitative business indexes. Goals and tasks of a business analysis differ from the needs of the users who do the analysis on their own, while the activities of controlling are diverted towards establishing the existing state and proposing a solution as well as establishing and developing an efficient system of monitoring companies' performances and reporting to the management needs. The chief influence of controlling is to recognize and develop indexes and methods that representatively describe a situation in a company.

5. IN LIEU OF THE CONCLUSION

The significance of controlling was long ago recognized by the economic systems of the advanced world economies, and even by the neighboring countries which consider controlling an essential instrument which has an advisory role and contributes to the success rate of running a business. In the state of crisis, it is extremely important that all the data pertaining to the issues in running a business be obtained in due course, find their causes, the place of occurrence and to find efficient solutions as soon as possible. As a process of expert support to the management, controlling provides answers to these very situations, that is to say, represents the function of resolving every specific problem in a company, but also the function of informing which brings about the advancement and business development. The economic subject management in Serbia needs to encourage the application and development of controlling and think of it as a concept and instrument by virtue of which the process of management will be conducted with greater efficacy and efficiency. This way of thinking and application of controlling in practice would allow for the function of research and development management to get the novel – managing orientation.

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CONTEMPORARY DECISION SUPPORT AND KNOWLEDGE MANAGEMENT TECHNOLOGIES

Slavoljub Milovanovic*
University of Nis, The Faculty of Economics in Nis
Trg Kralja Aleksandra 11, 18000 Nis, Serbia
smilovan@eknfak.ni.ac.rs

ABSTRACT

In latest decade of last century, turbulent technological changes occured in all fields. Dynamic technological changes influence on the type of information systems which are primary used for decision support and knowledge management. Traditional decision support systems were mainly based on models, while contemporary decision support systems are based on multidimensional analysis of huge data amount and trasformation of data to knowledge. Data is organized in data warehouses and processed by data mining tools. Datawarehousing and data mining are two most important knowledge management technologies which are used for decision support, so the paper talks about the technologies.

Key words: decision support systems, knowledge management, data mining, data warehouses

INTRODUCTION

Decision Support Systems (DSSs) are similar and complementary to standard management information systems (MISs) and represent superstructure of the standard information systems (ISs). Characteristics of DSSs are defined in relation to classic data processing and management information systems. Therefore, DSSs are different from classic data processing and MISs because they require symbiosis between a user and the system to achieve planed business efficiency. While MISs give information for structured decision making (operational and tactical decisions), DSSs support semistructured and unstructured decision making (strategic level of management). DSSs are often defined as interactive information systems that support solving semistructured and unstructured class of problems in decision making process.

In order to support semistructured and unstructured decisions, DSSs use sophisticated analytic models and tools and user-friendly software. Thus, DSSs provide to users flexible set of tools and abilities for analysis of important data.

Contemporary DSSs are driven by data in contrast to old classic DSSs that were mainly driven by models. Therefore, contemporary DSSs are based on datawarehousing and data mining technologies for elicitation knowledge from data. Many organizations today install data warehouses and sophisticated tools for data analysis to better use information stored in their transaction information systems. Also, the organizations use ability of connecting transaction databases to World Wide Web and analysing data from web. (Turban et al., 2004)

Characteristics and functions of contemporary technologies for decision support and knowledge management are analysed in two sections. In first section of the paper, architecture of contemporary decision support systems is presented and components of the architecture are analysed. In second section, tools for multidimensional analytical data processing and data mining are explained.

ARCHITECTURE OF CONTEMPORARY DECISION SUPPORT SYSTEMS

Classic DSSs driven by models were used in eighties and nineties years of last century and were based on small sets of data. These were primarily autonomous systems isolated from main ISs of organizations and they have used some types of models to achieve „what if“ and the other kind of analyses. Such systems was usually developed by end users without centalised control of IT (Information Technology) department. Analyitical capacity of the systems were based on rigor models combined with good user interface facilitating use of the models. IBM was developed Capacity Optimization Planning System that is typical example of DSS driven by model.

Contemporary improvements in computing and databases technology have broaden definition of classic DSSs and included analysis of great amount of data from transaction ISs (TPSs – Transaction Processing Systems) and data from web. DSSs driven by data analysing great amount of data from transaction ISs and other sources have emerged. The systems support decision making enabling users to extract useful information that previously was hidden in great transaction databases. Data from TPSs is colected and organised in special data bases called data warehouses. Data warehouses are essentially different from transaction databases because contain aggregative data extracted from transaction databases.

Data Warehouses (DWs) provide several ad hoc and standardized query tools, analytical tools and graphical reporting capabilities including OLAP (On-line Analytical Processing) and DM (data mining) tools. DM software tools discover patterns and relations in great data warehouses and derive rules based on them. The rules can be used for forcasting future behaviour and decision making. DWs enable decision makers data access without impact on performance of operational, transaction ISs and databases. In addition, many organizations use web technology to facilitate access to DWs. (Wrembel & Koncilia, 2007)

Figure 1 illustrates DW concept. Catalog of information provides to users information on data available in DW. DW must be carefully designed by business and information specialists in order to be right information for critical business decisions obtained. An organization perhaps should change its business processes to use information from DW efficiently.

An organization can build DW as central database serving needs of whole organization or to create smaller, decentalised DWs called datamarts. Datamarts (DMs) are subsets of a DW. Summarized and high focused parts of whole organization data are stored in separate databases for specific population of users and these parts are DMs. For example, organization can develop datamarts of marketing and sales for efficient customer relations management. DMs are usually focused to one area and line of business, so it can be constructed faster and with lower costs than DW of whole organization. However, if an organization creates too many datamarts, complexity, costs and management problems will emerge.

Organizations more and more develop DSSs driven by data in order to analyse data on customers collected from their web sites and data from other ISs, as well. DMs help organizations to engage in one-to-one marketing where personalized and individualized messages can be created on base of individual customer preferences. The systems can achieve complex analyses of patterns or trends in data to discover more details on some occurrence, when it is needed.

Figure 2 illustrates architecture of contemporary DSSs. As we can see, DSSs have folowing components: 1. database that is used for generation of queries and analysis; 2. software system with models, data mining and other analytical tools and 3. user interface.

1. Data base. DSS database is set of current and historical data from many applications. DSS database can be small database stored on PC containing subset of whole organization data. The internal data is combined with external data. Alternatively, DSS database can be massive DW that is continually updated from data generated in transaction ISs and web sites. Data in DSS databases

is extracts or copies of transaction databases, so use of DSS do not impact on function of operational ISs.

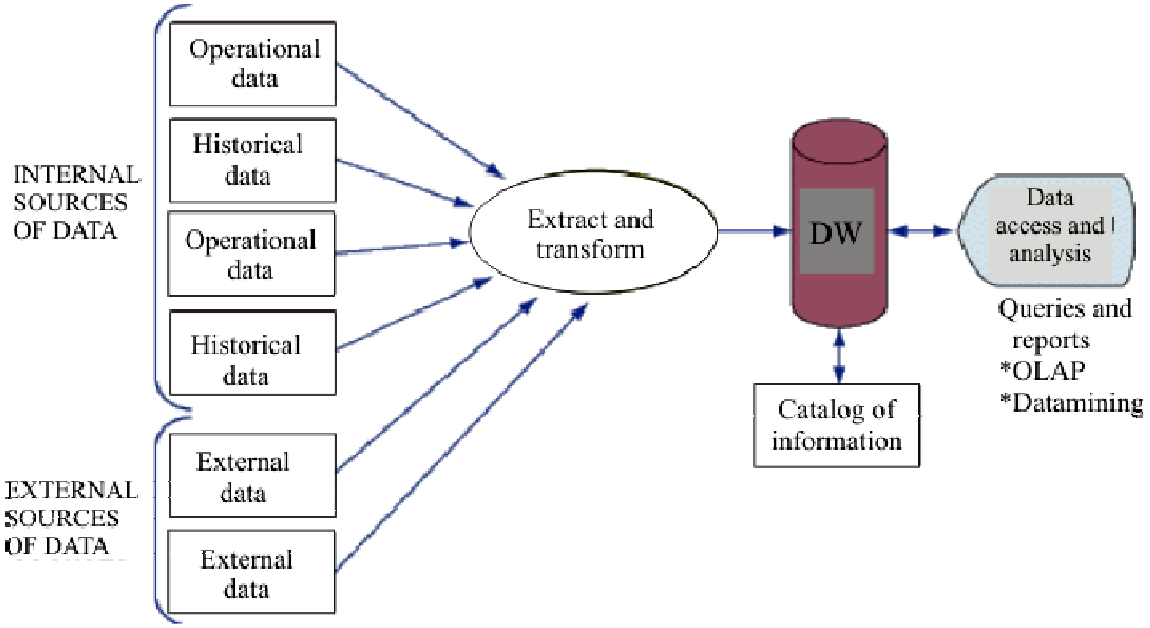

Figure 1: Components of DW

2. Software system. DSS software system is made of software tools that are used for data analysis. The system contains OLAP tools, data mining tools or collection of mathematical and statistical models which can be easily accessed by users. A model is abstract representation illustrating components or relations in some phenomenon. Model can be phisical model (such as aircraft model), mathematical model (such as equation) or verbal model (such as description of order making procedure). Every DSS is built for specific set of goals and has various collections of models which are available in dependence of the goals.

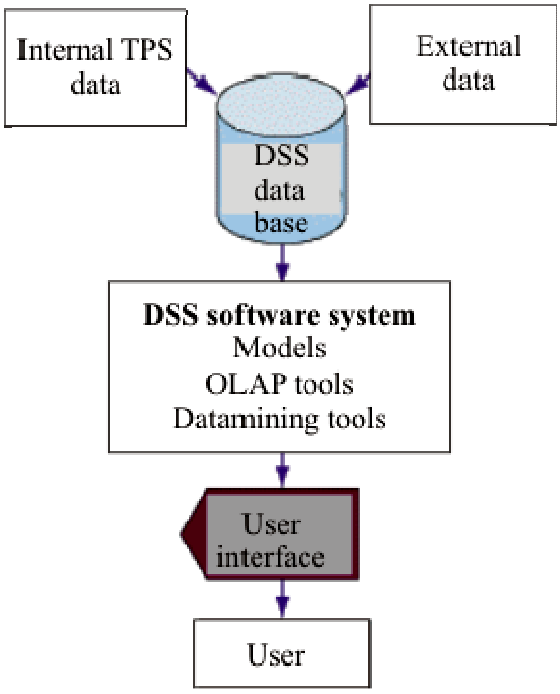

Figure 2: Architecture of contemporary DSSs

Perhaps most usuall models are the models in form of library. There are libraries of statistical models. Library of models for specific functions (for example, financial models, risk analysis models etc.) can also be created. Libraries of statistical models usually contain full range of most used statistical functions, including average, deviation, median and dispersion graphics. This software enables forecast of future results by analysis of data series. Statistic modeling software can be used for establishing relations, such as relating of product sale with attributes of customers like age, revenue and other attributes.

Optimization models usually use linear programming and determine optimal allocation of resources for maximize or minimize specific variables, such as costs or time. Classic use of optimization models is determination of right mix of products for specific market to maximize profit.

Forecasting models are often used for forecast, prognosis of sale. User of the type of models gets range of historical data for projecting future conditions of business and sale which can result from the conditions. A decision maker can change the future conditions in model (for example, increasing of material costs or entry of new competitor on market with low prices) to determine how the new conditions can influence on sale. Organizations usually use the models to forecast actions of competitors.

Most used models are sensitivity analysis models that ask „what if“ questions in order to determine impact of changes in one and many factors on results. „What if“ analysis taking into account known and assumed conditions allows users to change specific values for testing results in order to better predict outcomes of real changes if they occure. What will happen, if we increase price for 5% or increase promotion budget for $10000? What will happen if we keep the same price and budget? Desktop software for table calculations (spreadsheet software like Microsoft Excel), are often used in answer on the questions. There is software analysing sensitivity backward and use principle of goal seeking. For example: „If I want to sale million units of product next year, how much I must reduce price of the product?

3. User interface. DSS user interface enables that user easy interacts with DSS software tools. Graphical, easy to use and flexible user inteface supports dialog between user and DSS. DSS users can be managers or employees without patience for learning complex tools, so the interface must be relatively intuitive. Today, many DSSs are built with interfaces based on web technology because of easy to use web interface, interactivity and potential for personalization and customization. Development of effective DSS requires high level of users participation and use of prototype as a method of system development. Accordingly, a DSSs that fully meet users' needs can be developed.

DATA MINING TOOLS AND MULTIDIMENSIONAL ANALYSIS OF DATA

Managers sometime need to analyse data on such manner that is not possible by traditional database. Traditional queries to databases can answer on questions such as: How many units of some product was delivered in november 2008? However, managers need multidimensional analysis supporting more complex requirements for information, such as: Compare amount of the product sale in a region with quarter plan of sale in last two years? With data mining tools and technics for data analysis, users get better information for decision making. (Han & Kamber, 2006)

We can take example of organization selling four products (bear, vine, brandy and juices) on east, west and central region of country. Management of the organization wants to know amount of sale by product for every region and to compare the amount with planed sale. This analysis require multidimensional view on data that can be provided on two way: 1. use of specialized multidimensional databases (data warehouses) and 2. use of tools that create multidimensional views on twodimensional relational databases.

Multidimensional analysis enable users to view same data on different ways by using many dimensions. Every aspect of information (product, price, costs, region or time period) represents one dimension. For example, manager responsible for sale of juices can use multidimensional analysis to determine how much of juices was sold on east region in june and to compare the amount of sale with sale in previous mounth and in june of previous year or with planed amount of sale.

Data mining analysis of data is more oriented to explore and discover of new knowledge. Data mining tools usually have elements of artificiel intelligence (Coppin, 2004), such as neural networks, fuzzy logic, genetic algorithms, technics based on rules and other intelligent technics. Thus data mining tools are categorized in technologies for knowledge management and classic DSSs become knowledge-based DSSs. (Gottschalk, 2007)

Data mining analysis provides insight into data which can not be obtained by other technics. The insights can be obtained by finding hiden patterns and relations in great databases and elicitating inferences on rules related to it. The patterns and rules than can be used in decision making and predicting effects of the decisons. Types of information that can be provided from data mining analyses incude associations, sequences, classifications, clusters and forecasts. (Wrembel & Koncilia, 2007)

Associations are appearances related to an event. For example, study of sample of purchases in supermarket can discover that when potato chips is bought, cola drink is sold in 65% of all cases, but when there is promotion, cola is sold in 85% of all cases.

In case of sequences, events are chronologically related. For example, we can determine if house is bought, then new refrigerator will be bought in period of two weeks, in 65% of all cases, and cooker will be bought in period of one mounth after purchase of house, in 45% of all cases.

Classification recognises patterns describing some group to which an item belong by examining of existing items that are classified and by determination of rule set. For example, companies are worried due to loss of loyal customers. Therefore, they create model supporting managers to predict who are these customers and to develop special campaign for keeping the customers.

Clustering is similar as classification, with difference that none of groups is not defined yet. Data mining tools discover various clusters in data, such as similar groups of bank card users.

Data mining tools include forecasts which can be done on various ways. In forecasts, series of existing values are used for predicting other values.

There are a lot of examples how some organizations use data mining tools for decision support and improvement of business. ShopKoStores company uses DM tools to find correlation between position of items on store shelves and habits in parchases of customers. Aim is to increase sale by arrangement of products so that are appropriate to customers. Second example is Notdstrem company using DM for analysis of data that is generated by visitors of its web site. Results of the analysis then are used for adjustment of advertising and content of advertisments to individual attributes and needs of customers and for improvement of on-line services for customers. (Han & Kamber, 2006; Lin et al., 2005)

CONCLUSION

Decision Support Systems are similar and complementary to standard management information systems and mainly support unstructured and semistructured processes of decision making. Components of the systems are: databases, software system with models and tools and user interface. Contemporary DSSs use special databases called data warehouses that are made by

extracting of data from transaction databases and putting data in appropriate form for decision making. The data is subject of multidimensional analysis with support of dataminig technology that uses various types of models (statistical, mathematical, financial etc.). Many examples (some of them are explained in the paper) show that great business benefits can be achieved by support of the two technologies. Business benefits follow from enhanced making of unstructured and semistructured decisions that are multidimensional in nature.

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FUTURES IN FUNCTION OF THE RISK MANAGEMENT

Dajana Vindžanović*
Assistant, Higher School of Professional Business Studies, Novi Sad, Serbia
dajana_vindzanovic@yahoo.com
Mirela Momčilović
Assistant, Higher School of Professional Business Studies, Novi Sad, Serbia,
momcilovic.mirela@gmail.com
Sanja Vlaović Begović
Research Associate, Higher School of Professional Business Studies, Novi Sad, Serbia,
so.vsanja@neobee.net

ABSTRACT: Since the 1970-ies, financial institutions had faced with constantly growing risks together with oscillations in interest rates and prices on the financial markets. Financial engineers were creating a great number of new financial instruments – financial derivatives that have purpose to better manage and decrease risk. The most important financial derivative is futures contract. Owners of futures contracts have initial right to buy some commodity or financial asset (currency, stock, bond etc.) in defined future date at fixed price. Futures contracts are very similar with forwards but they have some improvements that have resolved some disadvantages of forwards like problems of default for filing obligations and illiquidity of market. In this paper, authors will show the significance of using the futures in order to decrease risks and earn sizeable profits.

Key words: futures, hedging, risk management.

INTRODUCTION

Financial institutions have faced with constantly growing risks together with the oscillations in interest rates and prices on the financial markets. Financial engineers are creating a great number of new financial instruments – financial derivatives that have purpose to better manage and decrease risk. Financial institutions have very important role on the financial derivatives market because they use financial derivatives to decrease capital costs, manage risks and conduct arbitrage on the global financial market.

Financial derivatives are instruments, which have derived from securities or some other asset. Financial derivatives have based on sales contracts that have delayed delivery and payment of market effects. Derivative instruments ordinarily include agreement between two parties about exchange specific asset or cash flow on predetermined price in future date. The value of derivatives depends on value fluctuation of basic asset. Also, financial derivatives have as characteristics standardization of asset, rules of issuing, means of payment, delivery, maturity, rules of trading etc. (Dugalić, 2007, p. 134). The most important financial derivative is futures contracts.

In this paper, authors will show the significance of using the futures as financial derivatives in order to decrease risks and earn sizeable profits. There are presented characteristics of futures as financial derivatives. In addition, there are presented basic futures strategies that are frequently used by participants on financial markets like hedging strategy.

CHARACTERISTICS OF THE FUTURES AS FINANCIAL DERIVATIVES

On The Chicago Board of Trade in 1975 were formed futures contracts to resolve problems of default risk and market illiquidity of the forward contracts. Futures contracts emerged with purpose to reduce risks of negative changes of prices, interest rates, currency exchanges, bourse indexes in the future. Futures are standardized contracts in which are a-priori determined price, quantity, quality, maturity, place and conditions of delivery of the market instruments (stocks, bonds, market indexes, currencies, interest rates etc.) in defined future time. Types of futures contracts by market asset are commodity futures (for example futures on grains and oilseeds, meat and livestock, metals and oil) and financial futures (for example interest rate futures, currency futures, futures on securities, futures on stock indexes etc.).

The difference between futures and classical term contract is in determination of exact date of delivery, because in futures contract is set a month of delivery and bourse determines standardized time in the month when parts should execute delivery and payment of the contracted asset. Futures contracts are also similar to interest rate forward contracts because one part have obligation to deliver some financial instrument to other part in defined future time.

However, futures are different of forwards in two segments. Firstly, futures have resolved problems of contract contempt with system of margin account that are every day compensated with market price movements. Bourses established category of initial deposit on margin account that goes on between 5 to 10% of contract value to neutralize default risk in trading procedures with futures contracts. Before signing a contract investors have to deposit initial margin that can be in money and in securities like bonds.

Margin accounts are daily adjusting with market price of futures and every raise of prices compared to day before brings investor daily earning that accumulates on margin account and vice versa. If happens the case that after decline of prices investor have large daily lose and balance on margin account decline below minimal amount (75% of initial deposit value) investors have to make payment to the level of the initial margin. Investors have time until the end of next workday to fill the balance on margin account, and if they do not do so, broker have right to close the position with sell of futures contract. If balance on margin account exceeds the level of initial margin, investor can cash the surplus funds.

Secondly, futures have standardized quantities and dates of delivery that raises chances to find interested parties and liquidity of market. In addition, owners of the futures contract can trade with them on organized bourse on conditions that are precise. With futures, investors are trading on organized bourses like The Chicago Board of Trade, Chicago Mercantile Exchange, Kansas City Board of Trade, New York Futures Exchange, London International Financial Futures Exchange, Marche a Terme International de France, Deutsche Terminborse and Swiss Options and Financial Futures Exchange.

Every of the mentioned bourses represent each other strong competition and tries to set some ground rules that are going to increase volume of futures contracts transactions. Interesting characteristics of futures contracts that makes them differ than other securities is that investors could trade with futures contracts only on bourses that issued them.

In the beginning, USA term bourses were dominating with futures trade but strong development of futures market and high revenues resulted with entrance of foreign bourses that recognized chance of earning profit. Globex electronic trading system contributed further expanding and globalization of futures market because it allows futures contract trading even when bourses are not officially open. In these way futures contracts trading become international and competition between American and other bourses will be even more intense in the future.

In most cases futures contract don't end with delivery of financial instrument on maturity because that can be avoided with another contract that can neutralize that position. Investors can open a long position and consequently after some time, if conditions are right, open a short position that give investor right to cancel both contracts.

Futures traders charge one commission in a large amount that is called commission in both ways, for opening and closing the position and it goes around 18% of transaction value. Characteristics of futures contracts can be presented sublimed like in the table 1 (Vunjak, 2009 p. 249).

Table 1: Characteristics of the futures contracts

1. All elements of futures contract are standardized (quantity, quality, date and place of delivery);	6. In the most cases there is no physical delivery of contracted asset, but there is payment of difference in price;
2. Futures contracts are more liquid compared with forward contracts;	7. In the most cases contracts are neutralized before maturity;
3. There are payments in time that contract last – margin system;	8. Contracted parts are obligated to give deposit on margin account to prevent credit risk;
4. Clearing house is guarantee of trading;	9. Futures contracts are sold at term;
5. Contracted position can be closed in every point;	10. Investors can trade with futures contracts on secondary financial market.

FUTURES STRATEGIES

Futures strategy depends on the position which investor has in regards of owning an asset. There are two futures positions that investors can open: a short and a long position. Short position represents position of seller of futures contract, where he has the obligation to deliver contracted asset in time of maturity and receive payment from buyer. Long position is position of buyer of futures contract, where he has the obligation to take the contracted asset and pay for it in the time of maturity.

When investor owns some asset and wants to avoid a possible risk of declining prices, investors chooses to open a short selling position. In reverse case, if investor does not have in possession asset he opens a long buying position. Hedging is name of this strategy. The goal is to decrease risk and cancel loses in trading on the one side with gains in trading on the other side.

Buyer of futures contract is in long position and in his interest is that asset prices after signing futures contract start to raise, because it will create profit that is equivalent to difference between higher market price (MP) and lower contracted futures price (CP). Buyers profit is going to be bigger if the asset prices have sizeable growth that creates positive price difference. A position of the futures contract buyer is shown on figure 1 (Vunjak, 2009, p. 228).

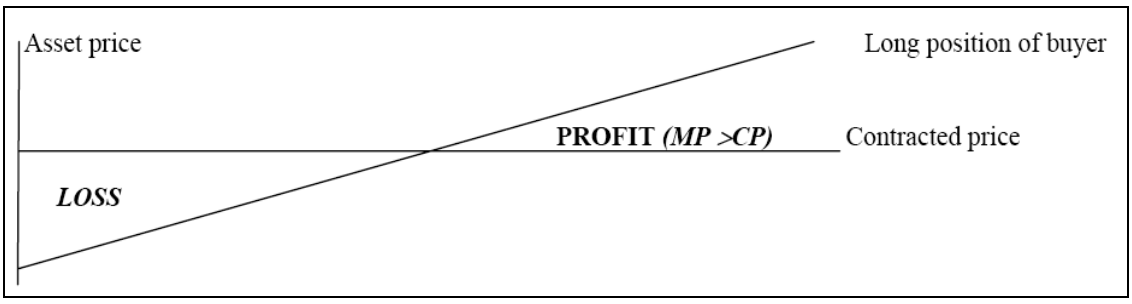

Figure 1: Long Position of Futures Contract Buyer

Futures contract seller is in better position if asset prices after signing futures contract starts to fall because he can sell asset for example security at higher price and on that way earn profit. Profit

amount depends on amount of market prices decline and it is equivalent to difference between higher contracted futures price (CP) and lower market price (MP). Position of futures contract seller is opposite on futures contract buyer. A position of the futures contract seller is shown on figure 2 (Vunjak, 2009, p. 229).

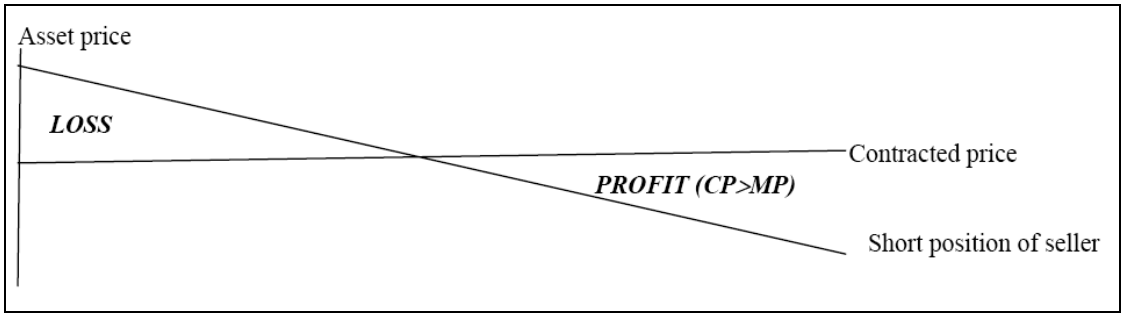

Figure 2: Short Position of Futures Contract Seller

Special interest to successfully predict futures price have buyer, because on this way he has possibility to fully exploit hedging and speculative advantage that arise from use of financial derivatives. Futures prices are regularly publishing in financial reports and press statements. Futures prices are forming on bourse floor on the base of futures contracts supply and demand. If there are more investors that want to buy futures contracts and open a long position than investors that want to sell futures contract and open a short position, then prices of market asset raises, in reverse case they fall. Equilibrium futures price could calculate with this formula (Vunjak, 2009, p. 229):

$$FP = SP * (1+ SIR – YR)$$

Where FP is futures price, SP is securities price, SIR is short-term interest rate on principal until the maturity of futures and YR is yield rate on securities until the maturity of futures. Futures price depends on numerous factors: price changes of basic asset, weather and political occurrences, economic predictions, speculative behavior on bourses, inflation, expectations, budget deficit, macroeconomic policy, GDP etc. For example, situation of bad weather can cause raise of commodity futures prices or rumors on bourse regarding to surprising raise of government bonds demand can cause direct raise of their prices and reverse. Futures prices can fluctuate in daily limits specified by the bourse to eliminate potential speculative behavior on futures bourses and every break of limit has for consequence the suspension of further trade with futures contract.

On the futures bourses there are the two most common participants: hedgers and speculators. Hedgers are participant who trades with specific asset and they are often manufacturers of specific commodity who sells futures contracts to protect themselves from negative changes in prices. Hedgers on financial futures market are managers of pension and investment funds, investment banks and insurance companies.

Hedgers enter in the futures transactions to ensure their future position on spot market. The greatest risk that hedgers face is basis risk. Basis risk is difference between spot prices of asset that is object of hedging and futures price (risk premium). Basis risk is close to zero when the maturity of futures contract is near. If asset prices raises faster than futures prices, then basis risk raises and other way around. Optimal hedging coefficient is product of correlation coefficient between spot price and change of futures price and fraction of standard deviation of spot price and standard deviation of futures price. The amount of profit and loss in hedging transactions depends on connection between spot price and futures price in time of signing and maturity of hedging. In hedging traders opens long buying position and short selling position. Profits and losses of perfect hedging are presented on the figure 3 (Vunjak, 2009, p. 238).

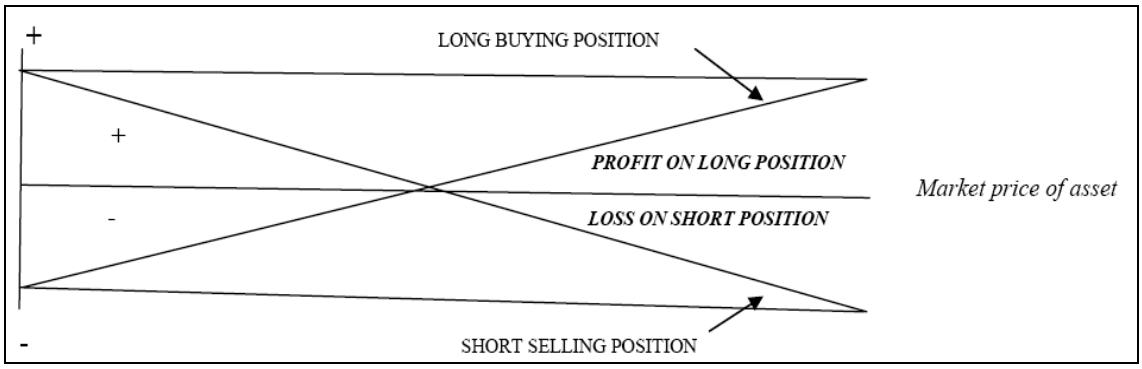

Figure 3: Profit and Loss of Perfect Hedging

At hedging of short selling position, in situation of buying government bonds (long position) investor should execute selling (short position) to ensure protection from changes in prices of futures contracts until the maturity. If after signing futures contracts to sell and buy, price of futures falls, then investor is going to earn profit, because he sold futures contract at higher price then the current market price of futures contract. Investor is next going to enter in new buying position of futures at current lower market price and in the same time execute selling of specific future contract. In this way investor, completely neutralize loss that would occur with fall of market value of bonds that are in his hands.

At hedging of long buying position, in situation of term selling investor don't wait a few days until the maturity to buy contracted asset, but he do so right now with opening a long buying position in futures contract at current market price. If asset price rises until the maturity, then investor opens short selling position at higher market price and earns profit on difference between buying price (long position) and selling price (short position).

Speculators are constantly trading with futures contracts in order to earn profit and they set their position on assessment of possible occurrences with specific asset. If speculators assess that price of specific commodity or security is going to change, then they accordingly open a long or short position. Speculators buys when they assess that prices are lowest and sells when they assess that prices are highest. Speculators accept investment risks and expect a large profit from changes in prices. Speculators frequently open long and short positions in futures contract trading that result gains and losses on futures accounts, with ultimate goal to earn net profits in futures trading during the year. Thanks to speculators, trading on futures bourses is very active, because if hedgers were only traders, buying and selling accounts would slowly pair. With speculators as participant on futures bourses reactions on changes on spot market are very fast.

Financial institutions often use futures contract to protect themselves form risk of interest rate change on micro and macro level with micro and macro hedging. Micro hedging represents use of specific futures contract for protection of specific asset or liability risk. For example when managers of financial institutions wants to protect the value of bond portfolio from increase in interest rates or when financial institution wants to fixate loaning costs to protect from possible increase in short-term interest rates they open a short selling position in futures contract.

Macro hedging is different from micro hedging because manager of financial institution do not use specific futures and other derivative contracts to protect specific asset and liability from individual risks but macro hedging looks the big picture, takes in consideration entire portfolio, and allows mutual settlement of the interest sensitivity of assets and liabilities. As result, there are many different aggregate futures positions and financial institutions do not exclude settlement and effect of total portfolio.

In ideal case, financial institution would like to decrease exposure to risks on the lowest level with buying and selling enough futures to cover total exposure to risks on entire balance, but with

decreasing risk, expected profit is decreasing also, and financial managers rarely choose this option. Instead of choosing a completely protected position, many financial managers choose to undertake specific risk like interest rate risk, credit and currency risk and set selective protection through futures contracts. Completely protected position remains one of the options but decision depends from expectations of interest rate changes, objectives of financial institution and sensibility on profit and risk protection trade-off.

CONCLUSIONS

In order to reduce the growing risks of changes in interest rates and prices on financial markets, financial engineers created derivative instruments like futures. Futures are instruments that derived from specific assets like commodity, securities, currencies, interest rates and bourse indexes. Futures in their essence represent contracts with term clausal for delayed delivery and payment of contracted asset. Futures contracts neutralized problems of poor liquidity and default risk of forward contracts.

Futures with time evolved and they have individual market life as sign of value, they become specific object of trade and the original asset only remains starting point that indirectly affects instruments value at maturity. Futures prices stays connected to changes of supply and demand of basic asset and bourses keeps necessarily function of control. In the most cases in time of maturity, contracted asset is not going to deliver and there is only payment of difference in the price. Futures have three important functions: 1) accumulation of funds for primary manufacturing, 2) increases profitability of investment and 3) function of preservation the capital value, because futures have function of the risk management.

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MANAGEMENT OF GLOBAL ORGANIZATION AS A FACTOR OF COMPETITIVE ADVANTAGE

Dragana Djuric. Ph.D*
Higher School of Professional Business Studies, Blace, Republic of Serbia
e-mail: ddjuric971@gmail.com
Gordana Prlincevic, M.Sc
Higher School of Professional Business Studies, Blace, Republic of Serbia
e-mail: gordana.prlincevic@yahoo.com
Dejan Djuric, Ph.D
Higher School of Professional Business Studies, Novi Sad, Republic of Serbia
e-mail: ddjuric971@gmail.com
Danijela Maksimovic, M.Sc
Higher School of Professional Business Studies, Blace, Republic of Serbia
e-mail*:* nelmax2005@yahoo.com
Marija Marcetic, M.Sc
Higher School of Professional Business Studies, Blace, Republic of Serbia
e-mail: marija.marcetic@vpskps.edu.com

ABSTRACT

Global environment requires creative leaders who manage knowledge and information, who provide entrepreneurial atmosphere and create the organization based on teamwork. With analysis of the important factors that determine the functioning of global organizations, the paper clearly states the view that effective management is critical for the creation of a lasting competitive advantage. The paper emphasizes that human resources are the most important element of modern organizations, and that in today's business environment their success depends primarily on people. In a highly competitive global economy where other factors of production (capital, technology, materials and information) may be copied, people in the organization become the only permanent source of competitive advantage.

Key words: global organization, management, leadership, world market.

1. INTRODUCTION

Many authors in defining the concept of organizations apply different approaches. It can be said that there is no researcher that addresses the problems of organization, and that they haven't given or attempted to give their definition of the organization. Often the term "organization" is used in a twofold sense. In some cases, the organization involves conscious human activity, which refers to the adjustment factors of production, while in other cases this term is related to the results of the alignment. The term "organization" is used in a lot broader sense, in the case when it means the result of any coordinated human activity. Despite the different definition of the organization, most authors agree that the organization is a working unit which serves certain goals in the various activities of society. Therefore, organization, as a general term, could be defined as a combination of people who consciously aim to meet the appropriate means for certain tasks with the least possible effort in any area of social life (Šuković, 2003).

2. DEFINING A GLOBAL ORGANIZATION

In a global environment characterized by intensity changes, growing competition and market uncertainty, only successful organizations within and around develop the ability to quickly learn and use the available information. Today, more and more companies adopt the characteristics of global organizations, realizing that it is the only way to ensure competitiveness and survive in today's global business environment. Global organizations are organizations that are able to compete with anyone, anywhere, at any time.

In most cases, they conduct business on a global scale, and their products are sold in all major markets in the world, creating an extensive global activities through an integrated national market. Diversification of economic activities enables global organizations an easier access to international markets, large scale economies, access to cheap raw materials, the skipping of tariff barriers, and thereby gain a competitive advantage. The main difference between multinational and global organizations, international large-scale companies, is that multinational companies perceive and differentiate in the market, where the national market is one of several target markets, differentiated by the importance and size. Unlike the multi-national, global organizations apply an integrated approach, where the national market is just one part of the world market.

3.FACTORS OF COMPETITIVE ADVANTAGES OF GLOBAL ORGANIZATIONS

To become a global organization, companies must be accompanied by a large number of dimensions that create competitive advantage. As shown in picture 1, some of the key pillars that form the basis of competitive advantages of global organizations include (Luthans, Hodgetts, Lee, 1994):

- focusing on consumer
- continuous improvement,
- use of flexible or virtual organizations,
- creative Human Resources,
- a climate of equality,
- technical support,
- openness,
- self-efficiency and
- cultural understanding.

2.1. Focusing on customers

Global organizations are focused on consumers. They made the identification of internal and external customers in order to determine the best ways to provide services to this target group. With this work, global organizations strive for horizontal organizational structure in order to be closer to customers. Their goal is focused on meeting customer needs and creating links with them, considering that during operation there is always the creation of new demands for more sophisticated products and services. Global consumer has no prejudice, he has layered needs, clear preferences and enhanced sensitivity to the manner and quality to satisfy their needs. Whether it is a global organization or an individual, contemporary customer and the consumer always protect your right to a free choice. A global consumer puts their own level of satisfaction in front of and above the national loyalty, which is done through a commitment to domestic sources of supply. This is significant pressure on the convergence of the world demand and the homogenization of consumer behavior, as the increasingly obvious determinants of the overall process of globalization (Rakita, 2002).

2.2. Permanent trainings

The second feature of the global competitiveness of organizations is their commitment to continuous, rapid, efficient and effective training. Permanent changes in the environment require the employees and organization of continuous learning, change and adaptation. Lifelong learning and the dissemination of knowledge in today's business environment is becoming a lifeline for the individual and their primary needs, and for global organization of important competitive advantage. Constant advancement include: learning as an integral part of the job, learning as continuous, informal, but intense interaction of employees, managers, coaches, teams and learning as a continuous transfer of knowledge to others and receiving knowledge from others, so that they are all students and teachers simultaneously. The point is to inspire people in the organization to continually learn, examine, experiment, research, and change opinions, attitudes and approaches and issues in the organization. In this way, people in organizations develop their ability to anticipate consumer needs and intentions of competitors, and to listen to customers and meet their expectations (Petković, Janićijević, Bogićević, 2002).

A good example is "Ford Motor", which found that it can take weeks to process orders for payment, as there are many people who need to be approved. By a careful studying of this process, Ford has managed to greatly reduce the number of people who were supposed to sign these accounts, which reduce the processing time by as much as 90 percent. Also, the famous "Microsoft" that holds a monopoly of the global software industry, is considered to be constantly improving in order to be competitive companies, such as "Netscape", "IBM", "Novell", "Oracle" and " UNIX" (Hodgetts, Luthans, 2003).

2.3. The use of flexible or virtual organizations

This characteristics of global companies is the use of flexible or virtual organizations. Virtual organization is one that is capable of leading the work, such as large companies that have numerous benefits, but in fact is a lot smaller. In the coming years, a growing number of global organizations will rely on global sourcing, that would provide materials and products that were once produced in their box. As a result of this, organizations can operate as a large company, even if they are in fact small, and you depend on partners and global resources through which you satisfy their needs. "Global Sources" means the use of suppliers around the world, regardless of where they are, all in order to provide the desired product. For example, Japanese car manufacturers now increasingly rely on U.S. suppliers. Similarly, U.S. firms for the production of laptops very much rely on Japanese sources, to provide technology for screens. However, wherever necessary, global organizations will prefer to use the services of local suppliers because of the benefits derived from them to maintain competitiveness on a global scale.Michael Porter explains it as follows (Porter, 1987).

2.4. Creative human resources

Human resources are an important element of a modern organization. In contemporary conditions, the success of the organization depends primarily on people. Since people with knowledge and behavior are the main factor for the success of organizations, leadership becomes the most important function and task of the management. Leadership seeks to motivate and direct individuals in the right direction. On the other hand, the growth and development of the organization align with the vision, in order to achieve the best position in the global market. Of all the skills and abilities necessary to learn, creativity is the most widely recognized and preferred. There are two essential aspects of creativity that are essential to effective learning: personal flexibility and willingness to take risks. Global organizations foster and promote both.

In the case of flexibility, companies such as Emerson, "and" RCA "have erred in their analysis of changes in the radio market. They believed that sales would follow the natural curve of growth, it will eventually reach maturity and then start to decline. In contrast, learning organizations, such as

"Sony", were extremely flexible, and saw the variety of different alternative options related to the radio market. "Sony" believed they could change the life cycle of a product through creative innovation, and the result was "Sony" Walkman, which has changed the way people listen, where and how to listen to the radio. This was the evidence that the lack of flexibility in Predictions of changes leads to business losses, which confirms our hypothesis that recognition of change and adaptation to changes is one of the fundamental principles on which competitiveness is based.

When they take the risk, many global organizations operate at a loss because they stay conservative. Japanese auto makers have conducted market research in the United States and met no support from buyers for the sale of mini-vans. So they decided not to enter that market. "Chrysler has also conducted market research and got the same answer, but they were convinced that there was a market for these vehicles and decided to take risk. This decision proved to be one of the most profitable in the history of Chrysler, and helped to achieve record annual profits (Inić, 2003).

2.5. Air of equality

Global organization creates a climate of equality in which all employees, customers, owners, suppliers and communities are treated with respect and dignity. The creation of such environment in different organizations is approached in a variety of ways. For example, each member of the company's "Wal-Mart" is a kind of co-worker, so there are no subordinates. Relationship with our clients in the chain of "Ritz-Chartlon" hotels is so arranged that when a guest asked where to find a place in the hotel, an assistant would interrupt their work, whatever they were doing, and become a personal guide to the guests to the required places (Hodgetts, Luthans, 2003)

Another sign of equality approaches is the way the global organization treats its suppliers. In the past, organizations would negotiate with suppliers and fight each other in order to achieve the lowest possible price. In case of equality approaches, this strategy was abandoned in favor of equality approaches in which the supply side is viewed as an integral part of the team. For example, the "IBM" suppliers participate in the creation of new products, learn what the needs of the organization are, and work together with the organization in the process of providing materials and parts that are the cheapest and of the best quality. In the process, suppliers are learning about the culture of their customers and how the organization works. Suppliers are therefore in a better position to integrate their approach with access to an organization which is their partner (www. ibm. com). Japan's global organizations such as "Sonny" and "Mitsubishi", have improved this idea by the suppliers involved in the process of pricing products and constantl work together to reduce costs.

2.6. Technical support

Global organizations are increasingly becoming less connected to a specific location, their jobs are permanently spread around the world, so that the coordination of the activities is carried out with the technological support that enables faster and more flexible interaction. The development of information technology greatly facilitates the coordination of remote operation and use of the Internet is increasingly becoming a powerful means of expanding global operations. Technologies change people, nature of economic relations and the effectiveness of individual organizations. They serve to those who know how to overcome them, and are used as a competitive advantage, and destroy the economic entities that are slow in their use and recognition of the benefits that this process brings. New technologies contribute to increasing competitiveness in the global market, both by improving the quality and design, and on the basis of cost cuts and price. The transfer of technological knowledge is a crucial advantage of global organizations, and their strength is reflected in the ability to use high technology.

Thanks to a huge difference in technological competitiveness, America, according to the latest analysis of the Swiss Institute for Management Development, is still by far one of the first

countries in the competitiveness of the economy in general, ie. domestic and foreign markets (http//www.02.imd.ch.wcy/methodology/).

2.7. Openness

If the organization is viewed as a whole made up of several interconnected parts, it is often emphasized that there is a link with the environment and that it is open to its influences. Global organizations are not only ready to accept new trends. They are encouraging indications of change. Instead of fighting change, they learn how to adapt, how to create and draw profit from them. In this sense, they emphasize the need for understanding and applying concepts of openness to different cultures. Their managers empower associates, simplify the structure and are flexible on all issues.

"Whirlpool" is a good example of such firms. A few years ago, this global organization has analyzed the different markets, and came to the conclusion that the U.S. market will no longer be the biggest, nor that in this market will be enough work to grow and progress. They found that this can be achieved in the markets of Central and Eastern Europe, Mexico and Asia. Therefore, the "Whirlpool" created a new vision and began the process of its realization. All senior managers had to first have a global experience to be able to better understand the global market in which their organizations operated. In addition, this global organization has entered into a joint venture with "NVPhilips" to win the European market and started joint ventures in India and Mexico. Moreover, the conferences were held across Europe to get to know each other and managers to comprehend cultural differences and learn to price (Hodgetts, Luthans, 2003).

2.8. Self-efficiency

Self-efficiency involves confidence and belief in their individual capacity, resources and ways of action that are needed to successfully achieve a task. Before selecting their choices and start running, employees want to measure, evaluate and integrate information about their abilities. In this sense, it is important that global organizations can promote and develop self-efficiency, to take advantage of a positive impact on the performance of the activities of employees and the achievement of competitiveness.

There is a number of specific ways in which self-efficiency can be developed (eg assurance that employees will experience success, verbal persuasion, or training by learning through others), but global organizations also use the more general approach to creating a climate or culture that teaches and promotes self-awareness and active troubleshooting. Self-consciousness arises from a clear organizational vision that provides direction in relation to the critical choices and provide feedback on the results of a response. Basically, the staff are taught to actively seek information about the impact their behavior has on others and on things that matter to others, in order to maximize their own efficiency. In other words, "seeking information" becomes an essential element of the functioning of the global organization. Some global organizations as a way to encourage the development of efficiency use the method of "assessment of 360 degrees". It is a method by which they systematically collect opinions of a large group of people about the performance leader. Evaluation process includes self-assessment, and evaluation by superiors, subordinates, customers, important clients, and so on. The results of the evaluation will be realistic if the circle of persons exercise a broader assessment.

2.9. Cultural understanding

It is generally accepted that the culture of a society represents its shared values, understanding, assumptions and goals that are transmitted from generation to generation. These are the common attitudes, behaviors and expectations, which are subconsciously run and controlled by certain norms of behavior. A peron is born in a given culture, not with it, and is built up through a process of socialization. Cultures resulted in a life basis, based on mutual communications, standards,

codes of conduct or expectations (Hofstede, 1980). Over time, cultures have evolved along with society adapting to changes in external or internal environment.

4. INSTEAD OF CONCLUSION

Organizations that want to stay competitive globally and to expand their actions in other countries, need to develop top management staff who have experience in business and who understand how to work with people from other cultures. Thus, global organizations must invest in well-trained managers and leaders with the skills which are essential for effective work in a multicultural environment. Managing cultural diversity in its workforce, or in a foreign country is an important competitive factor in the future, and the skills needed for this task are understanding and respect. The advantages of multicultural differences include: the full use of resources through a set of different skills, perspectives and ideas, a better understanding of the multicultural market, greater innovation and better problem solving, increased motivation and commitment to the organization etc.

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CREATION OF NEW KNOWLEDGE IN FUNCTIONAL COMPETENCE ENTERPRISES

Zlata Bracanović , M.Sc*
Institute IMR-a, Patrijarha Dimitrija 7-13, Belgrade, Serbia
e-mail: zlatabracanovic@yahoo.com
Sanja Stanisavljev, M.Sc
Technical faculty "Mihajlo Pupin" Zrenjanin, University of Novi Sad
e-mail: gstanisa@gmail.com
Milan Nikolić, Ph.D
Technical faculty "Mihajlo Pupin" Zrenjanin, University of Novi Sad
e-mail: mikaczr@sbb.rs

ABSTRACT

Functional companies are recognized by human capital. It is a driving force for innovation and sustainable competitive advantage. Intellectual capital with its diffusion of knowledge brings income and productivity growth. Highly trained staff professionals, experts with special attitude towards knowledge, create knowledge competence. Competencies enable the creation of new knowledge networks knowledge systems. Integration of knowledge and network knowledge system receives the focus of the flexibility of the enterprise functioning. New competencies include information, social and Congenitive knowledge and skills of professionals. At the same time professionals, using a network of knowledge systems are focused on market hiperkonkurentskom accompanying him, feel, react, combine connect, create and produce. Knowledge workers, professionals, possess competencies that enable them to work with the knowledge and thus to emulate them and learn continuously. Intellectual capital with its diffusion of knowledge brings income and productivity growth companies.

Key words: knowledge, professionals, competencies, integration, systems

1. INTRODUCTION

Serbia is a country that is still undergoing a transition in which the inevitable decline in the overall economy. More dimensional changes that result from the transition with economic changes are aimed at building a market economy. After having analyzed the company through the eyes of these changes is obtained transparent insight that enterprise-wide non-market, conflict and incompetent. Accordingly it is necessary to ensure market business enterprises through privatization and various forms of restructuring.

The restructuring includes the forms of planned changes in the company to overcome the crisis and ensure the sustainability of core business activities. This includes correction of inadequate organizational structure, eliminating the redundancy, the replacement of outdated technology and change management team and establishing the financial consolidation. After completing the changes the company is ready for privatization of different status purchase by tender or auction. No matter who is the owner and whether the small or medium enterprise that begins its new life cycle. This includes the development path that should be in the initial stage of business analysis and define clear goals.

2. ZOOM CAPABILITY OF COMPANIES

Operations of small and medium enterprises is subject to the influence of several factors that are highly complex nature. This influence is complex and constantly changing in direction and intensity. The ability of a good business enterprise means mastering all influential factors in predicting, planning and ragovanje. A large number of influencing factors is characteristic of all types of activities carried out by small and medium enterprises.
These factors relating to production volumes, operating costs and the price's products. The goal of every company is to be effective, the functional, competitive and recognizable in the market. Positioning of emergent enterprise system must be implemented wisely and with knowledge of professionals who have competence. Professional competencies include skills related to knowledge and experience, and dedication that includes knowledge and experience. Employees who have the adequate competencies are very important for the progress of the company. Company's ability can be increased by hiring people who possess special knowledge or knowledge based on experience. Rather they are professionals in real time ažirira high and actualize their working ability and skill.

3. COMPETENCE SKILLS

Professional is able to improve the value of Profits in the creation and production of knowledge. He does not wait for the problem occurs in the form of it known that it would be resolved, but it solves in the form in which it appears. That the new company became richer by value based on the knowledge needed to build and develop new competencies of knowledge. This includes the adoption of the attitude towards continuous learning. Figure 1 presents the competences that professionals have.

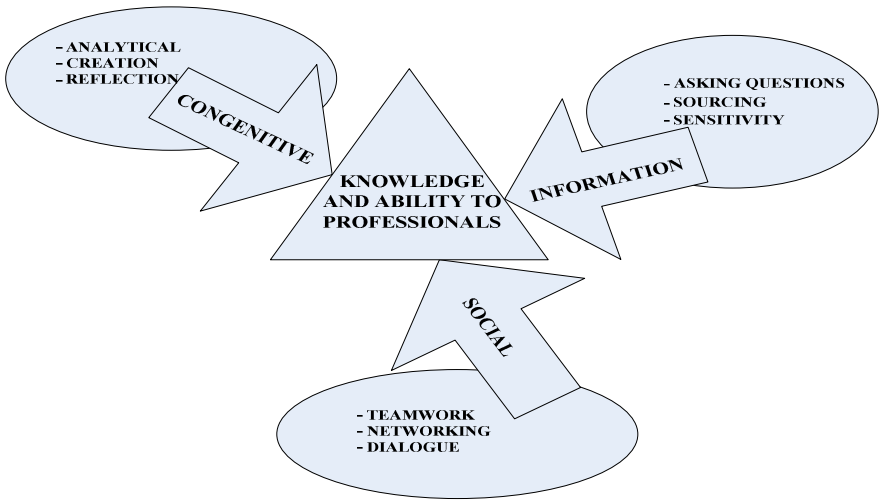

Figure 1 Competence of professionals

New competencies and learning support can be divided into three groups:
1. Learning from the information: How and where to find the necessary information;- Asked to turn in information; Listen, be open to new information.
2. Improvement of thinking:Analytical thinking based on logic; Create a free thinking; Ability to compare.
3. Social competence: Networking through computer networks; Team work, cooperation and knowledge sharing; Dialogue, without favoring personal attitude.
People are the ones who create knowledge and therefore it is important to possess competencies that enable them to work with the knowledge to use it as a means of production. Competence shown in Figure 1 the basis for linking or connection bóbr individuals with the team and company. The connection is the essence of well-functioning enterprises. Allocated deste indispensable rules for a good connection (1).
1 - There help.
2 - To leave the leadership.
3 - Present the seriousness - the transparency of results.

4 - Show the value added - a personal and team.
5 - Build trust.
6 - Advertising - myself and the team.
7 - Invest time.
8 - Selectivity.
9 - Meet the contributors.
10 - Neutralize and reduce resistance to all associates.

When applying these rules for a good connection then teamwork is impeccable. Teamwork creates a unique synergy of knowledge kombinijući knowledge of all team members. Management team based on the competence level of competence involves the ability of team members and alignment with business goals. It also includes a Professional training of team members depending on their duties. You have to be monitored Timakova work both individually and as an overall effect and extent of teamwork. Teamwork has exceptional opportunities at the force because it combines competence profesinalaca and so builds a new operetivna and strategic knowledge important for the company. Professional development of team members and the development of individual competencies through development funds are-evaluation.

Only competencies that professionals are able to position the company to the position. Profit is not acquired by perfecting the known, but an imperfect discovery of the unknown (2). In other words, here is carried out a drastic shift from products to services. It takes a lot of knowledge to cope with complexity in order to provide value-added services and also encourage innovation. Knowledge becomes a product and management of intellectual capital - knowledge is very important for every company since the right knowledge must be available to the right people. In this way, intellectual capital is becoming the sum of human capital (individual competencies), organizational capital (internal structure) and capital customers (external structure) (3).

Due to downsizing and restructuring and reengineering of permanent many companies are faced with the problem of how to and how to reestablish the connection and sharing of knowledge employees. When establishing trust between company and employees can expect the exchange of knowledge or introduce skills and knowledge presented. Busy professionals with their new competencies form the attitude toward knowledge that is the basis for the
functioning of companies.

Each company would be easier and faster to communicate using the Internet, extranet and intranet. This of course does not solve the problem but no company will allow it to with it, as a tool, there is a possible solution.

The biggest problem for most companies are related to the company. Sharing knowledge is possible through these tools but also the decision whether to retain the knowledge of an individual for himself or will use it for the benefit of the company. The connection of computers in the system will not raise cooperation to a higher level. Instruments for cooperation must have an incentive to cooperate. The only irreplaceable capital of each company's knowledge, abilities and skills of its people. Productivity and profitability of this investment depends on how effectively and efficiently employed their competence in networking and how to reflect on competence.

Companies with their focus should focus on the promotion of knowledge of its employees, the motivation of professionals to share knowledge. Managers in the company must establish a system of knowledge networks at the same time encourage, motivate, promote, codify and share knowledge professionals. Competences include skills related to knowledge and experience and commitment, which includes motivation and maturity. Employees who have the adequate competencies are very important for the progress of each company.

Attitude toward knowledge is proportional to the ratio of values, beliefs and behavior of individuals, teams and companies. Their individual self-assessment, accountability and learning and contributes to the exchange of knowledge and the team. Company codify the benefit of that knowledge is acquired and has trust their employees to professionals. Based on the new competencies of a competing employee relations professionals promote, create functional connections that are maintained in the enterprise.

It is necessary to make prosperous the enterprise decentralization of authority from each business unit, to predict and centralize knowledge by identifying areas of knowledge and communication skills. Develop the ability to develop and teamwork by defining key capabilities. Educate professionals through the creation of knowledge and stresses personal responsibility in order to endure the challenges that make work assignments.

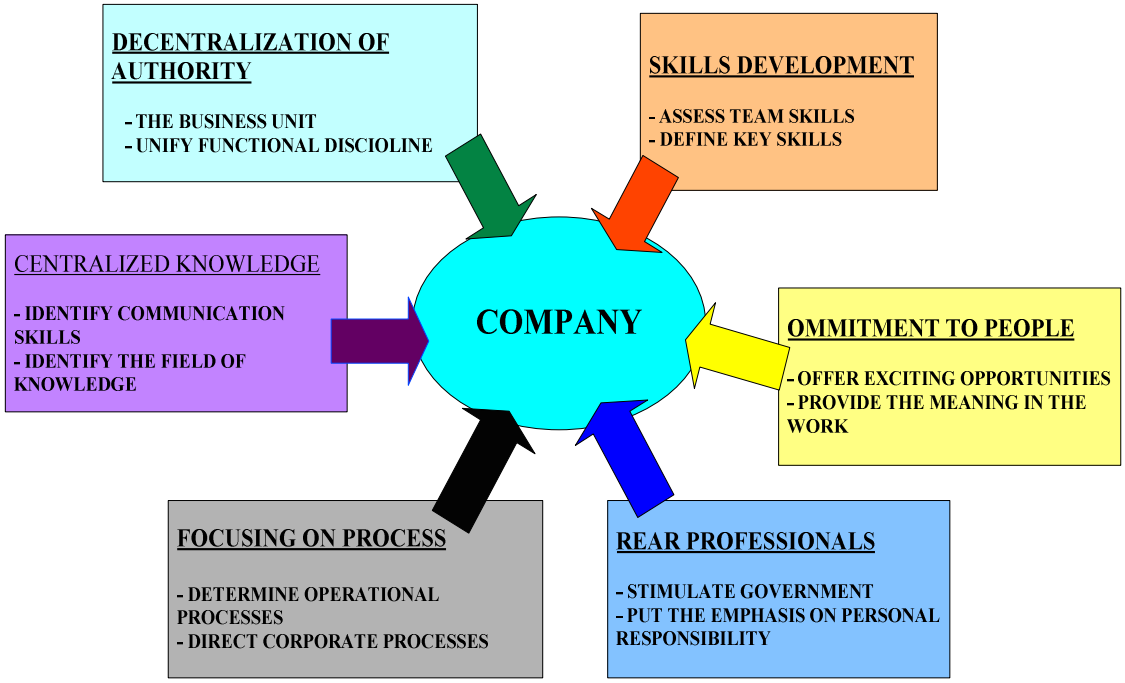

Figure 2 - A company based on new competencies

The decentralization of power increases the ability of the company strengthen responsiveness to changing competitive market. It involves the division of work into segments corresponding to a segmented market. It takes orjentisati functional business units in accordance with impacts on strategic and operational performance. Form teams so that professional knowledge work with a greater degree of individuality and independence. Centralization of knowledge involves defining key areas of knowledge that focus on building and sharing knowledge within the company. Identify segments and sources of knowledge through an individual or system. Based on that knowledge to make a map for upgrading skills and motivation of professional knowledge. At the same time to focus and establish operational processes and create processes that connect corporate strategy and operational processes.

4. FINAL CONSIDERATIONS

New competencies of knowledge professionals who possess knowledge are used to collect, use and exchange of knowledge. Such links allow knowledge to locate segments of knowledge in the enterprise. This includes establishing a process of building knowledge using operetivnog field of knowledge management. All this contributes to the company to establish and maintain stability in business and create additional value. Functional company with new competencies is based on processes and teamwork, and use knowledge as their main resource.

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MANAGEMENT THEORIES IN EDUCATION

Ivan Tasić, Ph.D*
University of Novi Sad, Technical Faculty "Mihajlo Pupin", Zrenjanin
tasici@tfzr.uns.ac.rs
Dajana Tubić
Economic – Businees School, Odžaci
Jelena Tasić , M.Sc
Informatics teacher, Primary School "Mihajlo Pupin"
Teodora Mitic
Principle ,Primary School "Mihajlo Pupin" ,Veternik

ABSTRACT:

In the global network of modern societies, it is considered that the organization of an effective permanent education is the key factor of economic development, and here are human resources much more significant in comparison with other resources. In fact, they are crucial factors for innovations and applicability of public activities and institutions with (these) new conditions. Moreover, the quality of education of employees and their capability for responsibility for their own professional development is key success of every institution and organisation. In specific social, economic and education context, there is as well as need for the school management. It is coincided (equated) with the management which wholly covers upbringing and education activities. The objective of this paper is exactly to point out specific features of management and management in education as a more contemporary approach to school management.

Key words: management, education, school

INTRODUCTION

It became pressingly nowadays to aquire consistently new knowledges and skills in order to keep momentary position or open new exciting professional possibilities for every individual. Organizations and individuals that are at present in best positions are the ones which have achieved competence and expertness because they had comprehended that the key of such success is in permanent studying. Therefore organizations and institutions need managers in education, capable to create creative atmosphere for active learning.

Management revolution has launched onto the surface of business / world career people possessing power, knowledge and characteristics of special, élite layer of society. It is confidered that a manager ought to have aptitude, if he wants to go in for that job. That talent is innate or not, although I do not deny the importance of pains taken in education and persistence of an individual trying hard to achieve his / her aims. The mentioned talent appears as a substantial factor in moulding a manager with leader properties. A manager is a person which is capable to influence the others – individuals, groups and organizations.

MANAGEMENT DEFINING

Management in its historical form exists from the beginning of human civilisation, but its modern concept can be connected to the middle of 19^{th} century. To the very affirmation of management have contributed new knowledges from the fields of science, technics and technology. We can also, by means of management, connect and reconcile different functions, various professional skills, efficiencies and experiencies. All above mentioned will help to be realised the common objective – favourable results of organisation. F.W.Taylor. is held to be the architect of contemporary management (Staničić, 2006).

It is, first of all, an interdisciplinary, complex scientific field which consolidates many elements of psychology, technical and social sciences. It can be applied to nearly all aspects of life at all levels: management of organisation, district, town / city, state, people, family, industry. Management is in broad interpretation divided into marketing, entrepreneurship, management of finance, production, human resources and development, management of information and administration systems and management of economic laws. Management is also defined as the process of planning, organising, leadership and controlling endeavours of all members in organisation, using all organisation resources in order to achieve designated aims (Andevski, Arsenijević, 2010:11).
M.P. Follet defines management as a capability (skill, handiness) to do jobs with people, or shorter: performing jobs by other people**.** P. Drucker thinks that management is a generic function and a specific and typical means of every organisation, irrespective of its mission (purpose). Also, according to Drucker, management is giving knowledge in order to find how to apply one's know – how to the best of his / her knowledge in order to produce results. Isac Adižes defines management as the process of making decisions and their fulfilment. (www.singidunum.ac.rs).

THEORIES OF ORGANISATION AND MANAGEMENT IN EDUCATION

One of the most prolific authors in the field of management is without any doubt Peter Drucker. He emphasizes that management deals with management and application and controls on results, so it is consequently a technology. Meanwhile, management deals with people, their values, success and development, and considering it, management is a humanistic discipline. Managers are the people who use their knowledges and inventions of the humanities – psychology, philosophy, economy, pedagogy, in order to concentrate them to efficiency and results. (Staničić, 2006).
Education becomes today an imperative of our subsistence. Postmodern society based on science and technology considers the acquirement of new knowledges, skills and competences as an instrument of sustainability at all levels, Education of individuals, organisations, nations and societies on the whole, therefore gives an viable advantage in more changeable conditions of life and work. Managing one so important developing process, therefore gets its significance and represents a scientific discipline called management in education. Here is understood managing education of wider society: district or state (consequently education planning, creating strategy and policy of education), managing the work of an educational institution (leading a school or an informal educational institution either in public or private sector), management of education and training employees in a company, management in education, and eventually as well management of some processes, projects or activities in educational background. Good purposeful labour, planning and education leading can contribute to its greater efficiency: better results of pupils at the level of institutions and processes "greater competitiveness of company at the level of organization, greater employment and competitive position of nation at the level of society. In view of it, great importance of headmasters is pointed out more and more in most distinct discussions all over the world. Headmasters are considered a main link in the chain of values in educational institutions, so they are requested to advance their skills and competences permanently. (Andevski, Arsenijević, 2010:3).
As in all other fields of management and leadership, so in the field of management in education, there is discrepancy between theory and practice. There are theories to give us some general explanations and to direct researches. They are generalized and abstract, therefore we can not say for a teory is it true or false, but we can only use it or not, Every theory is useful if it creates right anticipation of some events and if it helps us to comprehend and influence both them and their participants. (www.azoo.hr).
As Staničić emphasizes:"Management in education and upbringing ought to be considered as an integral part of wider social movements and educational – political efforts on the way to school reform. If schools want to be directly included into their own changes, they ought to be asked both for the changes that are being undertaken in educational scheme, as well for the forms of management of educational scheme and school, too. They will support best the transformations which ought to be realized through the changes. Such transformations are threefold challenge for the educational management on the whole. First, it has to lead the changes in education in the time when the character and mission of school are redefined. Second, it ought to be the integral part of new concept of state administration of the educational scheme that is totally removed from bureaucratic way of system guidance, and according to the efficient direction of public institutions in the service of its users. Third, it has to find ways and

apply new knowledges of management in organizations that ought to learn constantly." (Staničić, 2006:20).
Strategical management requests inspection of everything at school including as well all activities and widened hourly rate. Purpose defining is the central aspect of management, and in education (it) is expected to be focused on learning. Creating selfmanaging schools are opened greater opportunities for leaders, so that they can adopt strategical approach to management. Proactive access in management requests considering future during longer period of time with clear vision of future. If management is reactive, it is difficult to accept long – dated prospect. The difference of strategic thinking over from the operative management can be seen in:

1. Focus on long – dated period;
2. Creativity, capability of innovation and cancelling of out – of – date praxis;
3. Scannig of external background (surrounding);
4. Scrutinized accepting from helicopter outlook. (www.ssmb.hr)

The educational management appears considerably later than in some other fields of economy. The cause is first in social position of education. Education as an activity which was not long ago managed in a centralized way in most of countries. The role of managers was to transfer decisions made at the level of central state politics. Through decentralization and greater autonomy of decision making greater responsibility is passed on to lower levels of decision making. Leaders are asked to decide independently in interest of school and its pupils, as well to take care of the qualitative realizing of those decisions. The importance of good management is stressed. Contemporary concept of good management emphasizes as first the care for human resources, because manpower potential is a specific feature which contributes to the quality of the achievement in all fields of human work, as well in education. Such kind of development has determined desirable profile of a good manager. He ought to be more a leader than a manager. So, where is the difference between management and leadership, a manager and a leader respectively? Insisting on the difference between a manager and a leader usually is cited that " a manager maintains systems, relies on control, considers things in short terms, accepts status quo; a leader motivates, gives an incentive and energy, watches things in long ranges and has a vision; he challenges and changes status quo. Management is performed on things, leadership on people. The function of management is to command and control, and the leadership function explains the direction of changes and wins the members of organization over to take part in the process of changing. Leading means the existence of an enlightened vision about the fact what an institution is now, and what it can become, but as well the capability to convince the others to accept that vision. (www.azoo.hr).
The educational management is an important innovation in the 20th century educational system. When school had only one classroom, it was (being) led by a teacher. Meanwhile in schools with many classrooms in industrial developed towns and consolidated rural districts, there was necessary work coordination. Thus, then appeared the need for a specialist with full working time – a manager responsible for financial, educational, human and physical school potential (Staničić, 2006:20).
Staničić writes that "management mostly is connected to the phenomena of organized life as planning, analyzing, organizing, financing, supervision and similarly, while leading is connected to people, their behaviour, work style, communicating, motivating and the like " (www.azoo.hr).
School management occurs in a specific social, economical and educational context. Because of economic competition, demands on schools become from day to day more strict and greater. Governments press and give in control over curriculum and its valuation and inspection supervision. They centralize and decentralize educational system, and give as well school wider control over resources, include budget as well, management of teachers, all this within competition among institutions which are described as "quasi - market" (www.ssmb.hr).

MODELS OF MANAGEMENT IN EDUCATION

Modern authors most often connect themselves on Cuthbert's, Bolman's and Deal's as well Margan's approaches to the theories of educational management and guidance. Cuthbert (1984.) resumes models into five groups: analytically rational, pragmatically rational, political as well the models that point out bilingualism and phenomenal and interaction models. As criteria for design, he takes the levels of dialogue among employees about their objectives, the manners that value efficiency and concepts of structure of their institution / organization. Bolman and Deal give four aspects or scopes: structural,

political, symbolical and human resource. Morgan (1997.) offers metaphors for organizations. He names them as: mechanical, organic, contemplative, cultural, political and the like. The integration of their views has realized an English theoretician of management and guidance in education, Tony Bush in his well – known study *Theories of Educational Leadership and Management (2003.).* In his distinction of theories and models, the author starts from the objective, structure, background and guidance in cultural organizations. The models preferred in some institutions differ in insisting on the importance of organizational objectives, against the individual objectives of employees. The emphasis on structure within educational organizations indicates comprehension and acceptance of individuals through their roles. The relation between an institution and its environment is recognized through intensity and quality of collaboration. Organizations differentiate as well according to strategies of guidance. Buch has established a classification of six models of management in the institutions of upbringing and education: formal, friendly (cooperative), political, subjective, bilingual and culture (ones). He connected these models together with adequate guidance models. These are models of management, participation, transformation, transaction, contingency, instruction, as well as postmodern, moral and interpersonal models. The models of educational management and guidance are diverse conceptual accesses. Each of them almost never „cover" reality of some educational practical experiences, so in certain situations one can recognize many of them – in different percentage. Proportion of some models in educational institutions depends on their magnitude, organizational structure, the time that can be given to management, ability of resources procuring and institution background (www.azoo.hr).

CONCLUSION

Education is one of substantial factors of efficiency and speed of economical development. It presents social value for itself, because operations improvement and changing of social relations depend at the most of people's knowledge and education. Schooling qualifies a person to be an active agent of economical changes. The management of the organizations of economical type is similar as the management in school system.

The management function is assigned to managers, leaders respectively. Leaders and managers with their management, guidance and planning ought to create positive working climate, so that the participants in school system would take pains and as well invest more greater endeavour in it. People like to be motivated and led, and, of course, they dislike to be controlled and frightened by sticky forms of management.

In spite of some critics' opinion that management can not be applied in the field of school system, there are very certain opportunities for it if general observing of goverment participation in school managing changes. Pedagogical – educational institutions have to become more independent in the process of decision making cannected to management of their systems, because they know it at the best.

Because of these purposes, it is necessary to develop managerial cadre specialized for school management as a peculiar system and to invest in it. It has not be forgotten that from our educational scheme quality depends also our future, as well the future of the following generations.

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MANAGEMENT IN SPORT

Nenad Zec*
Deportnen og Human Service, Melbourne, Victoria, Australia
nzec@optusnet.com.au

ABSTRACT

At today's high level of sports achievements in the world, and the application of sports science and technology, more attention is paid to human resource management in sport and business positions in sports organizations. Better sports results achieved in recent years in various sports, to a large extent changed the perception and character of the sport and set new requirements for solving the current task on an integral basis. Origin, development and rapid changes in sports-technology and business-control function of modern sports organizations are undoubtedly in the world today is one of the most important incentives change sports and business functions, and philosophy, and the turning of man to his knowledge and creative and creative potential, as the most significant production and development resources.

Keys words: management, management in sport

INTRODUCTION

Management in sport organizations provide sports development, general planning activities in the field of sports, organizes all relevant resources, processes and functions, exercised a policy of human resources development, organized sports and business functions, provide communication and coordination, deciding on the implementation of most appropriate solutions, processes and controls eliminate destructive conflict. Management and sports marketing are one of the most important, also the most complex activities, which ensure that sport and business functions carried out in the more rational, economical and efficient way. Marketing agencies in the sport today are not only involved in the negotiations, advertising and underwriting, but also provide many other services. Some of the key factors for success and competitive advantage both in management, marketing and sports, and in general are fine, owning and managing information, to detect and respond to changes in environment, application of new technological developments, development of old and acquisition of new knowledge. Sports management as a skill and unstructured experience of talented managers of individual athletes, teams and clubs emerged with the appearance of the first professional sports organization. The appearance of a systematic, scientific knowledge of sport management is linked to the growth of professionalization of sport and its submission to the laws of market economy and the emergence of management science, first in the profit sector, corporate business and then it's spreading to the sector of non-profit public and private sector.

THE CONCEPT AND DEFINITIONS OF MANAGEMENT

Management is a central activity of our time and economy. At the same time, it is a factor in our economic progress, the employer educated people, the collector of our resources, a guide to effective government, the strength of our national defense and the molder of our society. Management plays a central role in our national and personal activities, and the way we manage ourselves and our institutions clearly reflect what we are a society and what society will become one (Sajfert, 2009) Management had previously translated the word, our leadership, but these words are not synonymous, because the management is just one of the functions of management.

Definition of management are numerous, none of them is not complete itself. Each has a partial approach to this issue, because it highlights one while neglecting the other side is also significant.In one of these definitions, it certainly is one given by Mary Parker Folet (Mary Parker Follet), and by which management present performing skills with people. Daniel Waren and Dan Voich define management as the activity that perform certain functions in order to effectively secure, deploy, and use of manpower and physical resources to achieve a goal (Waren, Voich, 1994). Coordinating various resources in the planning, organization, direction and control - directed by established common objectives (Koontz and O'Donnell).

According to Heinz Weihrich & Harold Koontz-in, management is the process of shaping and maintaining an environment in which individuals, working together in groups, efficiently achieve desired outcomes (Weihrich & Koontz). The process through which a select group of people put all employees in the company towards a common goal given(Massey and Douglas). According Fejø, management is the process: forecasting, organizing, commanding, coordination and control (Fazol, 1949).

It is a process or function that is most important to each company and it includes the operations of enterprise management. This definition, with more or less adjustment is used for many years, treating management as a process that enables organizations to achieve their goals of planning, organizing and controlling their resources.

Management is the process of planning, organizing, managing and controlling the work of members of the organization and the use of all available resources for the organization stimulus goals (Stoner, Freman). Management function occurs in companies of all shapes and goals-economic and non. In commercial companies the management is aimed at coordinating actions in all stages of reproduction. In non-enterprises (cultural, educational, social, health, etc..) To the coordination of actions in achieving their goals specific (Kukoleca, 1990). According Jova Todorovic management can be defined as a basic function of each enterprise as an organizational phenomenon. It is a universal process of coordinating and directing all organizational resources to achieve the definition of targets (Todorovic, 1997). Comprehensive definition of management was given by Steve Kukoleč. According to him, management is an American term for "management" under which they involve coordinating elements and factors of production to achieve the objectives of an organization. That is when it comes to production, achieve goals, use of manpower, materials and machines.

THE CONCEPT AND DEFINITION OF SPORT

There are many definitions of sport, often contradictory and paradoxical. In particular it contributes to an indefinite term "sports game" and claims that sport is played. One group of researchers says that sport is a struggle of man with himself, another man and natural barriers (the forces of nature). Others point out that sport is a social institution imbued with an educational game aimed at a physical and spiritual development of personality. The third sport as rational activity, the totality of the achievements in a particular area of social life and so on. Marjanovic believes that sport in general does not exist, but there are just different kinds of sports, and given that each complex has a special social structure that is different from the structure of other sports.

Sports are considered to be sports education and sports activities, aimed at achieving results in sports competitions and: physical development activities and games for all ages,'sports and rejuvenation, corrective sport, business professionals who prepare participants for sporting competitions, activities of persons involved in organizing and managing sports events and other sports events.

Sports and other forms of physical activity not seen in isolation from the whole socio-cultural phenomena, but, rather, within them or about them. Sociological approaches to sport can be varied. Sports, for example, can be seen as an activity in a number of other activities in the structure of society (the structural approach). It can also be viewed as a developmental process (historical approach), as well as interaction (interaction of) individuals and groups (interactionist approaches). Approach that only wants to describe the sport, called the phenomenological approach, while the functionalist approach to stress the elements of cohesion and equilibrium of society, the role and function of sport in these processes.

Sport is a multidimensional and complex phenomenon. Besides competition, the field of sports includes social, psychological, economic, political, educational, scientific, medical, filozoške, religious, cultural, legal and other valuables. Sport is a social phenomenon, with specific social functions and the expression of certain social needs (www.savremenisport.com).

MANAGEMENT IN SPORT

Managers need to govern the special skills and knowledge. Manage, lead, coordinate, decide - it must know. Management, in addition to science, it is also art. The success of any organization, as business systems, and public sectors, culture, sports, art, depends on the skills of managers. Art of creating, governing, managing, organizing, forecasting, planning, designing, can be considered a kind of art. Management is, de facto, the Sciences and Arts. Science and art are complementary, as they work in synergy, not excluded. No art by science, or science with creation, the dose of art.

Human resource management in sport is a new theoretical, scientific and pragmatic approach, which on the one hand, refers to the management of athletes by coaches, team of experts and sports scientists, on the other hand, the efficient and effective management of the entire sport organization by control in sport, sports managers, marketing managers and sports volunteers. Management of sports involves the study of disordered and proven knowledge of how a sports organization achieves its goals, procuring, distributing and the use of limited human, material, information and financial sources of its success.

Sports Management as the art and craft-empirical, unstructured experience of talented managers of individual athletes, teams and clubs emerged with the appearance of the first professional sports organization. The appearance of a systematic, scientific-structured knowledge of sports management is connected with the growth of professionalization of sport and its rules determination -service market economy, and the emergence of management science, first in the profit sector, corporate business, and then, and it's spreading to the sector of non-profit public and private sector.

Start sports management as a scientific field associated with the 1980s for years (Bittel, 1988). This was preceded by the development of research in the field of business management capabilities driven by new information technology. In the 1960s and 1970s age system based on computer models developed in connection with the functions of planning and control, dominated the literature on management. How to extend the company of " industrial-based economy"to "service-based economy, management techniques have become of growing dependent on the sophisticated / subtle forms of data processing and transmission of information. During the 1980s years, management theorists have developed new models of strategic planning and decision making with the growing emphasis on entrepreneurship and the use of marketing techniques. With this development is related to the period of establishing the academic discipline of sports management. Although the sports management programs emerged in the late 1960s and early 1970s, university curricula have begun to include extensive programs for the preparation of sports managers only since the 1980s years. Development of the North American Society for Sport Management (NASSM) and the founding of the Journal of Sport Management in 1986 were additional indicators that the sports management taken seriously in the academic environment.

During the 1990s the administration of sports, athletics and recreation is in a serious state of transition, the 1970s and 1980s of years, due to the expansion of opportunities and the commercialization of sport, the demands have grown to discover effective and efficient ways of managing sports organizations. After the 1970s a lot has changed in terms of sports management company. The influence of many discipline - sociology of sport, sport psychology, education and business administration - put into service design management practice in modern sports organizations. The combined effect, amended the growth of sports administration / sports management as an academic discipline, has contributed to the promising prospects of sports organizations in the 1990s years.

With the appearance of the 1990s, several development processes and trends began to empower the optimistic views on the management of sports organizations. Bucher consider further four such trends: competency-based management, marketing approach, Transformational Leadership, Management by expectations. The list is not exhaustive but represents the many changes that have occurred over a wide range of management, particularly as they relate to sports, athletics and recreation.

But these five functions of management (planning, organization, personnel management, management and control) are present in areas of activity of each manager, although to varying degrees at different levels of management. Realization of functions and social roles require managers to continually learn and improve three types of expert skills: **First**, the conceptual/logical-thinking skills that include power analysis, clarification and solving problems; **Second**, interpersonal capacity or ability to direct interpersonal relationships; **Third**, the technical skills related to special needs of specific organizations.

Management is a process of cyclical movement through the five functions that managers realized by preparing, executing and controlling the movement of the organization towards achieving its goals. In a narrow sense, the sports management as an academic discipline covers areas of knowledge management

that have emerged over the practice of managing sports organizations. Joint Committee of the Association for physical education and sports management in North America for the evaluation / certification program of education of sports managers in the universities of North America, has established the standard facilities study sports management (nassm@unb.ca): Management and Leadership in Sport; Ethics in Sport managament; Marketing in Sport; Communication in Sport; Budget and Finance in Sport; Legal Aspects of Sport; Economics of Sports; Management of sports facilities and events; Governing bodies and structures in sport; Practical experience in sports management.
At today's high level of sports achievements in the world, and the application of sports science and simulation technology, more attention is paid to human resource management in sport and business positions in sports organizations. In this regard, it is generally known that the high level of sports science, training and management technology, directly caused by the human resources in sports organizations. Same as is known, that without adequate qualified, creative, and creative human resources can not be implemented development policy, science and technology in any control system in society, and consequently even in sports, because, as you know, people are agents of the reform , development and progress.
In the contemporary theory and practice of sport, it is considered that the development trend of modern sports results is the origin of high competitive effectiveness, that the world has its foundation in all trenažnoj more developed technology based on sports science. In this connection it is well known, that every human activity in which a product achieves follows some technology work, or more specifically speaking, it is impossible in any human enterprise, to achieve a highly valuable product, while they had not been applied highly developed technology work. To the sport precisely means that every highly accomplished sports scores prior to the application of high technology work.

CONCLUSION

It is very important adequate training (training) of employees in sport (sports administration) to keep pace with the development of information technologies and how to get the most from the progress that we allow new technologies. With the advent and development of information technology in our country at home and abroad are increasingly the question is competence sports administration (sports management) to adequately and properly carry out their jobs and how to save time and resources of their organization. Most of the sports organization accepting the progress of new technology learning, develop and adopt new methods (information and communication technology) that will help them improve their products and services and bring them closer to their customers.

To achieve the highest quality in the sport, it is necessary to create, modify, organize, and continuously to implement anongoing and final preparation of elite athletes, and along with that, work on finding themost suitable organizational forms, methods and content of work in preparing eliteathletes for the highest-level representative sporting achievements. Contemporary arts organization in today's dynamic environment characterized by frequent changes andnumerous competitors can not survive without management.

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Session E: MARKETING MANAGEMENT

Papers (pp. 335-406):

POSSIBILITIES OF APPLICATION OF FACEBOOK SOLUTIONS FOR BUSINESS IMPROVEMENT OF SMEs

Zoran Čekerevac, PhD*
Union University in Belgrade, Faculty of Industrial Management Kruševac, Serbia
zoran.cekerevac@hotmail.com
Marija Marković, M.Sc.
College for Professional Studies of Business & Industrial Management, Kruševac, Serbia
mmarrija@gmail.com
Stanislav Glumac, PhD
Megatrend University in Belgrade, Faculty for Business Studies, Vršac, Serbia
sglumac@megatrend.edu.rs
Evelin Vatovec Krmac, PhD
University of Ljubljana, Faculty of Maritime Studies Portorož, Slovenia
evelin.vatovec@fpp.uni-lj.si

ABSTRACT

As well as large corporations, small and medium-sized enterprises (SMEs) largely rely on their marketing activities. An important part of any business is making sure to get the word out about the company, and its products or services. New tools, where social networks, including Facebook, also belong, are changing the business environment to which we have become accustomed. Facebook is not used only for games and wall posts. Thanks to its application platform, Facebook has become a viable place to accomplish solid business objectives. The key is in relationships. Web 2.0 has enabled companies to connect with social networks where their customers and business partners also belong. It gave them a two-way communication and eliminated geographic restrictions, so they can do their business on the global level. Information technologies also allow the adjustment of environment to e-business needs, primarily aiming creative expression and to provide the necessary support to customers. The paper analyzes the features that Facebook offers to SMEs. The paper also discusses the risks involved in development of applications and businesses on social networks with proprietary platforms.

Key words: Small and Medium Enterprises, Facebook, Social Networks, Internet, E-business

1. INTRODUCTION

Regardless of the activity of the company, and the type of service or product it offers, the number of potential customers that are informed about products and services is important. Active marketing of products has been there as long as trade itself. The marketing has changed through times and today a special type of marketing - Internet marketing is increasingly present and important.

The Internet marketing has given the companies with small marketing budgets the opportunity for promotion at the social networking websites. New cultural phenomenon that extends around the world, and is thus the leader among social networking sites - Facebook (FB) has allowed modern, targeted marketing on the Internet.

Why is Facebook worth so much? This question leads to the "dark" side of Facebook, but mostly when it comes to users. Facebook is full of private information on all registered users (666 million, April 2011.), especially those who are active, and there are about 500 million of them. Facebook "knows" who likes what and why, who shops for certain goods, where they do it, why and so on.

How Facebook "knows" which ad to offer? Facebook has enough information about customers and their preferences. All the above information is very interesting for the business market and the organizations that operate within it. They are also the reason for the great value of social networks. Facebook has revolutionized the system of global business development by enabling the most advanced system of direct marketing in the world. With the above-mentioned aspect, every Facebook user is part of a global cyber-economy.

2. POSSIBILITIES OF FACEBOOK AND THE PROMOTION OF SME

Web 2.0 is a trend in the World Wide Web technology and is based on a social note, which allows users to participate in creating Web content. A term that refers to a new, second generation of web and hosted services, which instead of "data warehouse" (one-way flow of information) involves two-way interactive communication between users and computers and users together, allowing the passive become active participants (authors). In addition to active creation of content, Web 2.0 promotes web sites that specialize in connecting visitors for friendship, through social networking. Facebook is the most famous and most visited social network.

Through use of Facebook, people of all ages and backgrounds have discovered that they can enrich their lives through the contacts they make, whether it is with current friends, old friends with whom they are unable otherwise to have contact, or new online friends. In addition to the establishment of important social relations, Facebook members can share their interests with the rest of the membership in various groups and forums, participating in simulations of socializing through a variety of applications, buy, pay and receive virtual gifts, and through various contacts to help themselves or other members of the find a job or establish business contacts.

The basic characteristics of social network Facebook are:

- **Profile -** "The heart and soul" of the social site's user interface. It is like a refuge, a place where users can express their thoughts and feelings, set personal multimedia content and show your friends network. FB emphasis on user profile.
- **Security -** As the rest of the Internet, FB can be a dangerous place for posting personal information. So it has the ability to customize security profiles to the desired level.
- **Network functions -** FB provides the ability for users to use functions other than regular FB functions (updating profile elements, setting the status (the message on the wall profile)), using the additional features in the form of various types of games, applications, sections for music and video, creating and membership of interest groups, forums, design and reporting of events, and more.
- **Search –** a purpose of FB is to find friends and expand relations. This option includes a search function for user by name and last name, city, school and e-mail.
- **Help / Support -** FB has a section for help and support to customers, where the guidelines and procedures on use of the site are, as well as an explanation of the opportunities they provide, and the possibility of contacting the site administrator.

2.1. Facebook group

One of the main characteristics of Facebook is the ability to create **groups.** This form may be of interest to administrators, business pages and profiles. As in real life, people gather and form different associations based on their interests and concerns. FB has transferred this possibility to the Internet and its users made available to create virtual communities of interest i.e. groups. The groups are intended for discussion and sharing of content among like-minded people gathered around a common theme or initiative. They allow multiple levels of user participation and various forms of performance, so that groups can be public, private or completely invisible to uninvited users to chat. Group administrator has the ability to send a message to all members directly to the inbox.

There are various types of groups that users can join, in order to achieve contact with other group members, exchange of views (Discussions), multimedia content, so the group can find a variety of musical bands, historical figures, writers, poets, political parties and candidates, various brands, local organizations, companies and others.

Creating a group, the company gathers its potential and current users and associates, and allows them to interact and share experiences.

In the group, the administrator enters basic information about the company, the activities and contact (see also Figure 1, item 1). The company is presented through multimedia content in the form of images, videos and presentations, as well as sending a link to the site companies. The company can trigger a variety of topics and discussions within the group about their products or services, and thus receive direct feedback (see also Figure 1, item 3), or publish news about the new events, discounts, promotions, and send information on upcoming events, conferences, meetings, etc... (Figure 1, item 5).

Figure 1 provides an example of a Facebook group with its basic elements marked:

1 - Information is a section with basic information about the group, as well as the Info tab above the wall group,
2 - The area where an administrator, that is, its members can leave comments on the wall of the group, pictures, links and videos;
3 - Discussions tab where the administrator or members of the open discussion of various topics related to the group;
4 - Opens a tab with space for posting photos of the administrator;
5 - Video tab where the administrator sets the video clips on the topic groups and
6 - Events tab allows, to the administrator of the group, to publish upcoming events and also a reference to the same.

Administrator can add new tabs or delete existing ones, depending on the purposes, and subject of the created group.

Figure 1: Example of group on Facebook

A shortcoming of a group on FB may be that none of the published content in the group is visible on search engines, and that the content is not available to users who have not logged on to Facebook. Another drawback would be that for every potential member of a group has to ask an

administrator for permission to join. A period of time required to acceptance of membership depends on the administrator's availability.

2.2. Facebook page

In addition to the group, another feature of Facebook, which also represent the most popular form of promotion on Facebook, are **pages**. The reason for this is their convenience. The content published on this platform is fully visible to unregistered users and search engines.

Page on FB, in addition to elements that are available to the group, has additional features. Some of the benefits are shown in Figure 2:

1. Choice of "Vanity URL" (1), i.e. page addresses, for example: www.facebook.com/ the name of your company allows users to easily find the page,
2. Welcome tab (2), for creation of multimedia content (images, presentations or video) to be displayed as the initial image when user opens the page (item 5);
3. After a user clicks the “Like” button (3) on the page, an administrator can set the multimedia content to change and to provide more information about the page;
4. Field 4 shows the visitor who else likes the page and how many fans there are. There is a possibility of introducing the field to the site owner's site, through which visitors can become fans of pages on FB. Each time a user becomes a fan of a page, Facebook submits a notice about it to his profile and to his friends as news, raising the possibility that they join;
5. Multimedia Content (item 5) is set to tab Welcome and has the ability linking to a website or blog site owner.

Figure 2: Example of page on Facebook

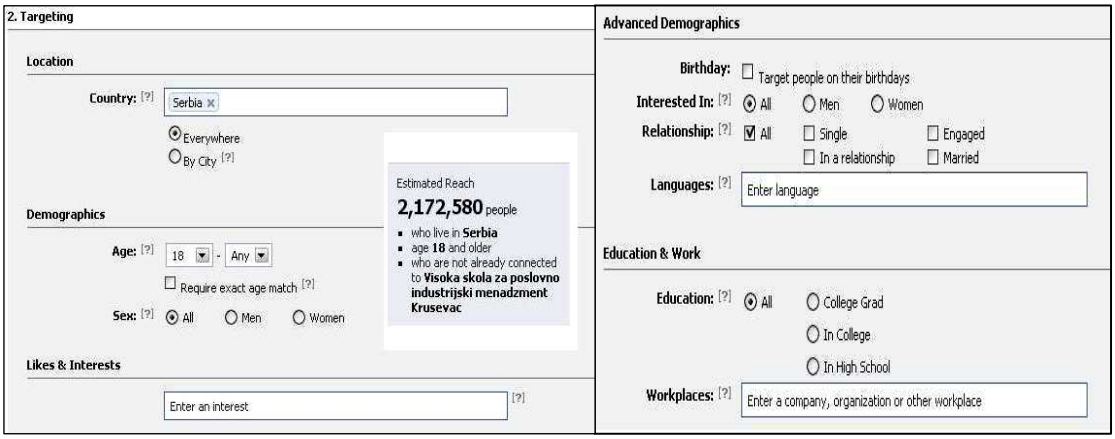

Figure 3: Selection criteria for promotion on Facebook

In addition to the above mentioned, Facebook allows advertising of pages on Facebook, according to predefined criteria (Figure 3). So site owner can choose countries from which Facebook users can see the ad, age range, gender, interests, level of education of users who can see the ad, as well as their employment. Simultaneously, by setting the criteria, the site owner has insight to the number of users the ad addresses. This kind of advertising is known as target marketing.

In addition to advertising and expanding the network of friends and fans, Facebook has allowed owners of sites to follow the statistics on their websites (Figure 4).

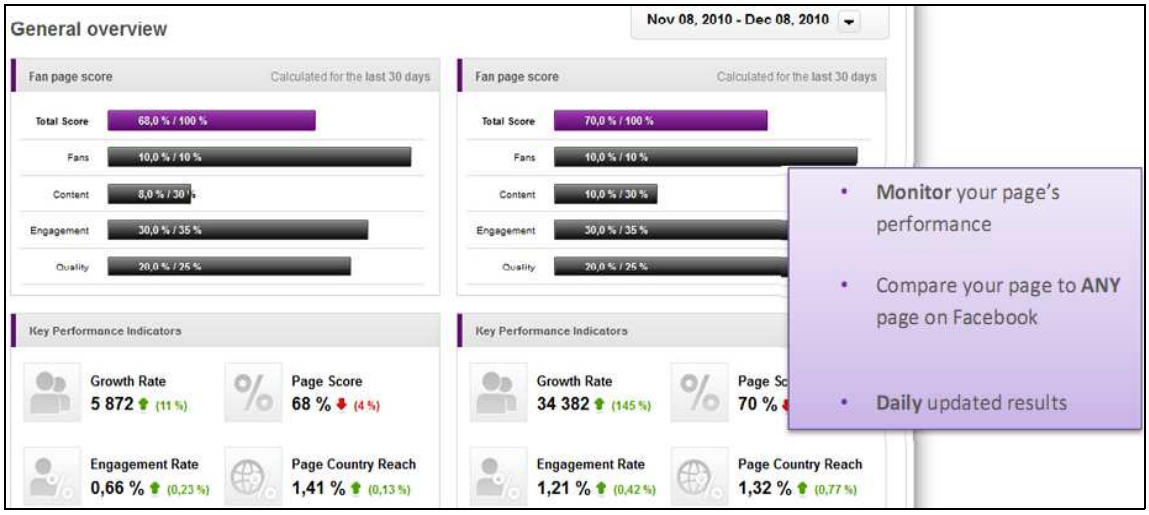

Figure 4: Market Insights Facebook

Figure 5: Notifications of activity on Facebook page

In addition to periodic reports on the visits to the website, it is possible to send off the statistics on how each of the site contents on the page (message, status, links, images, video) was reviewed and what percentage of fans responded with “like” or commentary (Figure 5).

3. CONCLUSION

Application of ICT in the economy has led and still leads to structural changes in many segments of the economy. The effects of these changes are yet to be felt. ICT in SME’s marketing activities, provide greater business efficiency, flexible performance of companies in the market, a stronger connection between buyers and sellers, reduces operating costs, increases profits, and so on.

In recent years, particularly with the emergence of social networks, enormous changes in the operating of the SME companies, sales of goods and services and communication with suppliers and customers have been introduced.

The average Facebook user has 200 friends. Depending on the environment and the presence of the Internet (in Serbia is over 2,000,000 Facebook users), the number of friends can greatly increase. Each person can have a profile or a Facebook group, and every company may have its own page on Facebook. At the time of its creation it is important to take account of the creation of online identities, because what once appears on Facebook that stays there forever, and it is available to everyone.

First of all it is necessary to determine the basic guidelines:

- what is to be achieved by the Facebook page
- the target audience and
- the strategy of presenting products or services on the site.

Depending on the commitment and updating pages, (publication of multimedia content in the form of news, events, activities, prize games) fan base can grow by the day, expanding the network of potential users of the products / services of the company companies which is the owner of the page.

Facebook is a great and totally free advertising medium for sales, promotion and strengthening of the position of "local" brand. Local, because it has already proven itself within that framework, particularly because of the possibility of targeted marketing.

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HEDGING WITH OPTIONS AS A CONTEMPORARY CONCEPT AND INITIATOR OF DOMICILE FINANCIAL MARKET

Dragana Ikonić*
Higher School of Professional Bussiness Studies, Serbia, Novi Sad
dragana_ikonic@yahoo.com
Nina Arsić
Higher School of Professional Bussiness Studies, Serbia, Novi Sad
nina.arsic.vps@gmail.com
Snežana Milošević
Economic and Trade High School, Serbia, Senta
snezana.milosevic@fondmt.rs

ABSTRACT

Every country being disposed to join global economic trends is trying to develop its financial market as much as possible because the financial market is directly responsible for investing into a long-term growth and development of economic system. Over the last decades human activities have been focused actively on surmounting and avoiding difficulties that may occur as a consequence of a model of contemporary society that many sociologists call "risk society". Globalization and modernization have contributed to creating new concepts and models for overcoming emerging opportunities and "misfortune" in every segment of human conscious activities. In addition to shares and bonds as traditional financial instruments, derivative securities are traded on financial markets, which promotes the development of financial markets, such as options. Investors trade with options because they have control over large amount of money at relatively low cost, and also control the loss that is reduced to the level of option prices, or premium. A special emphasis was put on options, as financial derivatives, because they are used to implement a hedge strategy that protects option traders from risk. In order to achieve a satisfactory implementation of the hedge strategy, it is important to analyse market and contract prices as well as their relationship.

Keywords: financial market, financial institutions, options, risk society, hedging.

1. FINANCIAL DERIVATIVES ON THE DOMICILE FINANCIAL MARKET

Traditionally, hedging and speculative actions are mentioned as complementary terms. Contemporary approaches, however, do not put hedging in the first place but highlight that derivative instruments are tools used by companies to better estimate financial risk. Financial derivatives are extremely controversial instruments, and demand more attention. Due to their complexity, many emphasize that they are not clear for usage, but what is common for both theoreticians and practitioners is the fact that their use is subject to their complete understanding; on the contrary, the outcome is not certain.

If we take into consideration the domestic financial market, there is a delay of its development as opposed to the international market of financial derivatives. It is, therefore, necessary to have intensive involvement of economic subjects and banks into international financial markets for the purpose of developing financial derivatives market in the Republic of Serbia. The encounter between interest rates and exchange rates from foreign market and domestic subjects that want to join these flows will result in risk from international financial environment. In order to enable domestic subjects to protect themselves from foreign currency and interest risk, it is necessary to possess a good knowledge of instruments, techniques and strategies of trading on uncertain international derivatives market. The positive legislature in the Republic of Serbia provides enough space for developing this market. Experts emphasize that there are many factors: faster

development of spot financial market, efficient protection of creditors' rights, active role of government in this segment, transformation of banks and economy as well as appropriate measures of monetary and fiscal policy, influencing the development of derivatives market in our country. It is assumed that the market of financial derivatives in our country at the early stage in its development will be inter-bank in nature, with sporadic participation of some highly rated companies, while the share of the corporate sector and the citizens can be expected with the institutionalization of the clearing house and establishment of appropriate mechanisms to guarantee the enforcement of the contract.

2. FINANCIAL INSTITUTIONS AND THEIR ROLE IN THE DEVELOPMENT OF FINANCIAL MARKET IN SERBIA

The banking sector in Serbia is organized in a conservative manner, and it has become an obstacle to further development of market relationships and financial markets, whereas the rapid development of financial markets in industrial countries, particularly in the United States, demanded the development of modern financial institutions and instruments that are adequate to the needs of investors and users of the capital. Financial market and the use of financial derivatives can be best explained by the examples of the most developed financial markets, such as the US and the European Union market because their trend of development can serve in the perception of the domicile financial market that is still emerging. Table 1 shows the data on the ownership of the financial sector in the USA at the end of the first quarter of the year 2009. It may be noted that non-deposit institutions accounted for the majority of financial assets, reflecting the development of capital markets in the United States, which is the dominant method of financing companies.

Table 1: The assets of the US financial sector, Q1 2009 in billions USD (Jeremić, 2009)

	billion USD	share %
Banks	13.904,5	25%
Savings	1.533	3%
Credit unions	847	1%
Property insurance	4.458,7	8%
Private pension funds	4.273,7	8%
Pension funds of the persons employed in government and municipality bodies	2.174,9	4%
Government pension funds	1.192,4	2%
Cash investment funds	3.738,7	7%
Investment funds	5.158,8	9%
Closed investment funds	200,7	0%
Government-sponsored entities	3.451,6	6%
Agency- and GSE-backed securities	5.041,8	9%
Asset-backed securities	3.937,4	7%
Financial companies	1.815,3	3%
REIT – Real estate investment trust	254,9	0%
Broker dealer companies	1.912,6	3%
Corporations for financing	2.653,8	5%
	56.549,8	100%

A popular segment of the financial markets in the world is the market of financial derivatives. The fact that applies to developed countries is that the number of investors who trade options tends to increase in contrast to the total number of investors. It is believed that there are significant opportunities for expansion of benefits of options as well as for switching activities from over-the-counter market to the stock exchange. Graph 2 shows market share on the stock exchanges in the United Stated, and the biggest option trade volume was on CBOE stock exchange with 28.6% share. CBOT achieved the largest number of transactions and the highest premium (Alijanović, Poklepović, Šego; 2009).

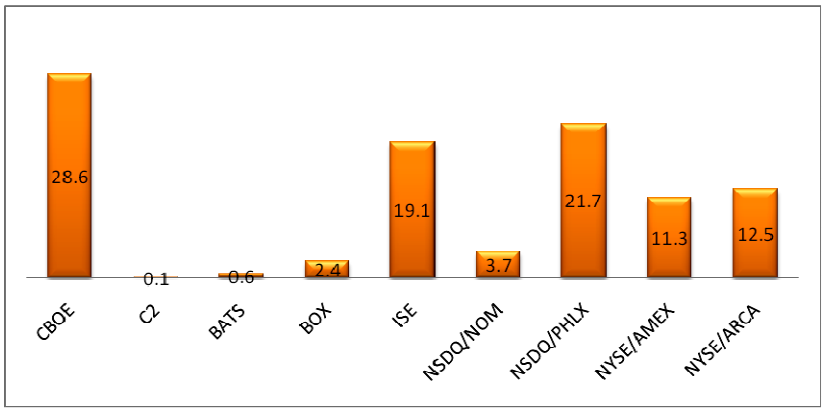

Figure 2: Market share of options on stock exchanges in the United States, in % (Alijanović, Poklepović, Šego; 2009)

Basically, capital market is a specialized market where money –capital is demanded and supplied in the long-term period, but the long-term period means larger number of risks. From the perspective of capital markets, insurance companies and pension funds play the key role as institutional investors in various securities, since theirs investments enable a significant increase in the liquidity of the market, as well as its overall performance.

The banking sector dominates the financial market in Serbia, followed by the insurance sector, while the fund industry is just in the state of approximate trend. Delaying the development of domestic investors created a gap, which was filled with foreign portfolio investors. Regarding fund industry, the first significant steps were made by voluntary private pension funds supervised by the National Bank of Serbia. In the total assets of the financial sector in the year 2010, which amounted to 2,759 billion dinars, banks accounted for 91.8% and the insurance company with 4.2%, as shown in Table 3.

Table 3: The share in the total financial sector in %

	Banks			Leasing			Insurance			DPF		
	‘08	‘09	‘10	‘08	‘09	‘10	‘08	‘09	‘10	‘08	‘09	‘10
Total assets	89.3	90.8	91.8	6.2	4.7	3.6	4.3	4.2	4.2	0.2	0.3	0.4
Capital	93	92.1	92.5	1.4	1.9	1.5	5.6	6	6			
Number of employees	72.2	72.5	71.8	1.2	1.1	1.1	26.2	25.9	26.8	0.5	0.4	0.3

Source: http://www.nbs.rs/export/internet/latinica/60/60_6/izvestaji/izv_IV_2010.pdf, 21April2011

The adoption of an institutional framework for investment funds in Serbia has opened up opportunities for greater profits, and loss of investment. The conditions for investment funds were created in Serbia in 2006 after the Law on Investment Funds (Official Gazette No. 46, 2006) was passed, ten years after the countries of the region. In 2008, there were fourteen open-end and two closed-end investment funds. The main problem for their business was bad timing to get started. Only one investment fund has caught a wave of "bull" market, which is strong growth in share price, while other funds were set up during the great fall in prices of shares – "bear" which is the hallmark of financial collapse. Investment funds provide individual investors with a profit alternative to interest-bearing deposits in banks. The development of investment funds enables individuals to get more alternatives for investing their capital.

3. HEDGING

3.1. Risk society

Modern society is a risk society. Although the concept of risk is as old as social development itself, referring primarily to the field of insurance, it can be said that modernization and globalization have contributed the risk to become a global phenomenon today. Financial derivatives have found

their wide use precisely in the purpose of risk management, because in that way it is possible to manage various types of risks, and this their immanent characteristics; possibility of transfer and isolation of specific types of risk. However, the term risk management does not mean and does not necessarily represent neutralizing or reducing risk. But derivatives are characterized by "risk prevention", an activity at which a cash flow transaction can be compensate for another cash transactions and thus the risk will be reduced (Skakavac, 2008). The increase in financial risk requires better methodology for their identification, measurement, hedging and analysis, whereas trading volume in the market of financial derivatives is constantly rising. The importance of derivative financial instruments for risk management is in their extremely high leverage. In financial terms, leverage means investing a smaller amount of cash into the investments of higher values (Skakavac, 2008). Financial derivatives, which are today definitely the most valuable tools for managing financial risk, have only been gaining their popularity over the last few decades. Developed economies with the help of financial derivatives market enabled managing financial risks by small investments. The unique rating applying to all financial derivatives is to reduce capital costs, increase efficiency and allocation ability of the market (Skakavac, 2008).

3.2. Hedging with options

Risk transfer is a key role in the financial derivatives market and is therefore primarily used for option hedging and speculation. Options and optional agreements are commonly defined as standardized, liquid purchase contracts, which give the buyer the right but not the obligation to buy or sell a specific object of the contract at a predetermined price and in a future period. The buyer in this agreement is a "privileged" side, without any obligation and can simply let the options expire unused. The purchase of options initially protects from the risks and can make a profit by the change of prices. Specifically, those who take the call option expect that the price of basic investments will grow, whereas those who take put option expect their decrease. Without differences in the type of option, a loss certainly reduces to the level of the premium (Kenneth, Siegel, Dabić; 1995). The purchase of put option protects the investor from possible risks seen in the case of decreasing market price of the share.

The values of put and call options move in different directions. If the market price of primary investments rises (including contract items such as shares, indices, Treasury bonds, currencies, futures contracts), it will result in increase in the value of call options. Likewise, if the market value of the basic investment falls, it will lead to increase in the value of put options. "The essence of financial hedging is a combination of two or more financial transactions with financial instruments that respond differently to changes in interest rates or exchange rates" (Skakavac, 2008). The following table shows the results of the study on using derivative instruments within hedging transactions of corporations belonging to different industry (Knežević, 2008):

Table 4: The use of hedging transactions in corporate enterprises belonging to different industry

Industry	Hedging of interest rate – IR hedge (% users)	Hedging of interest rate - IR hedge (% non-users of IR hedge)	Hedging of foreign currency - FX hedge (% users)	Hedging of foreign currency - FX hedge (% non-users of FX hedge)
Food	20	80	60	40
Transport and shipment	46	54	66	34
Banks	67	33	40	60
Insurance companies	60	40	33	64
Investment companies	56	44	50	50

Source: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=170348, p. 37.

According to data from the table, it is noticed that companies in the area of production (food) are greatest users of protection against currency risk (the percentage of users of this type of hedging is 60%). Transport and investment companies are oriented almost equally to interest rate hedge and foreign currency hedge. However, banks and insurance companies are facing interest rate hedges

for the purposes of controlling interest rate risk (67% banks and 60% of insurance companies – users of hedge – apply interest rate hedge).

One of the characteristics of hedge strategies is that they include the position in the option and position in their primary share. The goal is to make one position help neutralizing adverse price change in the other position. There are two important hedge strategies: covered call market strategy (selling call options) and protective put buying strategy (buying put options). *The covered call options trading strategy* involves selling a call option for every share that the investor owns. The investor takes a short (selling) position, and a long (buying) position is in the primary share. In the case of fall in share price, the loss is realized on a long position in the share, and the funds generated by selling call options can be compensated for the loss. The value of the portfolio of a company is 100 shares with a market value of €100 per share, which is the total of €10,000. It is assumed that the premium put options is €700 with which 100 shares can be bought at the agreed price of €100. There are situations depending on market prices (Kovačević, 1997) as follows:

- If the market share price exceeds €100, the buyer of call options will also perform and pay 100 € per share to the seller. Namely, with this market price the value of the portfolio will be €10,700. The profit made by this strategy is €700.
- If the market share price is €100 on the date of maturity, call option buyer will not exercise the option because the value of the portfolio will remain €10,700
- If the market price of shares is less than €100, there will be a profit less than €700. If the market share price is €96, the long position of the option will be €9,600, a short purchasing position will be €700, whereas the value of the portfolio will be €10,300, where €300 represents the profit.
- If the market share price €93, the long position of shares will be € 9,300, the short purchasing position will have the value of 700 €, whereas the value of the portfolio will be €10,000. The result of this option would be neither loss nor gain.
- If the market share price is < €93 at maturity, there will be a loss. Namely, if the market price of shares is €88 at maturity, the long position of options will be €8,800 with a short purchasing position of €700, whereas the value of the portfolio will be €9,500. So, there will be a €500-loss.

Using the *protective put options strategy* includes the purchase of a put option for each share held by the investor. It serves as protection from reduction of stock prices, but at the same time it enables the investor to use the results of the potential growth of share prices. Possible loss is limited, and the maximum profit is unlimited. Protective put option strategy acts as a kind of insurance policy of the investor. The value of the portfolio of a company is 100 shares with the market value of €100 per share, which €10,000. It is assumed that the put option premium is €500 which can be used for buying 100 shares at the agreed price of €100 (Kovačević, 1997). There are situations depending on market prices as follows:

- If the market price of a share is €112, the investor makes a profit by this strategy. Namely, at this market price, the value of long positions of shares will be €11,200; with the deduction of the premium of €500, the value of the portfolio will be €10,700. The profit made by this strategy is €700.
- If the market price of shares equals €105, there will be neither loss nor profit because the value of the portfolio will certainly be €10,000.
- If the market price of a share is €102 (but €100 minimum), the investor makes a loss of €300 by this strategy. Namely, at this market price the value of long positions of shares will be €10,200; with the deduction of the premium of €500, the value of the portfolio will be €9,700. The loss made by this strategy is €300, whereas the profit from shares is €200.
- In none of the above-mentioned examples, the investor will perform an option. If the market price of shares is under €100, the option is executed. No matter how much the market price of shares is lower than the contract price, the investors are convinced that they will get €100 per share. The value of the portfolio will be € 10,000 with a reduction of €500 of the premium. The loss made by this strategy is €500.

The aim of hedging with options is to enable one position to help in neutralizing any adverse effects of changes in prices in another position.

4. CONCLUSION

The main motive for individual investors to entrust funds to a financial institution, as an agent, is the diversification of risks that they made by investing in a range of different financial instruments as well as of expert knowledge they possess. Countries with developed capital markets have improved their financial system by financial institutions and instruments that are appropriate to the needs of investors and users of the capital. The limiting factors for the development of non-banking financial activities in Serbia are the level of national income per capita, shaken confidence of investors, the level of standard of living, and lack of habits of citizens and economic subjects to meet their financial needs outside traditional banking services. One of the causes of underdevelopment of the financial market in Serbia is the lack of a sufficient number of institutional investors, mainly investment funds and pension funds. Options are modern financial derivatives, which is often called the rising industry because there is immanent emergence of new opportunities for speculation on future developments on the market. Through greater regulation and transparency of capital market in the Republic of Serbia, trading derivative securities, including options, should be introduced in the future. The introduction of options on our stock exchange would be of paramount importance for capital market in Serbia because it would announce new possibilities for placing the funds.

Developed financial markets show a tendency to increase the number of option contracts. In developed market economies, the financial derivatives market allows small investments to manage financial risks. Hedging techniques include the use of financial instruments known as derivatives. In order to overcome the current stagnation in development, it is essential that financial markets take on more of the inter-bank character, and to participate in international financial flows, where will be a need for risk management, and the domestic market will get features of a developed financial market. It is certain that the hedging options will not be applied here for a long time due to the bad development of both financial markets and of a broad network of financial institutions.

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ANALYSIS OF THE INFLUENCE ON CONSUMER BEHAVIOR BY APPLYING BAYESIAN NETWORK

Nataša Papić-Blagojević*
Higher School of Professional Business Novi Sad, Serbia
npapic.blagojevic@gmail.com

ABSTRACT

Bayesian networks, known as belief networks, belong to the order of graphical probabilistic models. These graphical structures are used in expressing knowledge about the uncertain domain. Conditional probabilities in the graphs are often estimated by using appropriate statistical and computational methods. Hence, Bayesian networks combine the principles of graph theory, probability theory, computer science and statistics. For Bayesian networks can be said that they enable an effective representation and also allow calculation of the joint probability distribution over a set of random variables. Application of Bayesian networks in various fields such as economics, engineering, medicine, etc., has become extremely popular in the last decade. Graphical structures of these networks are very suitable for combining prior knowledge and observed data. For this reason, the application of Bayesian network is also possible in the case of missing data, when there is a need for knowledge of cause-effect relationship and for understanding of different aspects of the problem with predicting future events. Consumer behavior, as a topic that often opens up new questions, also provides the ability to be perceived in terms of probability theory with its simultaneous display across acyclic graph of Bayesian network. Thus, the Bayesian network is a good choice for researchers who are faced with complex problems in which one wants to come to conclusions that are not warranted logically but, rather, probabilistically.

Key words: conditional probabilities, graphical structures, probability models

INTRODUCTION

In recent years, Bayesian methods have become very popular as a technique for modeling systems in order to spread an uncertainty and to make appropriate quantification. Opportunities that have opened since the mid-50s of the last century, primarily the introduction of appropriate algorithms in the field of statistical inference, have led to the expansion of Bayesian analysis. Bayesian methods implemented in adequate graphical probabilistic models are called Bayesian networks.

The best way to understand Bayesian networks is to imagine trying to model a situation in which causality plays a role but where our understanding of what is actually going on is incomplete, so we need to describe things probabilistically (Charniak, 1991). Bayesian networks have ability to predict future without introducing any functional form or without existence of assumptions on the model. In that way an important part of statistical work is greatly reduced. The possibilities of modern Bayesian networks could be shown on the model that analysis the impact on consumer behavior.

Analyzing consumer behavior is a costly implementation of sophisticated information technology, which requires detailed planning and business knowledge for successful adoption. The current trend on consumer behavior analysis has been recognized on the business problem rather than on the information technology (Hsieh and Chu, 2009).

THE CONCEPT OF BAYESIAN NETWORK

The key feature of Bayesian networks is the fact that they provide a method for decomposing a probability distribution into a set of local distributions. The network characteristics specifies how to combine these local distributions to obtain the complete joint-probability over all the random variables represented by the nodes in the network model, making it an effective tool form solving prediction and classification problems (Haddawy, 1999).

Essentially, Bayesian network is showing the conditional probabilities between the variables and therefore can be used for reasoning under uncertainty. The most common calculations that are performed using these networks are related to the determination of posterior probabilities for some of the variables in the observed network.Using Bayesian networks for modeling has its advantages:

Bayesian networks provide a systematic and localized method for structuring probabilistic information about a situation into a coherent whole;

- Many applications can be reduced to Bayesian network inference, allowing one to capitalize on Bayesian network algorithms instead of having to invent specialized algorithms for each new application (Darwiche, 2010).

Given the very attractive properties of Bayesian networks for representing a wide range of problem domains, it seems appropriate applying them for choice modeling as well.

What is Bayesian network?

A Bayesian network is a graphical model that represents the joint probability distribution of the given variables. Each variable is shown in the chart by node. Direct correlation between the variables is represented by a direct connection (arc) between nodes and conditional probabilities for each variable. Conditional probability is defined as the probability caused by different possible combinations of values for the closest predecessor in the network. Information on the observed values of variables is distributed across the network in order to update the probability distribution for other variables that were not subject to direct observation. With applying Bayesian rule, these impacts can be presented in the opposite direction, from the dependent variables to their predecessors.

A Bayesian network encodes the joint probability distribution of a set of variables, (X_1, X_2... X_n) as a directed acyclic graph expressing conditional dependencies and a set of conditional probability models. Each node corresponds to a variable which can be discrete or continuous. The model computes the probability of a state of the variable given the state of its parents (Prinzie and Van den Poel, 2009).

If we consider the discrete variables, the strength of the relationship between variables will be expressed by a conditional probability distribution associated with each node. The only requirement that is allowed at the connections in Bayesian network is that there must be direct cycle: there is no possibility of returning to the node through a direct connection. Such networks are called direct acyclic graphs, or just DAG.

The structure of a DAG is defined by two sets: the set of nodes (vertices) and the set of directed edges. The nodes represent random variables and are drawn as circles labeled by the variable names. The edges represent direct dependence among the variables and are drawn by arrows between nodes (Ben-Gal, 2007).

The general structure of Bayesian network

Let us consider n radnom variables X_1, X_2,...., X_n , a directed acyclic graph with n numbered nodes, and suppose node j ($1 \leq j \leq n$) of the graph is associated to the X_j variable. Then the graph is a Bayesian network, representing the variables X_1, X_2,...., X_n, if:

$$P(X_1, X_2, ..., X_n) = \prod_{j=1}^{n} P\,(X_j | \textit{ parents } (X_j)), \qquad (1)$$

where: parents (X_j) denotes the set of all variables X_i, such that there is an arc from node *i* to node *j* in the graph (Pourret et al., 2008).

An extension of these genealogical terms is often used to define the sets of "descendants" – the set of nodes that can be reached on a direct path from the node, or "ancestor" nodes – the set of nodes from which the node can be reached on a direct path (Griffiths and Yuille, 2006).

This equation simplifies the calculation of joint probability distribution, because it is based on a graphical, intuitive view, not a technically complex thinking. Graphic representation of the relations existing in it can be easily interpreted, reviewed and verified.

If X_i has no parents, its local probability distribution is said to be *unconditional*, otherwise it is *conditional*. If the variable represented by a node is *observed*, then the node is said to be an evidence node, otherwise the node is said to be hidden or latent (Ben-Gal, 2007).

Another important remark can be deduced from the above definition: Any joint probability distribution can be displayed as a Bayesian network. Indeed, we can express $P(X_1, X_2, ..., X_n)$ formally as follows (Pourret et al., 2008):

$$\begin{aligned} &P(X_1, X_2, ..., X_n) = P(X_1)(X_2, ..., X_n | X_1) \\ &= P(X_1)(X_2 | X_1)...P(X_3, ..., X_n | X_1, X_2) \qquad (2) \\ &= ... \\ &= P(X_1)(X_2 | X_1)...P(X_n | X_1, ..., X_{n-1}). \end{aligned}$$

The general structure of a Bayesian network, that is suitable for any joint probability distribution of *n* random variables ($X_1, X_2, ..., X_n$) could be shown through a simple graph:

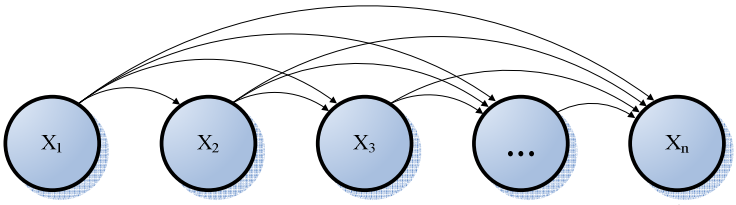

Figure 1: The general structure of Bayesian network[1]

The equation (2) confirms that the structure of Figure 1, with one arc from X_i to X_j, whenever $i < j$, is suitable for representing any joint probability distributions between variables. In other words, there is no loss of generality in modeling a set of random variables using Bayesian networks.

The question that often arises is: "Why the chart should be acyclic?" Besides the fact that the above equation does not make sense in the presence of loops, the hypothesis of graphical acyclicity is not entirely restrictive: no matter of the number and nature of relationships between the variables X_i, there will always be at least one acyclic structure (see Figure 1) that will be suitable for viewing the object. In this way is clearly demonstrated power modeling of Bayesian network - any deterministic model is a special case of probabilistic models, any probabilistic model can be expressed as a Bayesian network.

[1] Pourret, O., Naim, P. & Marcot, B. (2008). *Bayesian Networks: A Practical Guide to Applications*. Chichester, West Sussexs, John Wiley & Sons Ltd.

A BAYESIAN NETWORK MODEL OF CONSUMER COMPLAINTS

Bayesian networks have given their contribution in various fields of research. Marketing experts use these networks as an alternative of structural model of equality. Some applications in this area are focused on marketing planning to introduce new products, research consumer behavior and their complaints, modeling the connection between consumers and direct marketing and the like. Application of Bayesian networks in marketing has confirmed its benefits in terms of accuracy of prediction, the transparency of procedures, interpretations and explanations of results.

To specify the probability distribution of a Bayesian network, one must give the prior probabilities of all root nodes (nodes with no predecessors) and the conditional probabilities of all nonroot nodes given all possible combinations of their direct predecessors (Charniak, 1991).

By applying Bayesian network we shall analyze impact on consumer behavior. Figure 2 shows the hypothetical model for processing consumer complaints. We distinguish five binary variables: *Regular Customer*, *Unhappy Incident*, *Repeat Business*, *Service Recovery* and *Happy Customer* (Blattberg et al., 2008). Because all the variables are binary, the joint probability distribution table should have $2^5 - 1 = 31$ entries. However, our network has only 10 possible values, and thus 21 values are saved. If there are more domain variables, the amount of values saved will be much larger.

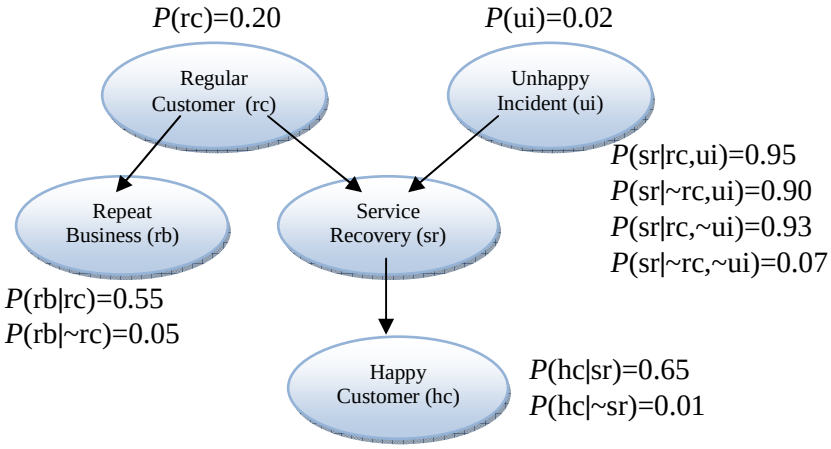

Figure 2: A Bayesian network for consumer complaints model[2]

Figure 2 shows a fully specified Bayesian network. For example, it states that if the customer is regular, *Repeat Business* might happen in 55 percent of the time, but the *Repeat Business* is going to happen in 5 percent of the time even the customer is not regular.

Bayesian networks allow the calculation of conditional probabilities of nodes in the network, given that the values of some nodes were observed. This example suggests that the probability of a *Happy Customer* is the joint probability of the local probabilities of other events, like *Service Recovery*, an *Unhappy Incident*, a *Regular Customer* and *Repeat Business*.

What does it mean?
For example, if $P(\text{rc}) = 0.20$ and $P(\text{ui}) = 0.02$, then
$P(\text{rb}) = P(\text{rb}|\text{rc})\,P(\text{rc}) + P(\text{rb}|\sim\text{rc})\,P(\sim\text{rc}) = 0.55 \times 0.20 + 0.05 \times (1\text{-}0.20) = 0.15$
The probabilities for the other nodes in the network can be calculated in a similiar way.

[2] Own calculations

Application of Bayes' rule

The success of applying Bayesian network largely depends on the structure of the network that shapes the set of conditional statements of independent variables. The models for processing consumer complaints of conditional independence are:

$$P(\text{rc}|\text{ui}) = P(\text{rc})$$
$$P(\text{sr}|\text{rc},\text{ui}) = P(\text{sr}|\text{rc})$$
$$P(\text{sr}|\text{rc},\text{ui},\text{rb}) = P(\text{sr}|\text{rc},\text{ui})$$
$$P(\text{hc}|\text{sr},\text{rc},\text{ui},\text{rb}) = P(\text{hc}|\text{sr},\text{rc},\text{ui})$$

For example, the first link describes the claim that for the *Regular Customer* there is no connection until the *Unhappy Incident* occurred. Based on this conditional independence, we get a structural model for the model shown in Figure 2.

Once the model of Bayesian network is estimated, the conclusion can be made directly from the local probabilities $P\ (X_j|\ parents\ (X_j))$. The conclusion is based on the direct causes that are described in the model specification, without performing any restrictive statements about the distribution of local probabilities. For example, *Service Recovery* leads to *Happy Customer* (see Figure 2). Then,

$$\begin{aligned} P(\textit{Service Recovery}) &= P(\text{sr}|\text{rc},\text{ui})P(\text{rc})P(\text{ui}) + P(\text{sr}|\sim\text{rc},\text{ui})P(\sim\text{rc})P(\text{ui}) \\ &\quad + P(\text{sr}|\text{rc},\sim\text{ui})P(\text{rc})P(\sim\text{ui}) + P(\text{sr}|\sim\text{rc},\sim\text{ui})P(\sim\text{rc})P(\sim\text{ui}) \\ &= (0.95 \times 0.20 \times 0.02) + (0.90 \times (1\text{-}0.20) \times 0.02) + \\ &\quad + (0.93 \times 0.20 \times (1\text{-}0.02)) + (0.07 \times (1\text{-}0.20) \times (1\text{-}0.02)) \\ &= 0.25536. \end{aligned}$$

$$\begin{aligned} P(\textit{Happy Customer}) &= P(\text{hc}|\text{sr})P(\text{sr}) + P(\text{hc}|\sim\text{sr})P(\sim\text{sr}) \\ &= (0.65 \times 0.25536) + (0.01 \times (1\text{-}0.25536)) = 0.17343. \end{aligned}$$

Also, we can calculate the posterior probability for the *Service Recovery* when a chosen customer is a *Happy Customer*. The strength of this relationship would be represented by the conditional probability P(hc|sr) and the posterior probability of *Service Recovery* when we see a *Happy Customer* can be get using Bayes' rule

$$P(sr|hc) = \frac{P(hc|sr)P(sr)}{P(hc)} = \frac{0.65 \times 0.25536}{0.17343} = 0.95707\,.$$

Such high probability is confirming that the consumer will be satisfied if executed *Service Recovery*. On *Service Recovery* the direct impact had *Regular Customer* and *Unhappy Incident*.

Although the formal definition of a Bayesian network is based on conditional independence, in practice it is often constructed using the notions of cause and effect, which makes it a powerful tool for the identification and analysis of the structural relationships among variables (Heckerman, 1997). With data on intervention or similar knowledge, researchers can interpret the causal links between variables.

CONCLUSION

Conditional dependencies between variables can help distinguish causation from mere correlation or association, and can lead to the inference of causality on a solid mathematical basis. Consider the Bayesian network shown in Figure 2, in which the parent set of the node *Service Recovery* is

{*Regular Customer, Unhappy Incident*}. *Happy Customer* is independent of *Regular customer* and *Unhappy Incident* given *Service Recovery*, whereas the effect of *Regular customer* and *Unhappy Incident* is mediated by *Service Recovery*. A model with such modularity helps to explain how these probabilities change as a result of external intervention. This is particularly useful for research on the effect of management decisions or business strategies (Cui et al, 2006).

In more realistic circumstances, the network would consist of hundreds or thousands of nodes and they could be esimated each time when new information comes in. When entering the new evidence, it can be supposed that the probability of nodes has changed, but what has actually changed is conditional probability of nodes with respect to changes in evidence. Sometimes we talk about the belief of the node changing. This mode of expression is probably harmless, provided that one keeps in mind that here, *belief* is simply the conditional probability given the evidence.

The advantages of describing Bayesian network are, in large part, reflected in a simplification of the conditions in which the decisions are likely in the case of uncertainty, as well as explaining the results of a stochastic process. Advantages, as such, are derived from a clear overview of Bayesian interpretation of the meaning of probability, so we could say that technology of Bayesian network provides the basis for true Bayesian artificial intelligence.

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USING CONJOINT ANALYSIS TO ASSESS CUSTOMER VALUE IN THE PRODUCT DEVELOPMENT PROCESS

Marija Kuzmanović*
Department for Operations Research and Statistics,
Faculty of Organizational Sciences, University of Belgrade, Serbia
marija.kuzmanovic@fon.bg.ac.rs,
Milan Martić
Department for Operations Research and Statistics,
Faculty of Organizational Sciences, University of Belgrade, Serbia
Bisera Andrić Gušavac
Department for Operations Research and Statistics,
Faculty of Organizational Sciences, University of Belgrade, Serbia

ABSTRACT

In today's highly competitive environment, where sources of product and process-based competitive advantage are quickly imitated by competitors, it is becoming increasingly difficult to differentiate on technical features and quality alone. Companies may overcome this problem by incorporating the 'voice of the customer' into the design of new products and focusing on customer value, thereby offering total solutions to customer needs. Therefore, it is critical for all technology-based companies to gain an accurate understanding of the potential value of their offerings, and to learn how this value can be further enhanced. An important tool to elicit customer value at an early stage of the product development is the conjoint analysis. Conjoint analysis is a research technique for measuring customers' preferences, and it is a method for simulating how customers might react to changes in current products or to new products introduced into an existing competitive market. The paper will show how conjoint analysis can be used to bridge the information gap between the company and its customers, by confronting the value the company intends to offer with the value desired by its customers.

Key words: Customer value, conjoint analysis, preferences, product development.

INTRODUCTION

In today's highly competitive business environment, companies are forced to manage their activities primary to meet customers' needs and expectations and provide excellent service to the customer, while at the same time keep their profitability and competitiveness. However, to achieve their strategic goals companies must go further than achieve mere customer satisfaction: they must do much better than their competition. Many companies claim that they are customer-driven or focused. They often support this claim with evidence from extensive research studies. Even though, for every successful new product launch, there are endless failures. Such mistakes are often attributed to a failure to understand customer needs. However, the real problem is much more specific; it is a failure to understand the right customer needs and desires.

For understanding customer needs and studying them systematically it is necessary to be acquainted with the concept of creating value to the customer. Walters and Lancaster (1999) have stated that value is created by any product or service attribute, which motivates the customer to buy the product and takes him closer to achieving his goals. Although customers wish all their needs would be satisfied at once, it is company's objective to understand which needs are most important for the customer. This understanding enables a company to use its scarce resources in an optimal way, thus creating the most value for the customer. Clearly company has to make tradeoffs in the performance levels of attributes which are related to each other. Therefore, it is critical for companies, especially those technology-

based, to gain an accurate understanding of the potential value of their offerings and to learn how this value can be further enhanced (Parasuraman, 1997; Woodruff, 1997). Accordingly, the clear estimation of the value a product or service might offer to the customer has become a topic of growing interest in the field of industrial marketing.

An important tool to elicit customer value at an early stage of product development is the conjoint analysis. Conjoint analysis means constructing and conducting particular experiments among customers in order to model their decision making process. As the name suggests, potential customers are asked to make judgments about the attributes that affect their purchase decisions conjointly, rather than evaluate each attribute individually. Analysis allows finding out which product attributes create most value to a customer and how customers are likely to react to different product configurations. This information can lead to the creation of optimal value offers. The aim of this paper is to analyze the applicability of conjoint analysis for closing the information gap between the company and its customers, by confronting the value the company intends to offer to its customers with the value desired by them.

THE CUSTOMER VALUE CONCEPT

Basically, the customer value concept assesses the value a product offers to a customer, taking all its tangible and intangible features into account. Most authors agree that it concerns to a trade-off between the benefits the product offers to the customer, and the sacrifices a customer has to make to obtain it (e.g. Gale, 1994; Griffin & Hauser, 1993; Best, 2000). Specifically, customer sacrifices are the overall monetary and non-monetary costs, for example time, energy and effort, the customer invests in order to get the product or service, or to maintain the relationship with the company. Benefits can be affected by a variety of factors: product quality, customer service quality and experience based quality. Additionally it is also often pointed out that brand can create value to customers. Therefore, a customer *i* will choose among the available alternatives that product *j* with the highest Benefits/Costs ratio:

$$\max_j \frac{\sum_{i=1}^{n} U_{ji}}{\sum_{i=1}^{n} P_{ji}} \qquad (1)$$

where P_{ji}, $i = 1,...,n$, is a bundle of costs (sacrifices) which customer *i* has to make to obtain product *j*, while U_{ji} is a bundle of benefits received from product *j*. This ratio may differ considerably among customers because of the differences in their individual situation. For example, a car manufacturer may deliver a sensor system for parking assistance, a feature that might be embraced by people who live in crowded cities, while people who live in the country might not perceive this as added value because they have enough parking space.

A number of authors have linked achieving higher customer value to higher profitability for the company (e.g. Day and Wensley, 1988; Best, 2000). However, it should be noted that just bringing a product to the market with a high potential customer value is no guarantee for a high market share or profits per se, because the customer's purchase decision is based on a choice between the competing offers in the market place. The attractiveness of an individual product offer should always be measured relative to competing products.

Although the conceptual importance of customer value is increasingly recognized in the marketing literature, its application in real-life industrial market studies lags behind, merely because the concept implementation still poses difficulties to the market researcher. One of the problems is that customer value can be defined at different abstraction levels (Brown, 1997; Kim, 1997; MacMillan & McGrath, 1996), and consequently, has to be measured at these different levels (Flint et al., 1997; Parasuraman, 1997). Basically, two abstraction levels of customer value can be distinguished. The first-order level consists of the trade-off between the perceived benefits and the sacrifices of a product as perceived by the customers at the purchasing decision. The second-order level consists of the benefits customers seek to fulfil their goals. This is the level at which customers think about their needs before the purchase. The

problem is that especially for new products, these goals and desires at second order level are often vague and therefore difficult to assess for the market researcher.

The Customer Value Model

The Customer value model, presented in Figure 1, shows the product development process from vague idea to market offer both from the company's and the customer's perspective. The model is based on the SERVQUAL model developed by Parasuraman et al. (1988) to assess the customer satisfaction of service offerings.

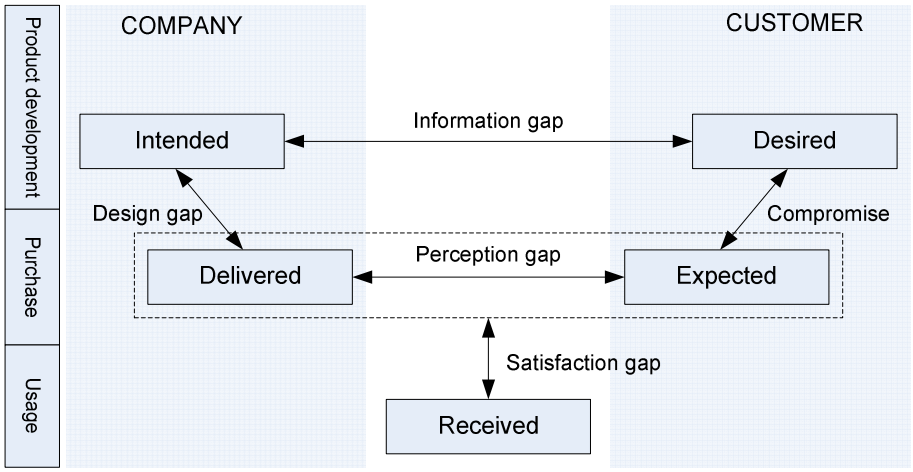

Figure 1: The Customer value model

At the start of the product development process, the company may have only vague ideas about the value it intends to offer to its customers. This value depends on the company's perceptions of what the customer wants, and is based on its strategy, capabilities and resources. In the model, it is marked as the *intended value map* of the company. Through market research, the company will try to match its intended value map with the preferences and desires of the future users (*desired value map*) to create a product that fulfils the customer needs. The term value map is used here, since the customer value of a product or service can best be described as a bundle of values, being the aggregation of its benefits and sacrifices. An *information gap* may occur between these two maps. This gap reflects a situation in which the company has insufficient information about what the customer desires. Due to restraints in the company's strategy and/or marketing capabilities, the company may focus on the 'wrong' customer needs.

The value of the product as created by the company and introduced to the marketplace is called the *delivered value map*. The delivered value may differ from the intended value because of technical constrains and/or miscommunication between marketing and product development departments. This will result in the *design gap*.

Customers base their expectations of the product's performance on what they perceive. This expectation is called the *expected value map* in the model. This map may differ from the desired value map because there might not be any product on the market that exactly matches the customers' desires. Therefore, customers have to choose that product that best matches their expectations. In other words, they have to make a compromise between the value they perceive in the marketplace and the value they would desire. The smaller this *compromise gap*, the higher the chance that the company is successful in winning customers. The *perception gap* reflects the potential mismatch between the value delivered by the company, and the customers' perception of this value. How potentially advantageous a product offer might be for customers, if they do not recognize this at the purchasing decision, it is of no use to the company. A company can try to reduce this gap by making certain intangibles more tangible via corporate communication. After the purchase and usage, customers will evaluate the value they have received. The outcome of this evaluation is called the *received value map* in our model. The *satisfaction gap* reflects the gap between the expected and the received value.

CONJOINT analysis

Conjoint analysis is an experimental approach for measuring customers' preferences about the attributes of a product or service. Originally developed by psychologist Luce and statistician Tukey (1964) in the field of mathematical psychology conjoint analysis has, since the mid 70's, attracted considerable attention especially in marketing research, as a method that portrays customers' decisions.

The way of the conjoint analysis application could be simply explained as follows. Researchers at first develop a set of alternative products (real or hypothetical) in terms of bundles of quantitative and qualitative attributes through fractional factorial designs. These real or hypothetical products, referred to as profiles (see Figure 2), are then presented to the customers during the survey.

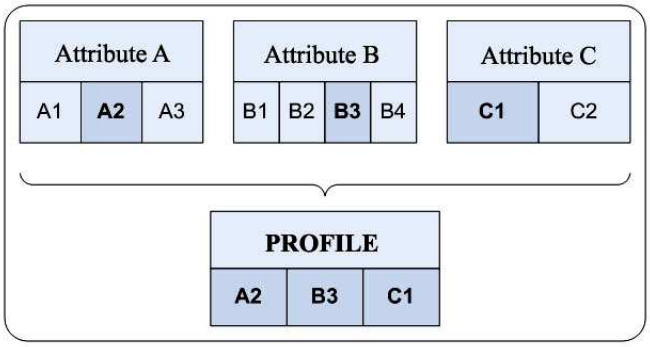

Figure 2: Relations between the profile, attributes and the attribute levels

The customers are asked to rank order or rate these alternatives, or choose the best one. Because the products are represented in terms of bundles of attributes at mixed "good" and "bad" levels, the customers have to evaluate the total utility from all of the attribute levels simultaneously to make their judgements. Based on these judgements, the researchers can estimate the partial-worths for the attribute levels by assuming certain composition rules. The roles explain the structure of customer's individual preferences. The manner that respondents combine the part-worths of attribute levels in total utility of product can be explained by these roles. The simplest and most commonly used model is the linear additive model. This model assumes that the overall utility derived from any combination of attributes of a given good or service is obtained from the sum of the separate part-worths of the attributes. Thus, respondent *i*'s predicted conjoint utility for profile *j* can be specified as follows:

$$U_{ij} = \sum_{k=1}^{K} \sum_{l=1}^{L_k} \beta_{ikl} x_{jkl} + \varepsilon_{ij}, \qquad i = 1,...,I, \;\; j = 1,...,J, \qquad (2)$$

where I is the number of respondents $(i = 1,...,I)$; J is the number of profiles $(j = 1,...,J)$; K is the number of attributes $(k = 1,...,K)$; L_k is the number of levels of attribute k $(l = 1,...,L_k)$. β_{ikl} is respondent *i*'s utility with respect to level *l* of attribute *k*. x_{jkl} is such a (0,1) variable that it equals 1 if profile *j* has attribute *k* at level *l*, otherwise it equals 0. ε_{ij} is a stochastic error term.

The parameters β_{ikl} are estimated by a regression analysis. These beta coefficients, also known as part-worth utilities, can be used to establish a number of things. Firstly, the value of these coefficients indicates the amount of any effect that an attribute has on overall utility – the larger the coefficient, the greater the impact. Secondly, the ratio of the coefficients shows how much of one attribute an individual would be willing to give up, in order to get more of another attribute. Thirdly, part-worths can be used to calculate the relative importance of each attribute, which is known as an importance score or value. These values are calculated by taking the utility range for each attribute separately, and then dividing it by the sum of the utility ranges for all of the factors.

Given that part worth utilities are calculated at the individual level, if preference heterogeneity is present, the researcher can find it. Therefore, part-worths can be used for *preference-based segmentation*. Respondents who place similar value to the various attribute levels will be grouped together into a segment. Segmentation of conjoint part-worths produces true "benefit segments". This is something that is sometimes difficult to do using other survey instruments, because respondents have difficulty stating what benefits they actually value the most.

Overall utility scores can be estimated for different combinations of attributes by inserting the appropriate levels into Eq. 2. These utility scores can be further used to predict the market shares for each of the defined combinations. For that purpose, a model that uses exponential transformation, also known as the logit model, can be used: A logit model represents the probability that customer *i* will choose the *j*th profile from a set of *m* exiting profiles on the market. The logit model is expressed as:

$$P_{ij} = \frac{e^{bU_{ij}}}{\sum_{j=1}^{m} e^{bU_{ij}}}, \quad i = 1,...,I, \quad j = 1,...,J \; . \qquad (3)$$

The exponent *b* is used to fine-tune the results so that they reflect the current customer behavior on the market more accurately. However, the real power of conjoint analysis is the ability to both predict preferences for profiles that weren't rated by the respondents, and to perform a *what-if analysis*. This can be done using *market simulation models.*

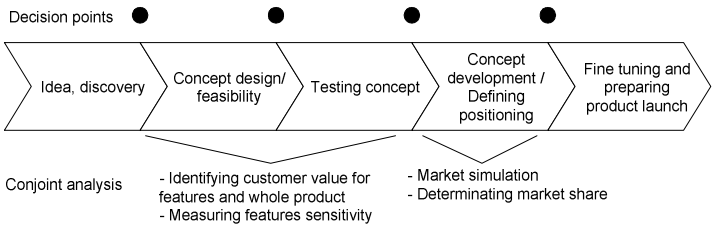

Figure 3: The conjoint analysis in the product development process

It can be summarized that in the product development process, conjoint analysis can be used for multiple purposes (see Figure 3):

- To determine the contributions of attribute levels and their respective values (part-worths) to customer overall preferences;
- To establish a valid model of customer judgments useful in predicting the customer acceptance of any combination of attributes for existing product or product newly introduced to market;
- To define product with optimal combination of attributes (desired value map);
- To determine the sensitivity of the customer's preference to the attribute level changes:
- To predict market share for products with different combination of attributes.

The advantage of conjoint analysis compared to other methods is that it defines precisely the performance levels of studied product attributes, whereby ensuring that respondents and researchers understand the research question more clearly. The situation faced by respondents is very similar to their actual purchasing situation. Namely, evaluating the profiles (product concepts) is analogous to evaluating the products in the real market. Furthermore, conjoint analysis allows measuring and analysis of consumer preferences even for individual respondents, thereby enabling the segmentation and clustering of customers. An additional advantage is that a conjoint analysis can be conducted on small samples, which is particular useful in business-to-business settings that are characterized by a relatively small sample size.

CONCLUSION

This paper provides insight into how companies can examine customer value in a highly competitive business environment. By assessing the desired value map of their customers using conjoint analysis, a company can acquire a benchmark for its intended value. This way a company can guide and improve its product development activities before market introduction, using the analysis to optimize the delivered value of its products, and to focus its corporate communication on those value areas which are perceived as most important by its customers. The customer value model presented in this paper describes how customers choose between products to try to achieve their higher order goals, and how a company should base its value strategy on this.

Although the conjoint analysis is often mentioned in marketing literature, it is not so often used in industrial marketing practice. However, conjoint analysis is a method that can help in product development decisions, because it enables to estimate the value created to customers with remarkable accuracy. The results of conjoint analysis give a good picture about the importance of different product attributes in creating value for customers. Using this information, it is possible to develop optimal product configurations. Models based on the results of conjoint analysis allow predicting the response of the market to changes in existing product configurations or price before the actual decision is made.

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PRACTICAL SOLUTIONS TO SUPPORT GROWTH AND SUSTAINABILITY OF SERBIAN SMEs

Henry Barnard*
"Inteleksija", Stepe Stepanovića 35, 11450 Sopot, Serbia
henry.barnard@btconnect.com
Zlatibor Ljubinković
"PE Serbian Railways", Nemanjina 6, 11000 Belgrade, Serbia
zlatibor.ljubinkovic@gmail.com

ABSTRACT

Enterprises are at the heart of the strategy launched by the European Council in 2000. They stated that the objective of becoming the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth whilst creating more employment will ultimately depend on the success of enterprises, especially Small-Medium Enterprises (SMEs). This still holds true today and is of particular relevance to the acceding and candidate countries within the Central Balkan region, especially in today's harsh and competitive economic climate. This paper explores how three internationally tried and tested IT based services can provide accessible and low-cost tools supporting growth, competitiveness and sustainability of enterprises within the emerging economies of the Central Balkans. These are Business Basics and Best-Practice Methodologies training delivered via e-learning technologies, Sustainable Business Process (BPM) tools and Data Hosting Services. This paper focuses on the significant benefits that these tools, training methods and services bring to SMEs, enabling greater efficiency and cost-savings, and crucially, how to implement them as rapidly as possible to meet an urgent need.

Key Words: Competencies, e-learning, BPM, Data-Centres, competitiveness.

1. INTRODUCTION

Over the last ten years, many excellent academic papers, government and industry white papers and EU reports have been written about the importance of supporting enterprises, especially SMEs, in order to create sustainable economic growth and more employment. Many of these papers address the need for governments and their associated agencies to provide a solid framework to support the development of SMEs. A policy framework has been in place in Serbia for some time, and the most recent publication of it is the Strategy for Development of Competitive and Innovative Small and Medium-sized Enterprises 2008-2013, which was written by the Ministry of Economy and Regional Development (MoERD) and published in 2009. The strategy sets out a number of objectives to address this need.

This paper does not purport to be an academic paper. Its intended purpose is to supplement the excellent framework set out by showing how IT based services and best practice methodologies can provide practical solutions to some of the objectives of the Strategy. The lead author of this paper draws on many years of hands-on experience creating and running a number of successful small and medium-size enterprises in a variety of industry sectors in the UK, Europe, the Middle East and India. He therefore has a practical view of how three key IT based services and best practices could quickly provide both the existing SME community, and potential entrepreneurs from the student population, with vital tools and competencies to build and manage sustainable and successful businesses for the lowest possible cost and in the shortest possible time.

2. BACKGROUND TO SMEs IN SERBIA

Although large enterprises are important to the Serbian economy, SMEs are the real giants, and it is clear that the Serbian administration has made substantial efforts over the years to encourage entrepreneurship and to support SMEs so that they can grow and thus create employment.

The 2009 EU SBA fact sheet reports that Serbian SMEs represent 99.4% of all registered businesses, 57.3% of employment, and 51.5% of value added.

Table 1 – SMEs in Serbia – Basic Figures

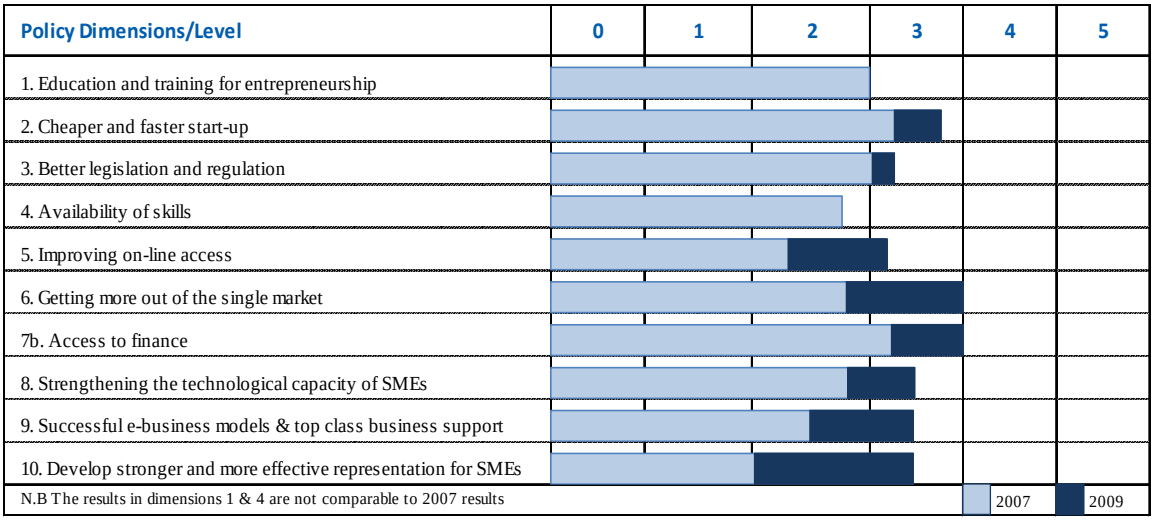
	Enterprises			Employment			Value added		
	Serbia		EU-27	Serbia		EU-27	Serbia		EU-27
	Number	Share	Share	Number	Share	Share	Billion €	Share	Share
Micro	69.235	84,9%	*91,8%*	135.899	13,9%	*29,7%*	2	11,4%	*21.0%*
Small	9.421	11,6%	*6,9%*	184.747	18,9%	*20,7%*	3	18,9%	*18,9%*
Medium-sized	2.350	2,9%	*1,1%*	240.413	24,5%	*17.0%*	3	21,1%	*18.0%*
SMEs	**81.006**	**99,4%**	***99,8%***	**561.059**	**57,3%**	***67,4%***	**7**	**51,5%**	***57,9%***
Large	523	0,6%	*0,2%*	418.794	42,7%	*32,6%*	7	48,5%	*42,1%*
Total	**81.529**	**100.0%**	***100.0%***	**979.853**	**100.0%**	***100.0%***	**14**	**100.0%**	***100.0%***

Data refer to the non-financial business economy (NACE C-I, K) and represent estimates for 2008.
Source: Eurostat, elaborated by EIM for EU27 figures; Institute of Economic Sciences, Serbia for country figures.

3. EUROPEAN CHARTER AND SME POLICY INDEX FRAMEWORK

The MoERD strategy, while not directly based on the European Charter for Small Enterprises and associated policy framework, takes into consideration the Small Business Act (SBA) and its related policy index. In June 2009, the OECD issued a report on the progress of the Charter's implementation in the Western Balkans in the form of the SME policy index, which is an analytical tool that uses collaborative benchmarking to measure progress in the ten dimensions of the charter listed in table 2 below. These provide a useful framework for the purposes of this paper and also relates back to the six pillars of the Serbian MoERD Strategy.

Table 2 – OECD SME Policy Index Scores for Serbia per SBA Charter Dimension 2009



The indicators are structured around five levels of policy reform, with level 1 the weakest and level 5 the strongest. The policy development path for each indicator is typically structured as follows:

Level 1: There is no law or institution in place to cover the area concerned;

Level 2: There is a draft law or institution, and there are some signs of government activity to address the area concerned;

Level 3: A solid legal and/or institutional framework is in place for this specific policy area;

Level 4: Level 3 + some concrete indications of effective policy implementation of the law or institution;

Level 5: Level 3 + some significant record of concrete and effective policy implementation of the law or institution. This level comes closest to good practices identified as a result of the EU Charter process and the OECD Bologna Process.

Table 2 above shows that Serbia has made good progress in implementing the policy with significantly increased scores across many of the 10 dimensions. Each of these is a major undertaking and fully implementing them and extending the full range of benefits to the SME community is at best a medium to long-term exercise, particularly regarding education and training, skills availability and technological capacity.

In these highly competitive and challenging economic times, many small and medium size Serbian enterprises are struggling to survive, and there are many would-be entrepreneurs in state universities and vocational schools who lack the basic financial awareness, competencies and basic business skills to successfully start a business and put in place the strategy, IT infrastructure and business processes so vital for sustainable growth. Despite the progress made, relevant and practical help for the SME businessman is still too far away. There are practical solutions that can be implemented immediately to fill these gaps, and these are described below and are referenced to dimensions 1, 4 and 8 of the OECD policy index.

3.1 Policy Dimensions 1 & 4 – Education, Training and skills for Entrepreneurship

Signatories to The European Charter For Small Enterprises Europe are committed to the following principles of education and training; Nurturing entrepreneurial spirit and new skills, teaching general business knowledge at all school levels, including specific business related modules in secondary and higher education, encouraging and promoting young peoples' entrepreneurial endeavors and developing training schemes for managers in small enterprises.An analysis of Serbian education statistics confirms the MoERD view that there is not yet enough specific business related training, particularly in the State universities which accounted for 80% of university students in 2009.

Table 3 - Analysis of Business Related Studies in Serbian Universities & Vocational Schools - 2009

Institution Type	No of Institutions	No of Faculties	[1] Business Related Faculties	% of Faculties	Students/ Instution Type	% of Total Student Population	Business Related Students	Business Students as % Institution's Students
State Universities	6	80	5	6%	148,181	63%	19,971	13%
Private Universities	13	45	19	42%	38,927	17%	18,891	49%
State Vocational Schools	46	46	9	20%	41,876	18%	15,570	37%
Private Vocational Schools	16	16	8	50%	5,046	2%	3,013	60%
Grand Total	**81**	**187**	**41**	**22%**	**234,030**	**100%**	**57,445**	**25%**

1 Business related students include those that are on economics, organisational science, business administration and all other management and finance related courses

The raw data for this table was extracted from the Statistical Yearbook of Serbia 2010 and imported into a dbase, coded and analysed for the purposes of this report

The Serbian state education system is excellent and provides first class economics, organisational science, business and business management courses. However, in common with most other European universities, these only provide some business related knowledge to a small percentage of total students. Developing a new full time course for all students is likely to be a long and

drawn out process that may still only provide specific entrepreneurial knowledge to a small percentage of total students.

Both the MoERD strategy and the EU SME policy framework states that general business knowledge needs to be taught at all school levels. Specific business modules need to be an essential part of secondary and higher education. Entrepreneurial spirit and new skills must be nurtured from an early age. There is a simple, practical, tried and tested and cost-effective solution available in the form of e-learning, which can supplement existing business-related education by delivering a generic extra-curricula course to all secondary and higher education students.

Fast Track Delivery of Entrepreneurial Education via E-learning technologies

Some definitions of e-learning such as 'computer based training' or 'distance learning' are misleading in the context of this paper. A better definition is the use of computer network technology to deliver information and instruction to individuals. E-learning allows organisations to deliver training and education via the web, and provide relevant and targeted content anytime and anywhere, offering learners a customised and interactive experience. A number of empirical studies concerning e-learning for SMEs show the following extensive benefits:

- Flexibility – allowing the student and tutor to choose the course time and location
- Customisation – content can be adapted to suit groups' differing needs
- No time limit – each student can learn at his own pace
- Training material distribution – additional written materials are easily added
- Evaluation – real time progress evaluation and personalised tutor support
- Cost – no cost for transportation, meals, lodging, time away from work or additional tutors

Leading e-learning providers have developed hosted platforms with the capacity to deliver high quality content to many thousands of students concurrently. Their sophisticated Learning Management Systems (LMS) are easily integrated with any existing University SCORM based platforms. Because they have been developed over time they can be offered at a very low cost. The business model for this service is high volume, low cost, and with a large enough volume commitment, these training courses can be offered for a very low unit cost per student without the need for any capital outlay. There are a plethora of excellent e-learning courses available, but there are two initial course types most relevant to meeting the immediate needs of the entrepreneurial educational policy dimensions stated above. These are business basics and financial awareness courses for non-financial managers and the best practice PRINCE2 project management methodology.

Business Basics and Financial Awareness Courses

The Business Basics courses are relevant to all students as well as key non-financial employees in SMEs and covers key concepts of business basics. The training is aligned to business objectives and focuses on helping non-financial students, employees and managers understand the financial implications of their business decisions and actions on the organisations they work for. The courses do not focus on providing accountancy training. They give a foundation in business and finance and provide the basic skills and knowledge of the dynamics of a business that entrepreneurs will need to develop their ideas into sustainable concepts. These extra-curricular courses are already being used to great effect by students in other European business schools and institutions and by many thousands of SMEs, large enterprises and other organisations around the world.

Best Practice Training – PRINCE2 Project Management Methodology

The PRINCE2 project management methodology (as opposed to project analysis and scheduling tools) applies to the vast majority of business situations, and as such its importance cannot be over emphasised. Anyone who is involved in delivering a product or a service has either project managed, or been part of a team that manages service delivery or change. Project management skills are relevant to any future or present employee, and as around 60% of the student population will work with SMEs, the vast majority of students would benefit from learning at least the basic methodology, principles and language of effective project management, in the form of the

PRINCE2 foundation course. PRINCE2 is one of the leading internationally recognised best practice methodologies. It is a structured project management method developed by the UK Office of Government Commerce (OGC) over many years. The training focuses on the methodology of project management rather than project scheduling, delivery and analysis tools. Its popularity is largely due to the fact that it is truly generic: it can be applied to any project regardless of scale, type, organisation or culture. It is available in two forms; the foundation course, which provides the basic knowledge and terminology of project management, and the higher level practitioner course, which gives the full range of skills required to successfully manage large projects. As with the Financial Awareness courses, PRINCE2 courses can be delivered in a hosted e-learning environment, allowing students and users to learn in an enjoyable and inspired way in as little as 10 to 20 hours. Both courses are excellent due to their high quality, ease of use and low delivery cost and they provide the student with an internationally recognised certification. Many European businesses now insist that their employees and sub contractors are PRINCE2 qualified.
These two courses, delivered in volume from a solid e-learning platform can provide a fast and low-cost solution to assist in meeting the requirements of dimension 1 and 4 of the policy framework.

3.2 Policy Dimension 8 – Strengthening the technological capacity of SMEs

The majority of business start-ups that fail do so within their first year, and depending on their sector, between 45% and 62% will fail within their first four years. A major contribution to this is a lack of stable IT platforms and sustainable business processes, both of which are essential to SMEs from day one to support their start-up and expansion. Often these vital foundations are the last thing to be considered, either because of high set-up costs coupled with a limited cashflow or in the rush to take the companies products or services to market as quickly as possible. To improve survival rates and support SME growth, practical help can be provided in the form of provision of specialist data centres offering a subsidised managed service to SMEs and the creation of a bureau service to deliver business process management (BPM) tools and consultancy adapted to meet the needs of SMEs, particularly High Growth SMEs (HGSMEs).

SME Data Centres
In today's technology driven world, SMEs depend on stable IT platforms, this is especially true of HGSMEs or those with 10 or more employees. A modern business cannot function without IT, but crucially, this does not mean simply laptops and desktop computers but the network critical physical infrastructure (NCPI), which comprises of power, cooling, racks, security, fire protection, cabling, management and services. If any one of these elements fails (and they often do) the whole business is under threat, and yet it is often the last thing to be considered during the start-up or even the early expansion phases of a business.
A stable IT platform comprises of four basic elements; the Network Critical Physical Infrastructure (NCPI), Information Technology (IT), processes and people with the right level of skill and training to support the operation of these systems. Unfortunately, putting this vital infrastructure in place is usually cost prohibitive during the start-up and expansion phases as there are so many demands being made on very limited cashflow and working capital.The practical solution is not for SMEs to invest in more IT equipment that will require processes and skilled people to maintain, but rather to create specialist managed service data centres designed specifically for SMEs, where the full infrastructure described above is available on demand and at an affordable price. The pricing models for these data centres should reflect the extreme demands on cashflow and working capital for start-up and expanding SMEs and part of the government enterprise funding allocated to supporting SMEs should be directed towards subsidising this service.

Sustainable Business Process Management
Whatever an organisation's size, standardised processes must be at its heart if it is to prosper. They are an essential management tool to optimise efficiency, improve customer relations, lower operating costs and substantially increase working capital and cash flow – the life blood of any organisation. Despite this, standardized processes are virtually non-existent in the early phases of most SMEs lives, and they

are run haphazardly, with tasks being carried out as and when they need to be completed with little regard for process. In order to create these processes, information must be collected and proactively managed, and consistent ways of working need to be defined, deployed and maintained. Finally, when these basic elements are in place then processes can be measured and improved, turning them into one of an SMEs most valuable management tools.
This is where Business Process Management (BPM) is essential. BPM is a structured method of monitoring, analysing and improving end-to-end business processes and relevant resources using current software and technology. This methodology is used to great effect by large organisations, but many SME operators are not aware of the benefits of BPM and so remain attached to older functional ways of thinking and managing, to the detriment of their long term survival. The solution is to encourage early adoption of BPM by SMEs. This can only be achieved through making them aware of its necessity and benefits, and by working closely with the best BPM solution providers, adapting their applications to focus on and meet the specific needs of SMEs from start-up to maturity. There are three steps to this end; developing a content rich short course on the principles and benefits of BPM to higher education students and SMEs, via the e-learning platform described above, developing and offering an SME version of a leading BPM application and providing an hosted managed bureau service that can offer on demand advice, consultancy and technical support.

4. CONCLUSION

Great progress has been made, both in the Serbian academic community and government administration, to put in place a comprehensive support framework for the development of SMEs. SMEs have the capacity to lead the way in growing the emerging Serbian economy and in the drive for market share of what is an increasingly competitive and hostile global market. As shown in section 1 of this paper they are the real giants of the Serbian economy but it is clear that they need solid, practical support and they need it now. In this paper the authors have presented solutions for delivering quickly, efficiently and cost-effectively the competencies, skills, technologies and tools that are urgently needed by SMEs. To that end they have approached a number of leading international service providers with regard to delivering the solutions set out in this paper, and each one has responded with enthusiasm and optimism and are willing to put both funding and their substantial resources behind the project. These well established service providers will bring their knowledge and expertise to the process of developing and delivering each of the disciplines discussed in this paper namely: Ready made e-learning platforms delivering entrepreneurial and SME training courses in business basics, financial awareness and PRINCE2 project management methodology; BPM applications and software tools adapted to meet the specific needs of Serbian SMEs; The design and build of SME specific managed service data centres.

The authors, using their entrepreneurial skills and extensive SME experience, have created a Serbian company called Inteleksija. Inteleksija is based on social enterprise principles and is partnering with these leading international service providers. It is dedicated to delivering supplementary education and training for entrepreneurship and strengthening the competencies, skills, technological capacity and competitiveness of SMEs in Serbia. There is much to be done, but the essential ingredients are already in place, and with the support of the Serbian academic community and the Serbian government this vision can quickly be brought to life.

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THE POTENTIAL FOR IMPLEMENTING A DIGITAL MULTIMEDIA MARKETING COMMUNICATION SYSTEMS ACROSS THE PE "SERBIAN RAILWAYS" NETWORK

Zlatibor Ljubinković*
PE "Serbian Railways", Nemanjina 6, 11000 Belgrade, Serbia
zlatibor.ljubinkovic@gmail.com
Henry Barnard
"Inteleksija", Stepe Stepanovića 35, 11450 Sopot, Serbia
henry.barnard@btconnect.com

ABSTRACT

Serbian Railways has the potential to provide a sophisticated multimedia based marketing communications platform for a wide range of businesses and organisations throughout its extensive operating region. The Railway currently carries some 10 million passengers per year and this is set to increase dramatically as ambitious EU backed expansion plans are implemented over the next decade. The advent of new and relatively low-cost technologies make it possible to segment this growing but faceless passenger population into clearly differentiated and highly relevant target markets for a wide range of enterprises. This "captive" audience can be organized into geographic, demographic/socio-economic, psychographic, behavioral or product-related sectors to suit whatever marketing strategies an organisation might wish to employ. The paper investigates how the installation of proven digital multimedia systems into stations and passenger rolling stock could provide a valuable and relatively low-cost marketing platform for any large or small enterprise/organisation to communicate and promote their respective products and services. Finally, it addresses both the challenges and benefits of implementing such a system as well as exploring its potential to provide Serbian Railways with a significant on-going revenue stream and as an important support of SME's development.

Key words: railways, digital multimedia, marketing communications.

1. INTRODUCTION

In order to diversify products to new markets, or increase a products' demand in already established markets, target marketing is increasingly being used to great effect as part of the marketing mix and combines well with the more traditional mass marketing techniques. Target marketing techniques provide the ability for marketeers to tailor their messages to meet the needs of specific vertical or niche market audiences and this method can often be far more effective particularly where there is a captive audience as there is in this case. The authors of this paper consider that there is a largely untapped opportunity for the railways to provide a sophisticated multimedia based marketing communications platform for a wide range of businesses and organisations throughout its extensive operating region. With the advent of relatively low cost technologies, it is now possible to segment the Serbian Railway passenger population into clearly differentiated and highly relevant target markets for a wide range of enterprises.

This paper also considers the potential for such a platform to provide valuable and perhaps subsidised marketing support for SMEs which in turn will assist in the growth of the Serbian economy thereby benefiting Serbian society at large.

2. MEDIA AND NEW HYBRID DIGITAL MULTIMEDIA SYSTEMS

Media is essentially the routes by which messages are passed on, for a limited period of time, from a sender to a recipient. A broad view of it is to consider businesses or people as units of energy or material known in communication terms as intermediaries. They convey information to each other and so forge links between them. In marketing terms, information is the primary objects of market exchange, and media plays a crucial role in any communication process. Media is divided into the following categories:

- **Print media** - daily newspapers and periodicals, post, etc.;
- **Electronic media** - radio, television, computers, radio stations for advertising, etc.;
- **Media posted in public places** - posters, boards, billboards, illuminated signage, etc.;
- **Media in a space** - shop windows, exhibitions , fairs, theaters and similar media;
- **Media on the move** - public transportation vehicles, as well as all other means of transport;
- **Multimedia** - uses multiple different types of media integrated into a whole.

This last definition of media in the list gives a good introduction to the new hybrid digital multimedia systems, the implementation of which would allow Serbian Railways to become a sophisticated platform of marketing communications for a wide range of companies and organizations. The term digital multimedia systems implies any combination of two or more media in digital form, which are so integrated that they can be presented through a unified interface, using a computer program, which broadcasts the content from one central place to multiple remote locations, according to the process of "Digital Signage'', (see Figure 1).

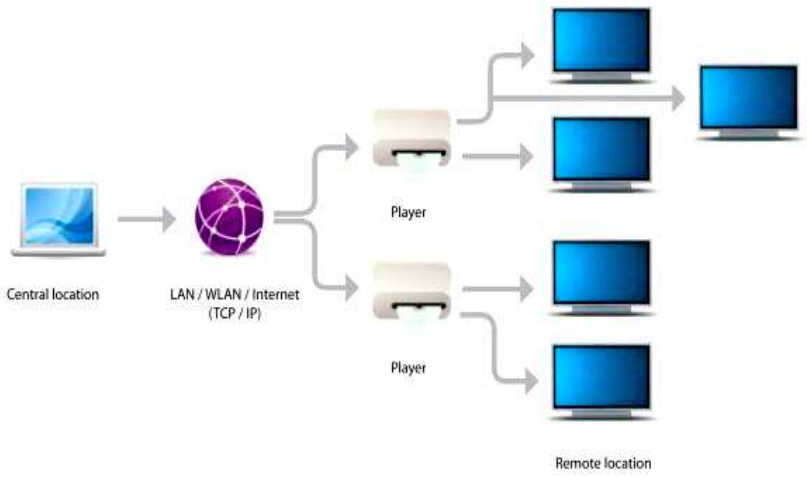

Figure 1: Distribution system of digital content elements

These systems are already used by different industries, including: commercial, sports, entertainment, hospitality, corporate business, transportation, education, healthcare, public sector and banking (Digital advertising). Digital multimedia systems used in transportation are expanding all around the world, for example in Germany, France, Britain, China and Canada. (Review of 2010). In Serbia, these digital multimedia systems are used in public transport vehicles in Belgrade. A representative of the company, "XXL Marketing" claims that this is not profitable ("Buses as a medium"). Over and above this assertion, the first problem is placement of the monitors, as although many people use the buses each day obstructions reduce the number of monitors that can be easily viewed by passengers.

Computers and the Internet are an integral part of multimedia technologies. Specialised software means that information can now be transmitted as text, images, graphics, movies, video clips, music and sound effects, which can be further processed and manipulated. **Interactivity** is one of the most important features of digital multimedia systems, and it represents a change from one-way

communication through traditional media, towards diffuse communication where every person and device become both emitters and receivers (Bluetooth, touch-screen displays etc.)

3. THE RAILWAY AS A MARKETING COMMUNICATION PLATFORM

The Serbian Railway Network, with its many stationary and moving spaces in which people gather and travel to different destinations, represent meeting places for a great many people whose presence, with the implementation of digital multimedia systems, can be used as a platform for marketing communications in order to promote products or services of different companies. Passenger railway stations in the major centres in Serbia are the ideal place for placing monitors to broadcast appropriate digital content. There are several types of public transport vehicles that are particularly suitable for the installation of digital multimedia systems, especially the Electric-Motor Trains which operates the BG train system in a small part of Belgrade and the White train system in a larger area of Belgrade, and other EMTs used as long distance passenger trains. The electric-motor trains, of which there are currently 16 in operation, consist of four parts: a towing car at either end, with drivers' cabs separated from the passenger areas and two seated carriages between. They have a capacity of 308 seated and 350 standing. Each year, on average, they carry more than 40% of all passengers. In addition to the Electric Motor Trains Serbian Railways possess another 35 classic passenger vehicles for international traffic and 80 classic passenger vehicles for internal transportation of varied types. The cars are classified as follows: Apmz, Bpmz and WRmz are used for international traffic on the **EuroCity** trains, of which there are ten currently in use. There are also 15 passenger cars of the series At, Bt and BRt for internal traffic on the **InterCity Serbia** trains. The Apmz and Bpmz series of cars are passenger cars with passages running down the middle and without compartments. The WRmz series is a restaurant car with a buffet section. The cars have a length of 26.4m and a mass of around 50 tons, with a top speed of 200 km/h. The number of seats is 58 in Apmz, 80 in Bpmz and 32 in the WRmz dining room. The international wagons are designed for high comfort and are equipped with air conditioning, closed vacuum toilet systems, electro-pneumatic systems for opening and closing doors, and seats with movable backrests and speakers. The wagons in the At, Bt and BRt series for domestic traffic are almost the same in structure, but their technical specifications usually lag behind - their speed is 160 km/h and there is no air-conditioning or similar comforts. It should be noted that rail passenger cars with compartments are unsuitable for this intial solution due to their small spaces.

3.1 Creating of the content of advertising intended for passengers in rail transport

First of all, it is necessary to determine the number of passengers using Serbian Railways. According to available data (MIRS, 2010; Press, 23.06.2008; PE,"SR", 12.12.2008; PE,"SR", 29.09.2009) in 2006 14.1 million passengers used Serbian Railways. In 2007 this figure was 9.8 million; in 2008 it was 8.8 million and in 2009 it was 8.5 million (see Figure 2). These figures show that over four years the average annual footfall was 10.3 million passengers, which equates to 858,541 passengers per month, or 28,618 passengers per day. What is surprising is the downward trend in passenger numbers over this period. This is due to the inability of railways to adapt to market conditions, the domination of road transport, poor quality of service, outdated technology, bad organization and the economic crisis.

This trend is diametrically opposed to the plans of the EU, which by 2020 expects the following from railways, however, a combination of EU and Foreign Direct Investment (FDI) and Serbian government funds could greatly assist Serbian Railways to achieve the EU's plans to:

- Increase usage of passenger transport from 6% to 10%
- Triple the productivity per employee
- Make energy savings comprising of a 50% increase in energy efficiency and a 50% reduction in gas emissions
- Create an increase in infrastructure capacity in proportion to traffic needs. (Eif-C.of C.)

Before promotional content can be developed for use on the railways, it is necessary to segment these seemingly impersonal passengers according to the following factors:

- **Geographical** - relief, climate, population density and population trends;
- **Demographic** - population, gender, age, ethnicity, education, employment, marital status, household types and household income;
- **Economic** - macroeconomic conditions, consumer purchasing power;
- **Sociological** - represents the result of complementary: culture, subculture, social class, reference groups, leaders' opinions, family, role, status and lifestyle;
- **Psychographic** - motivation, perception, learning, personality traits, beliefs and attitudes;
- **Behavioristic** - circumstances under which purchases are made; specific uses, the status of consumer loyalty to the product, readiness to purchase, customer views.

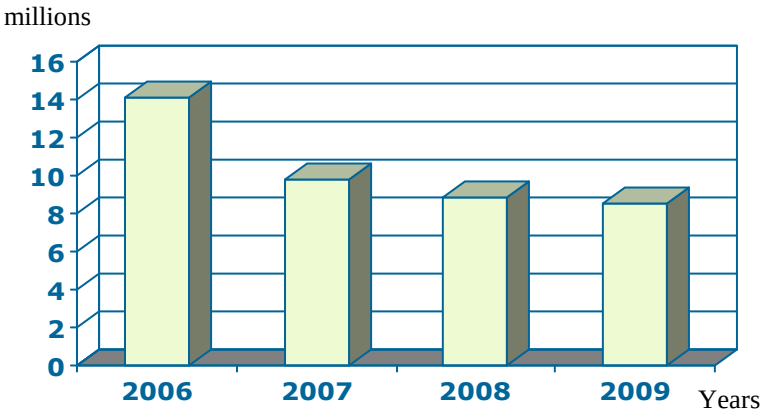

Figure 2: The achieved results in the terms of the number of transported passengers

Peric (2008) noted that marketing research on the behavior of the audience began in the US in the 1930s, and was further developed in the 1980s. His report showed that 66% of American advertising companies had already dealt with the analysis of motives. The originator of this approach is the psychoanalyst Maslov (1982) with his theory, called *Hierarchy of Motives*. A follower of this approach, Professor Kovacevic (1988) suggested that in order to achieve adequate organization of passenger traffic, it is necessary to recognise the motives for the trip, the motives for choosing the means of transport, along with the flows of passengers and their basic requirements in terms of regularity and frequency of trains on certain routes, and also the quality of primary and secondary services. This can be broken down into the following areas:

- **Motive for travel** represents the different reasons for travelling and can be grouped together in the following classifications: business purposes; commuting; education; shopping; health; weekday travel; tourism; holidays; attending public events; other atypical travels.
- **The motives for choosing the means of transport** is affected by many factors including: cost, transport speed, flexibility, traveling comfort, transport capability, enjoyment of the journey, structure and quality of additional services (e.g. catering, audio and video, entertainment or advertising programs, and other available means of communication), security, ease of access, and regularity.
- **Determination of passenger flows** is also a very important element in the organization of passenger traffic and it can be segmented as follows: annual basis, on a certain railway line, on individual trains in order to determine their efficiency; on individual trains in order to determine how economical they are and their profitability; determination of the number of passengers at intersection points (departure stations, terminals, intermediate stops and border stations) and determination of passenger flows in the perspective.

Creation of promotional content requires advertisers to know what it is that they should say to their target audience and where and when they should say it in order to elicit the desired response. Considerations include: the rational, emotional and moral appeal, motivating themes or ideas and audience motivations. In order to create and broadcast good promotional content, a comprehensive statistical analysis, profiling and classification of Serbian railway passengers needs to be

undertaken. This will allow the broadcasting of good quality and highly targeted messages or advertising without the topic being missed or failing to create the desired reaction in the audience. *Advertisers must know what content they want to broadcast, the motives of travel and passenger flows, the passengers' needs and preferences, and the classification of trains according to type, range, route and timetable as well as being familiar with their audience, and knowing the timing and placement of their target group.*

3.2. Assumptions of effects on use of alternative media

Taking into account the average number of passengers, plus 18,651 railway employees (PE„SR", 2011), the size of the potential marketing audience is close to the population of a small Serbian town. In laymen's' terms this is a small theatre when compared with radio or television audiences which at any point of time is made-up of hundreds of thousands or even millions of people. However, the communication effects of traditional media have been declining in recent years.There are currently several methods for the measurement of range, frequency and impact of media. In the United States results using CPM methods (Cost per thousand impressions) show that there is smaller investment required in advertising through digital multimedia systems in public places than in other media (Wiki analysis), as seen in Table 1 below. Other measurements show that digital multimedia systems increase awareness of the brand by 48%, increase the consumption of customers by 30%, increase sales by 32% and increase in the number of visitors into retail areas by 33% (Visual Impact).

Table 1: The results of some analysis carried out in the U.S. according To the Cost per thousand impressions (CPM) method

TYPE OF MEDIA	PRICE PER ONE VIEWER
Digital multimedia systems (outdoor)	In the range from $1.5 to $5
Television network	≈ $25

Digital multimedia systems in Serbian Railways would provide a relatively lower cost solution compared to alternative types of advertising, as well as visual appeal, possible connection with existing business systems, transmission of information from long distances, transmission of messages about goods, brands and services and personal ads designed for commercial purposes and the possibility of targeting advertising by transmitting selected messages designed for passengers on a train of a given route. This gives good results with a smaller audience over time; fast and accurate information related to railway traffic, location of trains and transfer of necessary information to passengers and railway workers. Messages can be changed at any time, as well as their placement to address different needs. This improves the satisfaction of passengers whilst traveling and thus increases the number of passengers over a longer period of time. It also creates the possibility of improving existing information systems by making the standard media interactive, thanks to its technical capabilities.The ultimate goals that railways could achieve are: providing information to passengers through high-tech means; cheap and continuing promotion of its services; increasing profits through higher passenger traffic brought in through advertising; earnings from promotional media services given to other organizations; increasing demand for railway transport services, improving cooperation with other similar organizations and the return of the long-lost reputation of Serbian Railways. Due to the need for higher initial investment in digital multimedia technology, railways would have to gather together all relevant institutions, agencies and interested organizations and present the concept of how they would achieve their main target. Potential partners for this initiative include:

- Relevant ministries and other state bodies governing development in the Republic of Serbia;
- Local governments, who in most cases would be able to use the resource to advertise local developments, tourism, cultural and historical content, agriculture and products;
- A wide range of manufacturing and non-manufacturing organizations, which could include: travel, sports, commercial, marketing, logistics and others, as well as other transport providers who could benefit from a multi-modal communication platform being available on the Serbian transportation system.

4. MEDIA SUPPORT TO SME SECTOR

Recent government statistics report that SMEs represent a key factor of economic development in Serbia and make up 98.8 % of total registered enterprises. They also make up 65.5 % of the total number of employees in Serbia (Development strategy SMEs). As such, SMEs are important agents of economic growth. They raise the living standards and create conditions for a better trade balance. During the last decade, much has been said and done about supporting the development of the SME sector. Almost all previous Serbian governments have issued and implemented a Strategy for SME's development and growth statistics show that the country has achieved considerable benefits from this.

Among other elements of the development strategy, one of the most important is the promotion of activities to support SMEs' development through a continuous media campaign, as well as to promote SMEs themselves and their products and services. Most SMEs do not have the ability to allocate funds for media campaigns using traditional media because prices for advertising services are generally cost-prohibitive. SMEs in general, and in particular start-up and immature enterprises have so many demands on their working capital that there is insufficient means to invest in expensive marketing campaigns. In such a situation, Serbian Railways, by introducing digital multimedia systems for marketing communications, could become a specialist SME media center providing practical and even subsidised support for SMEs to promote their goods and services which is entirely consistent with the stated aims of the Serbian Government development strategy.

5. CONCLUSION

The authors of this paper have recognised that there is a substantial opportunity for Serbian Railways to create a very sophisticated marketing communications platform to deliver emotionally intelligent content to highly segmented and predictable target audiences. From this, Serbian Railways will be able to realise considerable company related benefits together with the potential for a very healthy financial return on investment (ROI) on a long-term and ongoing basis.

The authors believe that a more important output of this paper is the recognition that the implementation of such a platform could also play a significant role in helping to grow the emerging Serbian economy by using at least some of the financial surpluses from this initiative to provide SMEs with a subsidised means to promote their products and services to their selected target audiences. This would not only benefit the Serbian Railway company but will also serve the Serbian society at large.

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POSITION AND ROLE OF PERSONAL SELLING IN CONTEMPORARY MARKETING MANAGEMENT

Dalibor Bubnjević*
NIP „Zrenjanin“ a.d., Serbia
daliborb@listzrenjanin.com

ABSTRACT

Personal selling is the oldest instrument of promotion mix which is achieved through direct two-way communication between seller and a buyer. The final aim is making a sale, i.e. obtaining an order. Personal selling, unlike the other elements of promotion, generates a profit for the company, although, at the same time, it requests considerable cost. Flexibility is one of the key elements of personal selling, considering that the seller is the most flexible media of communication. The position of personal selling changed with the development of the marketing concept. During the period of production orientation it had minimal significance, while with the beginning of the following (sale's) era personal selling got more significant role which advanced after Second World War (the period of beginning of the marketing orientation). Personal selling developed through several phases: consultative selling, strategic sales and the period of establishing of partnerships.

Key words: marketing concept, personal selling, sales talk, communication

DEFINITIONS AND CHARACTERISTICS OF PERSONAL SELLING

There is a large number of definitions of *personal selling* in literature. In considerable number of definitions of the concept there is the emphasis on the fact that this is **the oldest instrument of promotional mix** which *actualizes a face-to-face interaction* of seller with one or more of potential buyers, and that the **aim** is *presenting the offer*, *answering questions* and, ultimately, *obtaining order*. "Almost all definitions of personal selling underline it as a process of informing the buyer in which the seller guides the buyer to the decision to buy a product or service." (Ognjanov, 2004). There is an increasing attention paid to **post sales-services** in order to *achieve long-lasting satisfaction* and *creating long-term relationships with customers*. Unlike other elements of promotion (advertising, public relations and sales promotions), personal selling directly **generates profit for economy entity** (in United States of America it is estimated that every seller, in average, supports 10,4 other working positions within the company).

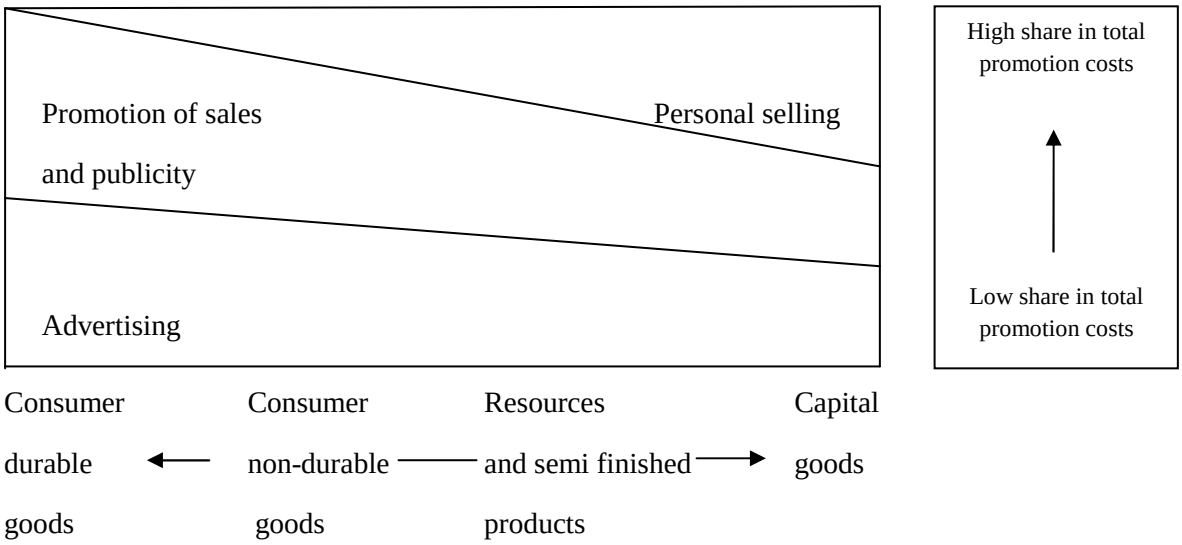
In the "Dictionary of Economics" under concept of personal selling states that it is an "instrument of promotion, based on establishing interpersonal, two-way communication between seller and buyer, with the purpose of making a sale." (Dictionary of Economics, 2001). It further states that it is characterized by the physical presence of the two entities (buyer and seller). "The essence of personal selling is the interaction between its entities - the target customers and specially selected and trained dealers ..." (Lexicon of Management, 2003).

"Personal selling implies direct communication with potential buyer. This is the process of **developing relationships, detecting needs** and **adjusting appropriate products to these needs**. But it is also a process of telling the benefits by providing data, reminding and convincing " (Manning and Reece, 2008) (underlined by DB). The word product used in aforementioned definition should be considered in a broader context including by the respective term also services, information, ideas, etc.

One of the basic characteristics of personal selling is the **flexibility**, because *the seller is the most flexible media of communication*. The above stated characteristic is the result of two-way communication that is achieved directly between suppliers and customers. During the sales presentation it comes to acquiring the *feedback*, i.e. while the seller informs the buyer he simultaneously obtains the feedback on how the message is received, and thus successively adjusts the offer and the manner of presenting it. Personal selling, unlike other instruments of promotional mix, offers the possibility of **transmitting a large number of complex information**, since the seller's messages does not interfere with the other from the environment. Successful sellers are also required **to collect information** about *the behavior of competitors, new opportunities and threats (risks)* and to report all of the above to their superiors. In this manner the field data becomes available to all relevant decision makers in the company (without additional effort and cost).

It is really important that sales **can directly lead to the closure of the sales contract**. However, these advantage must be confronted with the fact that it **is the most expensive element of the promotional mix** (the most demanding method of communication) [1]. "In the developed market economies, the average cost per sales contact vary from 200 to 1100 $, depending on the industries and types of products or services" (Gligorijević, 2007). Costs of personal selling are the highest in selling the products/services for industrial consumption, and also have significant share in marketing costs of consumer durable goods. Most resources in the promotional budgets are committed to the personal selling of capital goods, and the least for consumer non-durable goods (Figure 1).

Figure 1: The importance of some forms of promotion by groups of good (Lovreta et. al., 2001)



One of the main disadvantages of personal selling is **the broadcasting of inconsistent messages**, since companies, as a rule, employ a large number of sellers who are independent in their work. Consequently, there is a danger that *messages sent from sellers* about the company and its offer *can be different from one another*.

"Personal selling basically has two main **roles**: it is part of the offer and the organization and it is responsible for customer satisfaction, and it is a part of the communication mix, when it is responsible for informing the buyer" (Milisavljević et. al., 2004). Managers, while creating

[1] "The budget for sales personnel depends on the type of industry involved, but it is estimated that the average percentage of turnover invested in sales is between 3% and 4%. In other words, about 12 billion pounds is spent on sales, compared to about 9 billion pounds for advertising or a billion for public relations." (Smit, 2002).

marketing strategies, must necessarily take into account both of these functions. On the one hand, during the sales conversation the seller has the indispensable role to help the buyer/user *to define their own needs*, as well as to show *how the product/service are solving determined problem*. Personal selling has *to provide help* installing, using and maintaining the products, as well as to enable incorporation of purchased materials/parts in the production process. On the other hand, personal selling is also a part of the promotional mix. As well as other forms of promotion, it tries *to inform and motivate the business customer*.

POSITION OF (PERSONAL) SELLING IN MARKETING CONCEPTION AND VALUE CHAIN

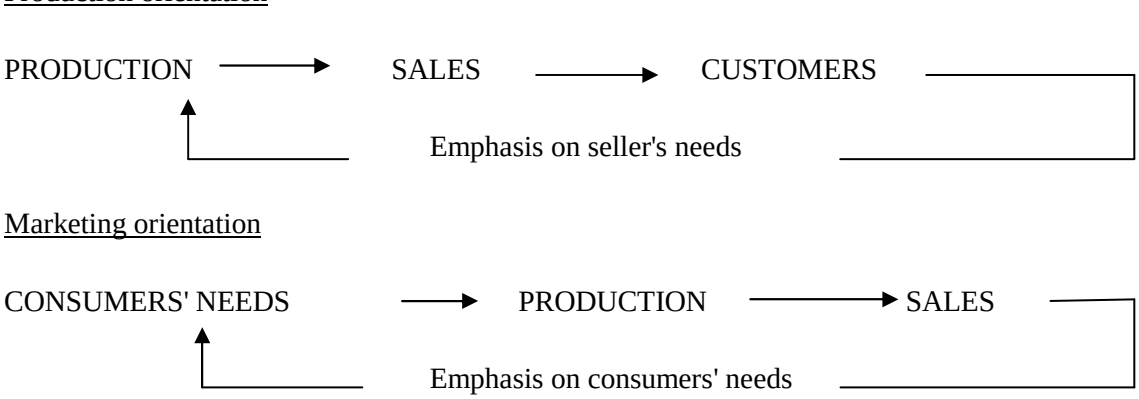
Marketing as a business concept evolved[2] in *three stages* (production, sales and marketing orientation). Personal selling, in each aforementioned successive phase, had a different role. In *the production orientation* (the period since the Industrial Revolution in the late eighties of the XIX century until the thirties of the XX century) the emphasis was on mass production of standardized products, and not on sale. The demand on the market was far greater than supply, so customers easily accepted any products (French economist J.B.Say defined sale market as - "supply creates its own demand"). Under the pressure of overproduction and competition (twenties and thirties of the XX century in the United States and Western Europe) the focus is shifted from production to the sales function (*sales orientation*). Businessmen have become aware that product quality is not the only determinant of the success, i.e. pendulum of economic focus is shifted from manufacturing to sales. It was overlooked that the sale was only one of the activities of marketing. Consequently, that caused marketing myopia (hazing the essence of business and over-emphasizing the role of sellers). During the production era and sales orientation, the approach of negativistic viewing of selling was developed (the role of seller was reduced to convince the buyer to make a purchase).

Under pressure from an abundance of products and services, sellers market gave way to the buyers' market (supply exceeds demand). *The marketing orientation* was originated in the most developed economies. "The marketing concept holds that the key to a successful and profitable business rests with identifying the needs and wants of costumers and providing products and services to satisfy them." (Jobber and Lancaster, 2006) (Figure 2). There was a radical shift in the way business entities implemented business activities (the consumer/customer takes the central place instead of production and sale). New business paradigm described by management guru Peter Drucker - "Customers define the job." Professor Theodore Levitt (Harvard Business School) conducted a unambiguous conceptual differentiation - "Marketing is different from selling as chemistry from alchemy, astronomy from astrology and chess from check."

"Professionalization of personal selling and sales management begins with the development of sales, especially with the development of marketing-oriented companies" (Lovreta et al., 2001). Differences between marketing and sales are more expressed in terms of type and size of work, and far less when it comes to the methodology of operation. It is a complementary business activity that contributes to the realization of marketing objectives in different ways. Personal selling contributes to the integration of other instruments in the promotion in a unique marketing mix.

[2] Robert Keith made the periodization of marketing development in his work "The Marketing Revolution".

Figure 2: Production orientation versus marketing orientation (Jobber and Lancaster, 2006)



One of the most popular concepts is definitely the **marketing mix** (4P). Its basic **elements** are: ***p****roduct*, ***p****rice*, ***p****lace and* ***p****romotion*. **Promotion** can be further be broken down to *advertising*, *public relations (publicity)*, *sales improvement* and *personal selling*. Promotion elements have different (set in hierarchy) communicational goals. In literature, model AIDAS[3] is commonly used for explaining the subject matter. Primary task of **economy propaganda** is to *form* awareness to the consumers (introducing offers, information on product's features, image building etc.), and the task of **public relations** is to create interest (spreading positive news directly affects target groups). Measures of **sales improvements** focused on creating a need with a possible buyer (by encouraging them and giving additional benefits), whereas **personal selling** is to achieve the final goal-action (i.e. buying and selling). Let us note that personal selling also has had bigger role in maintaining long-term relations with buyers.

With mass media communication advertising had a dominant role in promotional splice. **Economy propaganda** is directed towards *great number of listeners*. It is featured by *indirect*, *one-way contact*, *humble possibility of adjusting and* relatively *cheap contact.* However, complementarity of advantages and disadvantages of advertising and personal selling has affected common combining of the two mentioned elements of promotion. There are numerous examples of different forms of **selling improvement** measures usages by offerers (for example: sending free samples increases the possibility of decision making, and the very process of negotiating is made quicker this way). Sellers are obliged to form and maintain relations with buyers, but also to take care of **public relations** and wider community.

"**The role of personal selling in communicational mix** of a company depends on several factors. Among the basic ones are the market in which the company does business, the type of product, distribution strategy and the possibility of using other forms of promotion" (Ognjanov, 2004), (underlined by DB).

Personal selling has a dominant role in business market (*business-to-business* – B2B), so during the sale of production goods and permanent consumables, as well as with great amount purchases which carry big risks. No matter whether companies develop their own selling service or choose to place their products over brokers (distributors, agents etc.), personal selling takes the key position in promotional mix. Attention that the management may give to the personal selling is also conditioned by legal restrictions and by the phase of buying and selling process (it is given a more significant role in buying, than in the phases of pre-purchasing and using).

Michael Porter, in the concept of *value chain,* puts selling in the group of primal activities, together with the internal logistics, operations, external logistics and service. Consequentially, personal selling has a relevant role in delivering extra profit to the consumers/ buyers. Regardless to the

[3] Term AIDAS is an acronym abbreviated from: ***a****wareness, ,****i****nterest*, ***d****esire*, ***a****ction and* ***s****atisfaction*.

function it has, there is a permanent obligation imposed to the management in terms of finding the optimal balance of performances and created costs.

CHRONOLOGY OF PERSONAL SELLING DEVELOPMENT

Personal selling had been **developing dynamically** after the World War II. During 1950s, at the beginning of marketing era, the significance of salesmen was distinguished in information gathering and in buyers' needs estimation. In the following decades (1960s and early 1970s) comes the consultative selling era, when seller is more able to predict buyer's needs thanks to two-way communication. In fact, they take the role of an advisor, asking specific (target) questions and carefully listening to the answers they got. Based on relational knowledge, they define buyer's needs and suggest specific solutions (without trying to manipulate the buyer by aggressive selling techniques). The seller continues to provide services to the customer after the sale.

Intense competition, a large number of production lines, turbulent business environment and a sophisticated customer requirements have contributed to, in the eighties (the time of strategic sale), the strategy pays equal attention as the sales tactics (increasing emphasis on market niches).

Table 1: The development of personal selling (from 1950 until nowadays)

EMPHASIS ON MARKETING AND SELLING	**EMPHASIS ON SELLING**
The beginning of marketing era (early 1950s of 20th century)**:** organizations estimate needs and desires of target markets and adjust to giving the desired pleasure; orientation towards products is replaced with orientation towards buyers.	• More and more organizations see that the seller is in the position to gather information about the products, market and service, hence estimate the buyer's needs.
Era of consultative selling (late 1960s to early 1970s of 20th century)**:** sellers predict buyers' needs and become consultants who offer carefully designed suggestions: markets foreseen for masses begin to divide into markets with target buyers.	• Buyer's needs are discovered through two- way communication. • Manipulation is replaced by giving information and negotiation tactics.
Strategic selling era: (early 1980s of 20th century)**:** the development of more complex sales environment and bigger emphasis on market niches create the need for better structure and the emphasis on planning.	• Strategiji se posvećuje isto toliko pažnje koliko i prodajnoj taktici. • More attention is given to product positioning.
Partnership establishing era (since 1990 until nowadays)**:** sellers are encouraged that, whatever they talk about and whatever they do, do it in the context of establishing long- term, quality relations with individual buyers; automatisation of selling forces enables giving carefully adapted information to the buyer.	• Buyer extrudes the product and becomes the driving force in selling. • Greater emphasis on strategies that create value for buyers.

Source: (Manning and Reece, 2008)

Since the 1990s the emphasis has been placed on creating high-quality long-term relationships with individual customers (the age of their partners). A number of factors contributed to the development of long-term relationship between trade parties: "explosive development and application of technological progress in production and distribution:

- • information technology revolution and the wide application in a complete system of communication between trading partners at the global level;
- • globalization of markets and increasing competition, the intense process of deregulation in many industrial sectors and national markets and

- • final and institutional buyers are becoming more "mature" and "experts" in the process of buying" (Lovreta et al., 2010).

Modern buyer demands not only a high quality product/service, but also a high quality relationship. Benefits from this new concept are important to economic subjects, since it is well known that it is four to five times more expensive to gain a new buyer than to keep the old one. In the basis of partnership is creating a long-term strategic relationship, where the focus is on solving the buyer's problems. As a result, companies have been choosing automatized selling more often (customers relations management – CRM), with the goal to establish and maintain strong relations with buyers.

"The development **philosophy of personal selling** involves three basic assumptions: adoption of marketing concepts, evaluation of personal selling, and taking the role of the one who offers a solution to the problem, i.e. a partner to help buyers in making decisions" (Manning and Reece, 2008). The three preconditions are actually a part of the strategic and consultative selling model.

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CUSTOMER RELATIONSHIP MANAGEMENT CONCEPT IN THE ELECTRONIC BUSINESS ERA

Dejan Stojkovic, M.Sc*
Railways of Republic of Srpska S.C. Doboj, 71, Svetog Save Street, Doboj, RS - Bosnia and Herzegovina
magistardejo@gmail.com
Ratko Djuricic, Ph.D
Traffic faculty Doboj, 52, Vojvode Misica Street, Doboj, RS - Bosnia and Herzegovina
ratko.djuricic@stfdoboj.net

ABSTRACT

Electronic business (e-business, defined as business activities conducted over the Internet) has been one of the most remarkable information technology innovations in the last few decades (e-business era). With the involvement of the Internet in the Customer Relationship Management (CRM) concept, its functions have been changed a lot. The Internet enables ready identification of the customer/visitor, cost-efficient data collection, personalization, adaptation, and interactivity in the CRM process. Here comes electronic CRM (e-CRM). The purpose of this paper is to review that how customer relationships should be managed (CRM) in the age of the e-business.

Key words: CRM concept, CRM process, e-CRM, Internet, e-business

1. INTRODUCTION

The Internet brings with it ubiquitous connectivity, real-time access, and a simple universal interface provided by Web browsers. Traditional enterprises are transforming themselves into electronic business (e-businesses) by reinventing the way they carry out their business processes to take full advantage of the capabilities of the Internet. It is hard to recall any other innovation that has received as much press or as much hype. Electronic business (e-business, defined as business activities conducted over the Internet) has been one of the most remarkable information technology innovations in the last few decades (e-business era).

A new term for taking care of customers via the Internet, e-CRM, is recently applied by some organizational and academic communities (Ragins and Greco, 2003).

Judicious use of e-business impacts an institution's interaction with its customer interactions in a wide variety of areas (Foss and Stone, 2002):
- New distribution channels,
- New markets,
- New business models,
- Transparent marketplace,
- e-CRM,
- Reduced costs and improved service.

Internet and e-business are accountable for e in the e-CRM. It is essentially about conveying increased value to customers and to do business through digital channels. Dramatically all business are becoming a part of whole business. At present new things are possible which are in need of new technologies and skills (Friedlien, 2003). e-CRM is a new phenomenon that come out from the Internet and Web technology to facilitate the implementation of e-CRM. It focuses on internet- or web-based interaction between customer and service provider (Chang et al., 2005).

The convenience of shopping on-line may bring customers in through the virtual door, but what keeps them coming back through that same door is the overall quality of the customer experience. Web-enabled organizations need to understand this, because the cost of marketing to an existing customer is $6.80 over the Internet versus $34.00 to attain a new web customer (Karpinski, 2001).

e-CRM within businesses has increased dramatically over the last few years, and will continue to do so in the future. There is a lack of literature on e-CRM and more research work is needed in this area (Lee et al., 2003).

2. APPROACHES TO CRM CONCEPT

On the last decade all modern organisations take care about every of individual customers. Business practice proved that the customers are the biggest asset of a company, they are in permanent change, becoming more demanding, more profiled, more informed and usually precisely know their own needs and desires. Today, in the time of very developed flow of information, a customer is able to change company very easily. Due to all mentioned reasons, in 9th decade of the last century a special strategy had been developed, and was focused to the relationship of a company to its own customers. It was called Customer Relationship Management, or shortly CRM. It represents strategy that demands total devotion and acceptance of the concept from the management (Stojkovic, 2008).

CRM was born from relationship marketing and is simply the practical application of long standing relationship marketing principles which have existed since the dawn of business itself (Gummesson, 2004). However, a number of authors propose that an emphasis on the 4Ps marketing mix is no longer the dominant marketing logic and that relationship marketing may be a more appropriate “new” paradigm for marketing thought theory and practice (Dwyer et al., 1987). With increasing focus upon relationship marketing, the CRM linkage becomes clear: CRM provides management with the opportunity to implement relationship marketing on a company wide basis effectively. Shown in Figure 1., Customer Relationship Management is continuing process, based on iterative, cyclic realisation of four identical activities, where every new cycle represents annexing of previous one (Stojkovic, 2008). Possession of quality database about customers is in the base of the process, while information emerged from database analysis serves to the purpose of adaptation of the ways of achieving interaction with customers. Analysis of collected experiences is done at the end of the cycle in order to further adapt the activities.

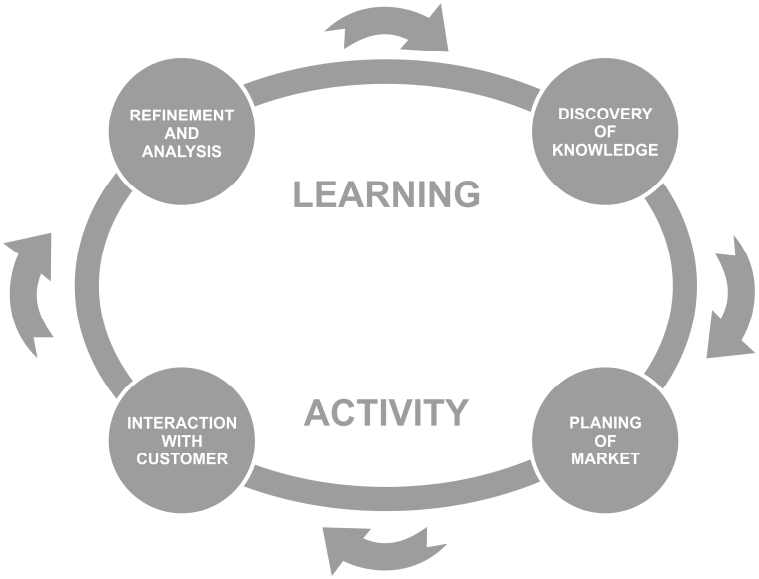

Figure 1: CRM as cyclic process (Stojkovic, 2008).

CRM as cyclic process implies running of four activities: discovery of knowledge, planing of market, interaction with customer and refinement and analysis.

It is also recognized that CRM is a process, and as such can be understood either in terms of distinct phases of the relationships or in terms of the strategic phases that need to be undertaken to achieve relationship objectives. The process can be summarized to include four stages of the buyer-seller relationship:

- identification of relationship partners,
- development of the relationship,
- maintenance of the relationship,
- re-evaluation of the relationship or its termination (Heide, 1994).

The strategic phases, on the other hand, may include:

- customer/segment identification,
- customer targeting,
- relationship marketing and management,
- the evaluation of the relationship and company performance.

Business-to-business (B2B) researchers prefer to understand CRM in terms of its process stages, while business-to-customer (B2C) researchers frequently conceptualize CRM in terms of its strategic activities. As such, the focus in B2B relationships appears to be centered around the development of long-term relationships through building trust and commitment among the exchange partners. On other hand, a central role is given to the development of loyal customers in B2C relationships.While the CRM priorities appear to be different in B2B versus B2C relationships, closer inspection would reveal that their aims are the same. Both attempt to create a small numbers situation between the company and the customer (or supplier) in otherwise competitive markets, and both seek enhanced profitability as the end-result of CRM activities.

3. CRM CONCEPT AND E- BUSINESS AGE

Electronic business (e-business, defined as business activities conducted over the Internet) has been one of the most remarkable information technology (IT) innovations in the last decade (Zhu et al., 2003).

E-business is using the network and distributed information technology, knowledge management, and trust mechanisms to transform key business processes and relationships with customers, employees, suppliers, business partners, regulatory parties, and communities (Craig and Jutla, 2000). E-business is about changing business models to create new or increase value for the customer.

According to Vukmirovic (2004), e-business is business transformation based on: association of the companies (integration), cooperation process (collaboration) and global networking by using Internet as medium.

The emergence of the Internet heralded a new opportunity for customer relationship building (Croteau and Li, 2001). For one thing, search engines made it easier for customers to find online merchants and interact with them. Moreover, the Internet simplified bi-directional communication, for the first time offering a better way for consumers to relay personal information to the merchant. Instead of waiting to be mailed a form to open an account or order by phone, a prospective customer needed only to send an application through cyberspace, resulting in shorter delivery time, improved accuracy, and quite often a higher positive perception (Strauss and Hill, 2001) In fact, the Internet is an environment of zero latency, offering real-time information, and often on-demand product delivery (Bradshaw and Brash, 2001).

The Internet as a technological tool adds greater value to CRM, primarily through making the various stages/strategies of CRM more cost-efficient as well as enabling a host of other activities that would have otherwise been either impossible or arduous (Greenberg, 2002). The Internet enables ready identification of the customer/visitor, cost-efficient data collection, personalization, customization, and interactivity in the CRM process. These enhanced value-creating activities also expand the abilities of companies to establish, nurture, and sustain long-term customer relationships than ever before.

A new term for taking care of customers via the Internet, e-CRM, is recently applied by some organizational and academic communities (Ragins and Greco, 2003). e-CRM refers to electronic customer relationship management or, more simply, CRM that is Web-based (Dyché, 2001).

While traditional CRM activities remained distinct from web-enabled CRM, or e-CRM, in the early years of the "dot-com" era, it is being increasingly recognized that web-enabled CRM is now the norm rather than the exception (Greenberg, 2002).

Many authors agree that there is no unified definition of CRM / e-CRM. The term has been defined in different ways, with no clear agreement, but there are two approaches to define CRM / e-CRM, management approach, and information technology approach. However, when we emphasis on management approach, some authors defined CRM stand for customer relationship management which is an integrated approach to identifying, acquiring and retaining customer (Ellatif, 2008).

Since the differences between CRM and e-CRM as mentions by many authors are minor and obvious, the definition for CRM and e-CRM is almost the same except e-CRM uses the Internet as a tool or medium. However, the definition of e-CRM is still not clear but most of the researchers and practitioners agree that e-CRM is a business strategy that applies the technology power to tie together all aspects of a company's business to build long-term customer relationship and customer loyalty.

According to Bradshaw and Brash (2001) to deal with the challenges of customer relationships in the fast-evolving Internet world, even the most customer-focused companies have to understand the three essential insights to getting customer relationships right:

1. That building CRM in the front office is just the start, and that it must involve the back office functions like manufacturing, fulfillment, and billing as well as the analytical functions like data warehousing and pushing customer insights back up to the front office.
2. That conducting relationships across multiple media requires the correct technical infrastructure, allowing companies to deal with their customers in a consistent way across multiple media, and even add new media as required without the need to develop every interface separately and from scratch.
3. Building the correct strategy for directing customers to different media. For a few organizations the strategy "we will deal with customers on whatever medium they prefer" is right; but for the vast majority of organizations it is a recipe for disaster.

Education and training of employees represents one of essential conditions for application of strategy of Customer Relationship Management in companies. According to Kotler, the symptom of insufficient orientation of a company toward customers is that there isn't training programme that would create customers culture (Stojkovic, 2010).

Training and preparation are arguably the most important key components in electronic Customer Relationship Management implementation. Depending on the number of users, training times will vary from company to company. Training of employees should occur before the new e-CRM system has been implemented to ensure a seamless transition for customers. Examples of training include sending users to training facilities at considerable cost or bringing in an on-site consultant. Anyone who requires access to the system should receive full, appropriate and timely training. Training should be an ongoing, managed activity as systems must continuously change and evolve.

All training and tools used should be thoroughly documented for current, new and future employees. Without a documentation management scheme, the value of the e-CRM system will degrade rapidly. A firm should plan to spend about 5% - 7% of its total e-CRM implementation on training (Patton, 2001b).

Employees, i.e. is the persons that would use applied solutions of CRM concept in daily communication with customers, are extremely important segment. In the hands of quality educated and trained personnel, CRM starts to act as extremely powerful weapon and is able to allow decisive step toward gaining advantage over the competition (Stojkovic, 2010).

In a recent study (Sims, 2000), Anderson Consulting found that a typical $1 billion high-tech company can gain as much as $130 million in profits by improving its ability to manage customer relationships. Anderson Consulting also found that as much as 64% of the difference in return on sales between average and high performing companies is attributable to e-CRM performance. Such evidence indicates that the well-planned implementation of an e-CRM concept produces a winning situation for customers and companies alike. Improvements in the overall customer experience lead to greater customer satisfaction, which in turn has a positive effect on the company's profitability.

3.1. e-CRM in Hewlett-Packard' s way

Paul Horstmeier, newly appointed e-marketing manager of Hewlett-Packard, quickly discovered that the computer industry giant had made a muddle of its attempts at e-mail marketing (Patton, 2001a). The company's typical customers include IT managers who have purchased servers, printers and services before. HP had been launching separate, uncoordinated e-mail campaigns from nine different marketing groups. Horstmeier saw that in order to provide useful benefits to HP, his group needed to take over management of the e-mail campaigns from the nine different marketing groups. It also had to promote the idea that marketing should be a long-term process that focuses on the life cycle of customers instead of looking at a sale as a one shot transaction. This demanded that Horstmeier's group focus on the e-mail marketing operation while coordinating its efforts with the larger corporate structure that included other customerfacing groups like call centers and customer service teams. To meet these integration needs, the e-marketing group brought in e-mail analysis, segmentation and personalization tools from San Mateo, CA based Digital Impact. By analyzing its e-mail databases, HP found that its business customers fell into two groups; IT managers and end users. Rather than flooding the two segments with immediate additional e-mail campaigns, HP started to learn what these groups wanted through small pilot tests. The company found that IT managers were willing to tell HP exactly what kinds of general product support alerts and newsletters they'd like to get (such as laptop discussion forums, print driver updates, and new product introductions) whereas end users wanted more specific information about the exact product that they had bought (network server, PC or printer model number) and how to use it.

H.P.'s results showed that more of their customers responded to the low-cost email offer than to the direct mail offer, making the e-mail offer both more productive in terms of sales generated and more cost-effective in terms of expenses saved. Customers also said they liked getting the e-mail alerts and updates with more than 85% saying they were quite satisfied with the content that they received. The e-mail campaigns generate an estimated $15 million in new monthly sales revenues, as well as half a million dollars in monthly cost savings from the consolidated e-mail campaigns. By sending out product support alerts and e-mails, the resulting reduction in calls made to support lines saves nearly an additional $150,000 per month (Patton, 2001a).

4. CONCLUSIONS

Electronic Customer Relationship Management (e-CRM) has become the latest pattern in the domain of Customer Relationship Management. e-CRM concept is becoming more and more vital as businesses take to the e-business. All companies engaged in on-line relationships (B2B and/or B2C) need to educate themselves about the recent phenomenon of electronic Customer Relationship Management (e-CRM) concept. Training and preparation are arguably the most important key components in e-CRM

implementation. Depending on the number of users, training times will vary from company to company. A firm should plan to spend about 5% - 7% of its total e-CRM implementation on training (Patton, 2001b). Successful application of e-CRM concept produces a triumphant situation for customers and companies alike. By using e-CRM concept, improvements in the overall customer experience lead to greater customer satisfaction, which in turn has a positive effect on the company's quality and profitability.We have looked at the good practice of e-CRM at Hewlett-Packard.

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PRIVATE-PUBLIC PARTNERSHIP AS A POSSIBILITY TO IMPROVE EFFECTIVENESS OF THE PUBLIC SECTOR

Miladin Jovičić, PhD*
Faculty of Economics Bijeljina, Bosnia and Herzegovina
miladinjovicic@yahoo.com
Ankica Jovičić, M.Sc
PhD studies at Vienna University of Economics and Business in Vienna

ABSTRACT

Private-public partnership as a form of the cooperation between public and private sector is becoming more and more important. The reason for that can be found in the fact that the needs to satisfy the public interest is growing and, on the other hand, the financial resources, which are supposed to provide that, are limited. Financial resources are not the only reason. In order to satisfy public interests, public sector has to use the entrepreneurship of the private sector as well as to be prepared for risk-taking with the aim of satisfying public interests in most efficient and effective way. The fact that profit stimulates the private sector should not be ignored either.The countries in transition are especially socially vulnerable and they do not have enough financial resources to satisfy those needs. At the same time, one of the basic preconditions for intensifying investment activities is good infrastructure. Substantial financial resources are required for that, too, which the public sector does not own. The solution may be found in providing other resources. The most acceptable challenge is the cooperation between public and private sector. This form of the cooperation is becoming more and more important. According to the data of the World Bank, more than 15% of all financial resources for the public services and the public production constitute the private sector with further tendency of growing.

Key words: public interest, private sector, public-private partnership, budget, risk

1. INTRODUCTION

It is a fact that there is an increasing need for satisfying a common public interest. In order to do that funds are necessary. It is also a fact that the budget for those needs is not big enough, whereas the level of needs constantly increases. The request for meeting those needs goes into two directions. One of them refers to the social sector, where the government traditionally has an obligation to take care of the people in need. Another one refers to the infrastructural problems, where the government or the local community have to provide the best possible living conditions. At the same time, by improving the infrastructural conditions the future potential investors will be in a better position to make a decision, whether to invest or not.

At this moment perhaps the best and certainly the most favourable way of raising funds is a partnership between the private and the public sector. It has to be pointed out that this form of the cooperation does not only refer to providing financial resources, but also to many other possibilities, first of all to the managing effectiveness of the private sector.

2. THE TERM AND DEFINITION OF THE PUBLIC PRIVATE PARTNERSHIP

The forms of cooperation between the public and the private sector have been known since the Roman Empire, where many objects of the common and public interest had been built and maintained through mostly concession form of the private partnership. This form of cooperation between the public and the private sector became attractive again in 17^{th} century, but in a slightly different way through projects of building important infrastructural objects such as railways.

At the beginning of the 1990s the EU countries accepted the public -private partnership as a promising form of the cooperation between the public and the private sectors, where both sides would have advantages.

France was the first country in EU, which had introduced the public private partnership model, and after that all other EU members followed this path (At the same time, in 1990 the countries of the Iberian Peninsula also implemented this model and after that all other countries, first of all Great Britain and Scandinavian countries (see Shonibar. W., „The Emergence of the Public-Private Partnerships Superleague", Conference „Public-Private Partnerships in the EU Accession Countries", Budapest, 2003, p.250)).

In 1992 John Major's conservative government in GB legitimized this form of the cooperation between the public and the private sector through the so called private financial initiative. One step forward was made by Tony Blaire's government Tony Blare, which supported the private financial initiative and stressed the importance of achieving "value for money" mostly through equal distribution of risk.

Many Asian countries used the public- private partnership model for building the infrastructural objects. The tunnel in Hong Kong (Cross-Harbour Tunnel) was also built on the basis of the public-private partnership and concession model. For building of Suez Canal the BOT model was used (Levy 1996). According to the latest data, over 10% of all investments in infrastructural objects in GB were based on the cooperation between the public and the private sector. In Turkey the concession model in infrastructural development was used in 1984.

It is interesting to mention the Russian definition of the model and the need for public and private partnership. Firstly, the focus is on the relationship between the government and the business. Equally important is institutional and contractual relationship. Many forms of the public private partnerships required the governmental support and the precondition for that was the existence of the government and public funds aimed for those purposes. As a consequence, in 2005 Public investment fund was formed by the state. Because of the undefined legal framework only 28 Mill of the available 265 Mill of Russian Rubbles were used. In 2009, 1269 objects were supposed to be built by the state using the public private partnership model and were supposed to be done on "turnkey" principle, but only 18 of them were actually built. Of those 18 objects only 9 are absolutely functional, which means they were built according to the accepted obligations (Russian Statistical Office).

In order to support the development of the public private partnership, special economic areas have been formed. In 2009, almost more than 75 Mill people in Russia were employed; only 0.008% of this number were employed in those areas.

It is a fact that through the process of globalisation this form of partnership becomes more and more important. Global financial and economic crises have just supported this trend (It is important to point out that the researches in Denmark have shown that more than 60% of those who took part in the research thought that the private sector could make the process of satisfying public needs much more effective).

In 1970s USAID (www.inside.usaid.gov/GDA) as a body of the American Congress, which takes care of raising funds for developing countries, raised its funds mostly (70%) from the public budget. Today 85% of the financial help of the USA to developing countries comes from the private budget and 15% from the public budget. Those changes have come as a consequence of the development of private profit sector and non-governmental sector and also other members of the development process.

It is sure that the EU countries have been the first to recognize the importance of this form of the cooperation between the public and the private partnership (At the moment, more than 260 Bill

Euros are being used for different projects of public private partnership). According to the latest reports of the World Bank over 15% of the funds for the public services and for the public production were provided by the private sector and with tendency for further growth. Nevertheless, due to the fact that EU consists of many countries (at the moment 27) it was difficult to harmonize the rules and the laws on the EU level (Even though there is not an unique legal framework on the EU level, there is a rule defined in Article Code 43 and Article Code 49 in the European Commission Contract, which says that each legal act both contractual and unilateral, which implies the obligation of the public sector to dispose some activities (both in production and in services), must be harmonized with regulations and guidelines regarding free service providing and equal treatment). EU has therefore tried to introduce directives and guidelines, which were unbinding, but they aimed to harmonize the conditions for the application of the private sector for taking part in public projects on the EU level. Because of that, EU Commission has implemented 4 guidelines in order to achieve at least partial harmonization on the EU level. Those were: Directive 93/277EEC, Supplies Directive 93/36/EEC, Services Directive 92/50/EEC, Utilities Directive 93/38/EEC.

Because of the growing importance of cooperation between the public and the private sector, EU presented the "Green Book" on April 30th 2005, which dealt with a problem of public procurement and concession. It analyses the partnership between the public and the private sector in order to classify it. The Green Book is not binding, but it gives guidelines which were supposed to be respected by both partners. Those guidelines refer to following:

1. Long-term relationship
2. The way of financing, where the private sector is supposed to be the major investor. The responsibility of the public partner is to ensure that public needs are satisfied and it therefore has a right to set standards, which must be fulfilled by the private sector. Of course, the interests of the private sector are to be respected, as well.
3. It has mostly become the responsibility of the private sector to deal with risks of possible undesirable problems, which might cause negative consequence for both partners. The way of satisfying interests of both partners depends on the models of the public-private partnership. A contract must define relationships between partners, because most problems occur here, when it comes to the realization of the investment.

Principles of public-private-partnership, which were represented through the Public Private Partnership Law of Republic of Srpska (Article Code 14), are also very interesting. Differences between these principles and the principles of the EU Green Book are very small or there are no differences at all. Those principles refer to the following:

1. The long-term contractual relationship between partners
2. Private funds as main resource, but public partner is not excluded either
3. Defining the goals of building by the public partner in order to satisfy the public interest, but also setting standards of building, maintenance and quality of the services, whereby the risk distribution is regulated for each case independently
4. Public partner pays fees to the private partner for building and managing the built infrastructure. Private partner takes the responsibility for making sure that the built infrastructure is going to be used for the defined purpose.
5. Built infrastructure becomes the ownership of the public sector, after the period of use is over.

From the above principles it is clear that this kind of cooperation gets its form in these countries, too, which tries to define the relationship between the public and the private sector in order to establish their partnership.

According to this, the main purpose of establishing the relationship between the public and the private sector can be found in the constant increase of need to satisfy the public interest, which is the responsibility of the public sector, and a constant lack of funds in public sector for satisfaction of those needs. Nevertheless, the lack of money is not the only reason for establishing those relationships. It is perhaps even more the desire to improve the effectiveness and efficiency of

satisfying public interest by using the advantages of the private sector. At the same time, public private partnership provides the opportunity to the managers of the public sector to become a part of the game by contributing to the distribution of risk and power between the public and the private sector.

3. WHY PUBLIC- PRIVATE PARTNERSHIP AT ALL?

Public -private partnership represents the modern form of the cooperation between the public and private sector (It is important here to stress the difference between the privatization and the PPP. Privatization means transfer of the ownership (goods, rights, etc.) to the private sector. Partnership, on the other hand, means introducing the private entrepreneurship to different sectors, such as construction, planning, using, financing, modernisation and etc. of both goods and services, which are normally the responsibility of the public sector). This form of cooperation can be defined as a very wide range of possible interaction between the public and private as well as profit and non-profit sectors, in which both partners expect satisfaction of their interests. Public sector expects to satisfy the public interest the best way it can and that is, after all, its first goal. Private sector expects to satisfy its own interests whether financial or other (Both those and "other interests" refer in long term to the profit) by providing the best conditions for the optimal satisfaction of public interest. Both sectors must invest some resources.

In a narrower sense, PPP can be defined as partnership referring to the forms of cooperation between the public and the private partner with the aim of providing financial funds, construction, reconstruction, managing and maintenance of an infrastructural object or providing a service. The aim is to provide the best conditions for economic development by more intensive infrastructural development and by more effective provision public services in order to satisfy the public needs. Otherwise, the public sector would have to raise funds for those projects itself.

Apart from the cooperation with a private sector, the public- private partnership (PPP) also needs the cooperation within the public sector on all hierarchical levels. In order to satisfy the needs on the local level (apart from money) adequate knowledge and most important innovative managing access are necessary. The experiences of many countries have shown that the most important obstacle on the local level is a lack of human resources. Basic principle in this case is an exchange value for money. This is also the most important motivation for the PPP. This principle is not based on the choosing "the cheapest" offer, but on choosing the optimal solution, which will give the best results in a long term. In order to enable this, it is necessary to take into account long term advantages for the public sector and to estimate the long term costs, which are of the vital importance for the private sector (The question of optimal interest arises especially in those countries, which do not have an adequate legal framework and in this case it is necessary to use a public advertising. In this case the prise plays the most important role by choosing the partner. Other factors are being ignored, because the formal responsibility for the community disables those who make decisions to find the long term optimal solution.).

4. MODELS OF COOPERATION BETWEEN THE PUBLIC AND THE PRIVATE SECTOR

Talking about the forms of the cooperation between the public and the private sector, one should mention 2 common forms: normal contractual relationship between 2 partners and institutional form of partnership.

When it comes to contractual relationship, managerial contract should be mentioned, which includes pure outsourcing of services or contracts, in which the private sector provides services on the behalf of the public sector.

And when it comes to the institutional form of partnership, then we should mention mutual investment. The most important characteristic of this form of cooperation is the establishment of a new mutual institution between the public and the private sector in order to realize a common interest. Institutional form of PPP can be made by grounding a new institution for only one project. Even more frequent form of the institutional organization is taking control over the private partner by the public sector.

European Commission has classified the contractual forms of the public-private partnerships. The first model is called "concession model". The second model is called Private financial initiative.
The forms of the public- private partnership could be classified in several groups:

- Managerial contracts
- Public goods lease contracts
- Common investment contracts
- Concession contracts
- Private financial initiative

The most frequently used models of public -private partnerships are the following:

1. BOT (Build-Operate-Transfer) is one of the most used models of concession type. Public sector has defined goals and has done the project in accordance with those goals. Based on the project, public sector builds public good. Private partner provides services in the name of public sector by using public goods and charges certain franchise (fee) in a determined time. There are different variants how private sector can charge fees.
   Usually the ownership is at the end of the agreed time transferred to the public sector without paying any fees (This model was used for building Suez Channel).
2. BOOT (Build-Own-Operate-Transfer). Also in this case private sector builds public good on request of public sector, owns it during agreed time and provides public services by using that good. During that time the fees are charged whether by the final user or by public partner. After agreed period, the ownership of public good is transferred to public partner without any fees.
   Project has to provide satisfaction of public interest, but it also has to provide return on investment in reasonable period of time. It is interesting to point out that if private sector raises funds for the project by taking out loans, the possibility of paying back those loans will be based on the quality of the project and not on the solvency.
3. DBFOOT (Design-Build-Finance-Own-Operate-Transfer). In this model, private sector projects, builds, finances, uses and provides services with the object in private ownership, charges fees from the public sector or from the final user and transfers the ownership to the public sector after agreed time without any charges (Example of the successful realization of this model is building of the sport-business object in Split. Details in "Public Private Partnership: Attractiveness of DBFOOT model, Proceeding of Faculty of Law in Split" by Dr. Hrvoje Kačar, god. 45, 3/2008).
4. DBFO (Design-Build-Finance-Operate). This and the 3 above discussed models are most used models of the cooperation between public and private sector. This model belongs to the Private financial initiative model. Private sector designs, builds, raises funds and charges fees for providing services after the project is done. Private sector takes over all the risk.
5. FO (Finance Only). Private sector (most often financial institutions like banks or funds) directly finances building of an infrastructural object. All costs of financing are taken over by the public sector, but also risks of building and risk of exploitation.

There are many forms of cooperation between public and private sector, but most important is to set rules before the realization of the project begins (Some of models already implemented in many countries: DBB (Desing-Build), BOO (Build-Own-Operate), BIO (Buy—Improve-Operate), O&M (Operate with someone else's ownership), Operation License – Oprate with something, for what you must pay license.).

5. **CONCLUSION**

It is a fact that the form of cooperation between the public and the private sector based on the partnership is becoming more and more important. Different models of this cooperation have been invented, whereby some basic criteria must be fulfilled by both the public and by the private partner.

Public sector must provide effective satisfaction of the public interest. It means, first of all, providing services with a certain level of quality for acceptable price. Private sector, at the same time, has its own interest, which is actually profit. This interest means return on investment in a reasonable period of time and providing certain level of profit. Which way it is to be realized, is up to the agreement between the public and the private partner.

What is very characteristic for the partnership between those 2 sectors is a distribution of risk. During the time, the private sector has taken over a bigger part of the risk. It also has its own price, which has to be paid by public sector.

It has to be pointed out that there are many ways how to regulate those partnership relationships. They have to be defined in a contract with clear obligations and rights of both sides. In this area (Republic of Srpska and Republic of Serbia) those partnership relationships have mostly been defined on concession basis and they referred almost only to the use of hydro potentials (small hydroelectric power stations) and to the building of important roads. It also has to be stressed that the results are negligible. It has to cause concern and we have to answer the question why is it like that. Reasons for that are various.

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RESEARCH AND DEVELOPMENT IN THE FUNCTION OF CREATING COMPETITIVE ADVANTAGES

Jelena Premović, M.Sc*
Faculty of Economics Subotica,
jelena.premovic@gmail.com
Agneš Boljević, Ph.D
Faculty of Economics Subotica,
boljevic@ef.uns.ac.rs,
Ljiljana Arsić, Ph.D
Faculty of Economics Priština- Kosovska Mitrovica
ljiljana.arsic@pr.ac.rs

ABSTRACT

R&D (Research and development) activities represent an important mechanism for initiating and conducting organisational changes which predominantly characterize the business environment today. Innovation capability is an important factor of changes and business success which makes them a necessity for progress and survival of a modern company. R&D represents one of the most important sources of innovation. Investing in R&D and inciting innovative activities is one of global indicators of a national economy success and technological advancement of the country, but also one of basic indicators of success of a modern company. Companies invest in R&D financing at a scale of estimate return of invested funds and expected future profit. Aim of these investments is not only the wish to rationalise and improve the existing production concept but to provide basic assumptions for accomplishing competitive advantages that will enable the company to always be "a step ahead" of the competition. In this paper, through establishing the essence of R&D activities as a presumption of efficient business in the contemporary, global environment based on knowledge, tries to point out the necessity of a complex and systematic approach to R&D activities, which influence on the development of competitive advantages of a company and a national economy as a whole, is dominant.

Keywords: Changes, knowledge, innovations, R&D, competitive advantages.

1. INTRODUCTION

Global changes in the socio-economic processes resulting from scientific and technological development from the late twentieth and early twenty-first century were followed by constant demands for increase of competitiveness, productivity and work quality. The rapid globalization of production and technology directly affects business operations, increasing the speed of its response to the requests of more selective market. New changes in respect to the external environment have affected the changes in the companies themselves, especially through the necessity of acquiring and implementing new knowledge in order to achieve business success. Education, information infrastructure, developed and efficient economic institutes and developed innovative systems (network of universities, laboratories, research centers, institutes, etc..) represent the four basics on which is founding the modern knowledge-based economy. Analyzing the contemporary world economy and its basic features, Draskovic said that "three major driving forces and strategic modern economy are:

1. knowledge (conditional: intellectual capital);
2. changes (which create uncertainty and risk and reduce predictability) and
3. globalisation (production, trade, finance, communications and information technology, scientific research, competition and other areas). (Draskovic, 2010).

Adaptation of numerous and different changes, growing competition and constant improvement of the performances, is the basic condition for the existence and progress of each modern enterprise.

2. R&D ACTIVITES BASED ON KNOWLEDGE

Innovation capability is an important factor of changes and business success which makes them a necessity for progress and survival of a modern company. Because, without adding new value to products and services, it is not possible to achieve a competitive advantage ...The competition is not only global, but is increasingly based on knowledge..."(Đuričin et al., 2009).

Growth of the global economy today is characterized by the stressing the importance and impact of small enterprises, changes in industrial relations and the transformation of basic economic principles. The surplus of value added arises primarily from the creative work, that is, from innovation. Human resources, by that, are becoming the most important resources, and innovation what were once the natural resources and raw materials. Enterprise development in the global business environment cannot be imagined without the research and innovative work.

Innovations are representing the source of competitiveness of enterprises and one of the key success factors, but also a major contribution to the uncertainty and changes in the environment, which requires their careful monitoring and analysis.

R&D activities represent an important mechanism for initiating and conducting organisational changes which predominantly characterize the business environment today. Improving existing and introducing new products could be achieved through systematic and consistent implementation of innovation and learning in enterprises. Knowledge and effective management of organizational knowledge encourage creativity of employees which is realized through various innovations. One of the most important sources of innovation are the R&D activities based on knowledge, where the "range of R&D activities extending from expanding boundaries of learning to introduce new or improved products to market. Research is planned search or critical investigation with aim to uncover new knowledge that would be useful knowledge for the development of new products (processes) and services or the occurrence of significant improvement of existing products (processes) and services. The development is translation of research findings or other knowledge to a plan or sketch for a new, modified or improved products (processes) or services, whether intended for sale or use "(Đuričin et al., 2009). OECD's classification of fundamental research, applied research and experimental development provides a framework for a basic description of R&D activities: Fundamental (basic) research is defined as original research that is undertaken in order to increase the overall knowledge and understanding of the laws of nature. Not primarily directed at any particular practical purpose, application or use, but to move the boundaries of our knowledge on the origin and causes of phenomena and facts that may be seen. Applied (practical) research is also undertaken in order to acquire new knowledge, but is primarily directed towards a specific practical aim or purpose. Applied research is undertaken either to determine the possibility of using the results of fundamental research, either to establish new methods and tools that enable you to achieve a predetermined goal. Experimental development is the use of scientific knowledge to create new products or substantially improved materials, devices, products, processes, systems or services. It is systematic work, based on existing knowledge, which are obtained through research and / or practical experience, which is aimed at producing new materials, products and devices, at installing new systems and processes, and at substantially improve those already produced or are installed (Đuričin et al., 2009). R&D, is necessary to impose as a function of survival and expansion of power companies, and are dedicated to the application of scientific and technical in creating new products and means of production, as well as improving existing products and production processes ... In terms of highly developed material-technical and human resource base, the needs and possibilities for the creative connection between the science and R & D capacity and material spheres are growing. The need for intensify for R&D activities, in terms of highly developed productive forces, is resulting from economic conditions and production based on more and more complex techniques and relationship of interdependence in which the play takes place (Todosijevic, 2009). Companies invest in R&D financing at a scale of estimate return of invested funds and expected future profit. Aim of these investments is not only the wish to rationalise and improve the existing production concept but to provide basic

assumptions for accomplishing competitive advantages that will enable the company to always be “a step ahead” of the competition.

3.R&D IN EUROPEAN UNION (IMPLEMENTATION OF GOOD PRACTICE)

Investment in education and training of human resources in R&D, encouraging creativity and entrepreneurship, and other innovative activities, are priorities in development policies of countries OECD, EU and BRIC countries whose economies are on the rise and are becoming more prominent place in global competition (OECD, 2008). European R&D policy has as its main objective the strengthening of scientific and technological basis of industry and overall economy of the EU and its encouragement to the world market in order to become more competitive. Because of that, science, research and technological development are defined as three priorities for EU policy. In the context of achieving these objectives, the EU encourages companies in all Member States, including small and medium enterprises, research centers, colleges and universities in their high-quality research and technological development activities and cooperation among them. Support to R&D and innovation activities, is considered as a key policy so called "Lisbon strategy", which was in Lisbon in March 2000. Adopted by the Council of Europe, which forecasts that EU will become a dynamic knowledge-based economy, the most competitive in the world, with sustainable economic growth with more and better jobs and greater social cohesion, with a request to member states by 2010. and reach the level of total expenditures for science and R&D than 3% of GDP so. Barcelona target [EC-Barcelona, 2002]. until 2010. is becoming an integral part of this goal is the composition of total costs: one-third of the said 3% of costs in this area should be financed from public sources (mainly from the budget), and two thirds from other sources (mainly costs for the business sector).
For realization of the strategy has been selected five priority areas:

1. The first area - the creation of a knowledge society,
2. The second area - the single market,
3. The third area - creating a stimulating business environment for entrepreneurship development, private investment and the creation and evaluation of innovations,
4. The fourth area - the construction of labor market that will strengthen social cohesion (as the basic conditions for permanent maintenance of the project of European integration),
5. The fifth area - establishing a regime of sustainable development.

The main instrument for the implementation of research - development policy in the European Union represents the adoption of multi-year framework of programs that identify key points of R&D activities of the European Union for a defined period. In that sense, the EU in 1984 year has implemented the framework programs which are representing the main programs of EU for financing research and development activities in the territory of the Member States and the wider European Research Area. The aim of the Framework program is a further building the European Research Area (ERA) in terms of knowledge, growth and development. These programs cover a period of five years and until now there were six. New Research Framework Programme of the European Union's Seventh Framework Programme for research, technological development and demonstration activities (Seventh Framework Programme, FP7) to support scientific research in the EU in the period since year 2007 to 2013. Total FP7 budget is 50.521 billion euros for the seven-year program, as well as additional 2.7 billion euros for the five years Euratom Programme for Nuclear Research. It allows for funding of collaborative research in strategic areas, such as health, energy, climate change, information technology, nanotechnology and transportation. The Program stimulate affects the mobility of researchers and build research infrastructure.
The objectives of the Seventh Framework Program are:

1. Transnational cooperation - to achieve this goal is defined by the program "Cooperation";
2. The dynamism, creativity and excellence scientific research (SR) and R&D activities in the EU - to achieve this goal is defined program "Ideas"
3. Strengthening human resources of the EU in the quantitative and qualitative terms - to achieve this goal is defined by the program "People"
4. Construction of scientific-technological and innovation infrastructure - to achieve this goal is defined the program "capacities" (Kutlača et al., 2008).

In framework of FP7 continue to be two separate programs: the European Atomic Energy Community (EURATOM) and the Joint Research Centre (JRC). EIU (Economist Intelligence Unit) defined innovation as "application of knowledge in new ways, primarily for the benefit of the economy" (EIU, 2009), and established a methodology to measure innovation in state, as defined indicators of innovation inputs, that is what enables innovation, and innovation output or performance of innovation activities:

- The aggregate indicator of innovation input is based on the values of the EIU business environment rankings model (Business Environment Ranking - BER), prepared for 4-year period. EIU ranking is done first for the period 2002-2006, and then for the period 2004-2008 year, and then, on the basis of BER model are made a five-year forecasts (2007-2011 and 2009-2013)
- Innovative output is measured as the sum of triad patents, or patents that are also registered in three major world patent offices: EPO (European Patent Office) - European Patent Office, JPO (Japanese Patent Office)-Japan Patent Office, and USPTO (U.S. Patent and Trademark Office) - United States Patent Office, and thus, it is assumed that are the very top of the world's technological development achieved.

Indicator of innovation input, according to this methodology, is the aggregate of two subsets of indicators that measure:

- Direct innovation inputs, which in the aggregate indicator inputs have weight factors of 0.75, and they comprise the following individual indicators: R&D as % of GDP, the quality of local research infrastructure, education work force, technical skills, workforce, quality of ICT infrastructure, the penetration of broadband telecommunications;
- Innovative environment, which in the aggregate indicator input is weighted coefficient 0.25, and consists of the following set of individual indicators environment: The political environment, market opportunity, firm policy of free competition, policy towards foreign investment, foreign trade and control of foreign exchange, taxes, financing, labor market, Infrastructure (Kutlača et al., 2008).

4. R&D IN SERBIA

At the forum on economy of knowledge 29.03.2006. in Prague was presented to World Bank report which shows that the countries of Central Europe and Central Asia are lagging behind much of the developed world by investing in research and development. The average expenditure on research and development in these countries according to a survey the World Bank in year 2005 is 1% of GDP, while the European Union 3%. Adverse is that the countries of Central Europe and Asia about two-thirds of investment in research is financed by the public sector, while in Western Europe from 65% to 70% of the costs covered by the private sector. That is why the additional public funds to encourage innovation be unused, if not create an environment that will contribute to the improvement of economic motivation, reform the existing education system and improving the information infrastructure in these countries. The report is a list of 25 countries in Central Europe and Central Asia that are ranked based on the ability to efficiently invest in innovation. In the first place is Estonia, followed by Slovenia, Lithuania, Hungary and the Czech Republic. Albania is the last in, while Tajikistan is at the very end. Our country (Serbia and Montenegro-2005. year) is ranked on 17th place. In order to Serbia actively can be involved in the European Research Area and build a society based on knowledge, in year 2001 began the process of revitalization of research capacity, development of innovative companies and innovative basic infrastructure for rapid and sustainable development. In the field of scientific research (SR) and R&D system, the integration of Serbia into the European Research Area (European Research Area - ERA) should contribute to: the provision and integration of national intellectual development community into a powerful concentration of knowledge that shapes the development of world scale, removing barriers to the flow of knowledge, ideas, technology and, above all, people in both directions, creating the conditions for the realization of capital SR and R&D projects of national and/or regional significance, with the participation of leading European research teams and laboratories, using modern SR and R&D infrastructure and other human, material and financial resources of the European Research Area, the most efficient transfer of knowledge, technologies and best practices

in the construction and functioning of national innovation systems as a precondition for building innovation culture, economy and society of Serbia based on knowledge. According to data of the Ministry of Science and Technology, total spending on science in year 2008 Serbia amounted to approximately 0.5% of GDP (of which 0.3% were public funds), the lowest level compared to EU countries and well below the EU-27 average of 1.9%. Serbia is at approximately the level of participation of Bulgaria, Malta, Cyprus and Slovakia, and slightly below the participation of Romania, Poland and Latvia. Sweden and Finland are the only ones so far failed to achieve the goals set by the Lisbon Strategy 2000th year, with expenditures of 3.75% and 3.72% of GDP respectively. Respecting global indicators and practice in the most developing countries, in a goal of creating necessary assumption for knowledge economy and sustainable development, Serbian Government brouth 25.02.2010. The Strategy of scientific and technological development of Serbia in the period from 2010 to 2015 year, in which science is seen as a strategic resource of the country and planned to increase spending for science at 1.05% of GDP in year 2015.

From June 2002 Serbia is EUREKA member of whose main objectives of the program are: increasing the productivity of the economy, to encourage cooperation between industry, SMEs, universities and institutes, as well as the development of market-oriented technologies, products and services where provided to participants in the program are research institutes and development, large companies and small businesses, and to be financed from the budget to 30% of the total value of individual projects. A very important step in improving research and development activities and motivations of domestic scientific potential was the signing of an agreement on Serbia joining the program for Research and Development of the European Union, which will enable our country to equal participation in scientific research initiatives of the EU in the period from 2007 to 2013 year under FP7 where total budget of more than 50 billion Euros. It allows you to participate in international scientific research cooperation and projects in various fields of natural, technical and social sciences. EIU (Economist Intelligence Unit) has developed in 2007. the index of innovation, in which 82 states are ranked based on their innovation capacity measured for the period since 2002 until 2006.year, based on which further performance prediction has been done. by 2011. Japan, Switzerland and Finland are the first three countries in the list, until the very end are Serbia, India and Romania. A periodic research of innovative activities in companies of the member countires has been done which is based on the methodological instruments OECD and Eurostat (OECD, 2005) also known as CIS. Research regarding new activities has been conducted in 2008 for the first time in Serbia as statistical research in organisation of National Bureau for Statistics and institute „Mihajlo Pupin“, as a one of the kind pilot research with goal to overview the real relationship of business politics of company toward innovative activities in the sence of the level of informations that companies own regarding needs and effects of inovation, exisiting capacity in company as well as with factors that have caused dificulties and slown down this type of activities:

- The highest level of innovation has been made in the organization of enterprises (in 57.34% of companies) and the lowest in marketing (in 28.81% of companies). Innovation in products / services (47.09%) and processes (46.81%) are almost the same;
- The largest number of companies that had innovative activity belonging to the service sector (38.45%) and manufacturing (37.44%);
- When looking at the market in which companies are selling their products / services, the largest share of local-regional market in Serbia, even 92.52%, and as the main customers / users of products / services listed are other companies (64.5%); research (Kutlača et al., 2008), and this paper includes only the most important findings:
- Of the total revenues, for innovation is allocated 6.22% of which is the largest part used to purchase machinery and equipment (5.38% of total revenues), as expected, given that the average age of equipment in enterprises is over 10 years, at 31.12 % of companies;
- The most important source of information about the needs of innovating companies have stated the information obtained within the company or group to which it belongs (22.99% of companies), and as the most important aggravating factor for innovation is the lack of financial support from public funds (34.07% of companies);

- The most common form of protection of intellectual property in enterprises in the period 2004-2006 year is the protection of the mark, followed by protection of copyrights;
- The most significant effect of introduced innovations in the organization of the company is improved quality of products and services in 28.25% of the company.

Unfinished privatization and restructuring of remaining large public enterprises and infrastructure sector, lack of an effective process of liquidation, and are not sufficiently encouraged post-privatization restructuring, are key constraints to create more efficient economic structure of Serbia. The main driver of economic growth in Serbia until 2020 year, by analysis of National Bureau for Development, will be the manufacturing industry which would be in the next decade to grow at a rate of 7.3% per year. Specifically, the new model of economic growth in Serbia provides that, for 10 years to double industrial production, while the share of manufacturing in GDP increased to 15% from 12.9% recorded in year 2009 (Source: Chamber of Commerce, National Bureau of development, post-crisis model of economic growth and development of Serbia from 2011 to 2020.year). Therefore, building a national innovation system should enable the transfer of knowledge in economy and society, development of technological innovation in industry, as well as the development and operation of new innovative companies.

5.CONCLUSION

Growth of the global economy today is characterized by the stressing the importance and impact of SME, changes in industrial relations and the transformation of basic economic principles. Intelectual capital and human resources, by that, are becoming the most important resources, and innovation what were once the natural resources and raw materials. Enterprise development in the contemporary business environment cannot be imagined without the research and innovative work. Innovations are representing the source of competitiveness of enterprises and one of the most important sources of innovation are the R&D activities based on knowledge. Investment in learning, education and training of human resources, in R&D and other innovative activities, are priorities in development policies of OECD, EU and BRIC countries whose economies are on the rise. In order to Serbia actively can be involved in the European Research Area and build a society based on knowledge, in year 2001 began the process of revitalization of research capacity, development of innovative companies and innovative basic infrastructure for rapid and sustainable development. Following these global indicators and practice in the most developing countries, Serbian Government brouth The Strategy of scientific-technological development of Serbia for period 2010-2015., which predicts building a national innovation system and budget increasing for science and R&D activities in this period. Building a national innovation system should enable the transfer of knowledge in economy and society, development of technological innovation in industry, as well as the development and operation of new innovative companies. Continuing education and strategic management of R&D and innovation activities are the assumption of creating competitive advantages and more efficient industrial structure.

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THE BRANDING OF FINANCIAL INSTITUTIONS

Nebojša Aleksić*
Kragujevac, Serbia
n.aleksic@open.telekom.rs

ABSTRACT

Branding is a process which enables identification of products and services, as well as their differentiation compared to competition.Brand is the base of competitive advantage and long-term profitability of the bank, therefore it has to be conceived and recognized as strategic capital. Branding process is psychological category, which by communication reaches the awareness of the people. In every moment of awareness our mind collects information and creates new knowledge and experiences. The information is a process which presents the activity of communication. To inform means to transfer knowledge to someone. If some data, or wealth of data that we have received do not increase the level of our existing knowledge, then those data are not information. Knowledge is the awareness and understanding of the facts, truth and information acquired by learning experience. The ultimate goal of branding is to change the awareness of people, or their knowledge, preferably in our desired direction. Changes in awareness of people are the result of experiences that they have by themselves, so branding is directly connected to the experience of the people who have contact with the brand itself.

Key words: Brand, financial institution, client, financial services/products, branding strategy

INTRODUCTION

Each financial institution exists to achieve its goals. Purpose of existence, the most often is defined trough mission of the institution itself. From the purpose, in other words that is mission, issues comes out the vision. By defining the vision, the goals stand forward, in other words position that is being aimed for. Vision is a great deal of abstract category. It is only a guideline, specific shape of the road to be followed to execute the predefined bank's business goals. One of the goals can be establishing the positive attitude towards the bank by the client. The goals are, in their essence, some kind of nice wishes.

THE BRANDING OF FINANCIAL INSTITUTIONS

Process of making positive attitude of client to the bank, concerning its products and services that it provides, is known as branding. The branding is a process which enables identification of products and services, as well as their differentiation compared to competition.

The brand is often, because of easier understanding, being put equally with material elements of marketing communication which are being used as its support – creating of slogan, logotype, jingle etc. However, the brand is much more then than. The brand is the base of competitive advantage and long-term profibility of the bank, therefore it has to be conceived and recognized as strategic capital. Basic elements of the branding are visual, and often physical assets which are used for identification and differentiation products/ services of the bank.

The brand in finance

Creating a brand in finance area presents complex procedure, shaped by signals and functional operating of different departments within the bank. In the banking, there are plenty of products which are nonmaterial. Complexity of many products/services, especially in the field of investments, creates problems for presentation of those products/services to the clients. This products/services can not be defined easily and can be difficult to understand. Further complications from the marketing perspective, are implicit responsibility, which institutions that offers financial services, have when providing the advice to their clients. Every institution that provides financial services has to keep perception about greatness of influence which their marketing and selling activities can have on life style of individuals or prosperity of certain company (companies). Apart from this, complexity shouldn't be an obstacle.

Accordingly, in the banking industry, the branding must, without a doubt, combine consistency with clear message. Consistency, in all communication and interactions with clients, improves confidence and the stronger the message is, the less is the chance of confusion due " information overload". The brands try to win heart and soul of client, and they are central part of company concept. Powerful brand will be recognized Klasens (2007). Operational work of one bank can serve as an example. For a long time now branch offices of the banks have lost sense for local life. Some of the global banks have found the way to restore it. They attract clients by reintegration of the branch offices into the local life.

Some a number of American global banks have developed by buying small local banks, attracting clients who have other choice into financial service area. In the brand promoting process, this banks identify major clients and the most effective points of interaction. The aim is to attract clientele of the branch offices. On its Web site and in the public, the bank has for its credo the best treatment of clients. The management considers that client services presents the only competitive, lasting advantage of the bank.

The bank makes 20.000 phone calls every month and delivers thousand questionnaires by Internet and post mail. The aim is to discover what is the most motivating for the clients, when they apply to one of the branch offices.

Citizens have understood that the branch offices are the most important contact point. Detailed activity plans consider braking down the cold and egoistic grayness of banks and increasing notoriety of brands as well as satisfaction of clients. Analysis of monthly data has confirmed that clients have been the most sensitive on the exterior of the branch offices, interior equipment and ambience of automatic counters. The information had for the result project – rationalize (well planned) the branch office, which represent the brand characteristic qualified as – highly respectable, loyal, warm and full of understanding. Also, the bank followed one of the greatest principles in the brand area – to establish realistic aims to achieve. Good concept has for its consequence satisfaction of clients and employees. Four principles have been identified which have to be followed in the brand process development (Živković, 2007):

- Identifying the most important clients;
- Concentration of investments on profitable demands;
- Setting the realistic goals;
- Continuous evaluation of performances.

The brand represents the sum of clients' experiences, which refer to service/product or institution. Experience is being transferred in every interaction, as long as the contact with client lasts. Even when the bank has the clearest vision of the effective solutions there are no guarantees that realization will go on in desirable perception. Therefore, in the managing process, the great brands put the project in hierarchy organizational barrier filters. The great brands conduct permanent surveillance, managing and intergration of intervention process, in order to keep their programs for clients.

Nowadays, it is trend for dynamic programs – for example progressive invention, analysis and managing with client preferences toward experiments with anticipation of their conduct in the future. In the constructing and managing process of the branding financial services, it is necessarily to start with effective public relations, and with potential investors as well. The information which are available to the bank, in final point should provide the maximum output of services and products. In that process, using of information has to be effective and to help getting in sight the clients' activities. Effective managing of information provides quality and assurance in order to successful CRM. Concentrating of data is doing by "datamining" in order to determinate client basis better.

Creating a powerful financial brand demands to understand how to engage client trough the brand more then trough prices or service/product. Understanding of clients' perspective is needed to provide delivery of relevant, useful information which clients value and positively associate to the bank. Organize of development services/products and distribution on the communication points should bring to successful outcome. One of the newest experience, accents the importance of fair treatment of client.

Before starting new communication, it is necessarily to instruct employees into the brand. Converting employees into proponents of the brand, is accomplished by making of them good clients on the first place. Employees could be engaged in order to stimulate performances and profit. It is in trend using digital marketing to attract clients by brand, trough creation on-line experience of the brand, trough advertisements which are relevant and engaging . It is needed for the brand to be positivly positioned in order to exist on competitive market, as well as continuing and effective measuring performances on-line marketing campaign, in brand managing process. It is recomended stimulating interactivity to trough integration mobile advertisement in the bank, in order to maximaze auditorium and increasing income from investments.

Besides those activities, it is necessarily to obey some of the laws which define influence of the brand on the clients perception:
- *The law of words* - The brand has to possess one word in client perception;
- *The law of credibility* - The success of the brand depends on its authenticity;
- *The law of quality* - The quality is important, but the brand is not build only on the quality;
- *The law of category* - The leading brand promotes its category, not the brand;
- *The law of the name* - In the principle the brand is nothing else but the name.

The key elements for creating a strong brand are: Bilten Beogradske berze (2008)
- *The Name,*
- *The Logo,*
- *The Slogan.*

Mentioned elements make visual identitity of the brand. Its basic function is to transmit the character and essence, and above all corporate spirit of the oraganization. The name of the brand in the most directly way affects on the perception of the brand. The name of the brand is something that is being daily used in communication between the bank and client. The logo is graphical solution of the brand. By creating deep visual image, the bank provides generation of long-term image which insures strong link between a client and the brand. The thired element of visual identity of the brand is the slogan. Good slogan reflects character and the position od the brand in the mind of permanent and potential users of the bank services. The basic purpose of the slogan is to support the image that reflects the name and the logo of the brand.

Top-level slogan

The way to the global, even the local recognized brand is not easy at all. The branding process is process that is developing in the perception of the people. It is psychological category which by communication reaches awareness of the people. In every moment of the awareness our mind

collects information and creates new knowledge and experience. The information is a process which presents the activity of communication. To inform means to transfere knowledge to someone. If some data or wealth of data that we have recieved do not increase the level of our existing knowledge, then those data are not information. Knowledge is the awareness and understabding of the facts, truth and information acquired by learning experience.

The ultimate goal of the branding is to change the awareness of people, or their knowledge, preferably in our desired direction. Changes in the awareness of people are the result of experiences that they have by themselfs, so the branding is directly connected to the experience of the people who have contact with the brand itself.

That means that metter of the explicitness and nondouble-meaning which Web site or TV commercial should transmit is of the essential importance in the branding in the awareness of clients, otherwise their own experiences will be undesired. In the principle the essence of every commercial is to transmit the message to potential consumer (client), but on the way that he understand it and that the result of that experience is changing of his awareness in the desired direction for us.

In the chaos of modern market where average person becomes exposed to all types of different commercials and became overload with information, the only way to attract his attention is „too simplified" message. The function of the slogan is to transmit to the people the message in two-three words which will present clearly and fastly the offered idea in their mind. Good slogan provides fast and nondouble-meaning communication . It has to bring about desired emotion, because only with experience by itself in the awareness becomes the information. Something that is not remembered as data, but cognition.

USP (Unique Selling Proposition), or statement can symbolically communicate the basic selling message to the potetial client. Although that concept is different then concept of the slogan (which can be related to any kind of idea), USP can be seen as the certain kind of slogan related to the individual sales story. Sales story by itself has to be unique compared to the other offers alike to it. However, it is about proposition which indirectly drives the potential clients awareness to identify certain name, idea or product/service. (www.e-magazin.com)

While the slogan will reflect the basic idea and purpose (mission) of commercial, USP will be used for individual service. In certain slogans (as USP too), usefull startegy can be AIDA, which is being used in writting of commercial. In further that means that slogan should:
A *(The Attention)* - attracts attention,
I *(The Information)* - provides information,
D *(The Desire)* - brings about desire,
A *(The Action)* - produces action.

You have to give fine edge to your commercial message in order to incise it to the awareness of your potential clients. Clear out all contradictions in your message, simplify it, and then simlify it even more if you want to achieve permanent impression to those whom it has been dedicated to.The effectiveness of the slogan will depend only on the reaction caused in the world of common people, to whom actually it has been dedicated to.

The brand identity

The essence of branding itself is to take place in the awareness of the people in such a way that they can make the difference between the particular brand and the others. How to accomplish strong identity?

What is the essence? One of the many brand definition is that is the beloved trade mark. In creating a real new brand the essence is to find that kind of attributes that will suit to client needs, create his

personality who will correspond to target group with whom it communicates. The essence of the successful branding of new service/product is to find a closet in something that has not been contained by brands already known. That particular means that service/product which we offer has some new characteristics in its personality which will make it interesting to same specific target groups. The whole story is based on perception of clients. In its identity this brands will have some new character lines, which will be aliked or perfectly matched to some people and their needs, make then global brands. However some brand dominate on the market, there will be always place for the new innovative brands.

The brand credibility

Creating image of financial institution, in other words creating association which consider the financial institution and its offering program has the key influence on the perception of clients about quality of financial services and products. Especially are important associations which consider credibility, assurance and likeliness of the financial institution.

What the credibility is? - In the communication with client, every financial institution, the Bank in this case, sends certain messages. Those messages are not only the commercials or advertisements in the media. The message is when the people see the logo too, when someone shows to them visit card or when they visit the Web presentation. Each of this messages has influence on certain target group. The sum of the all influences in the awareness of the people will create some perception about the brand.

Where is the credibility in that? - Simply, it is the measure how much people believe to those messages. That is trust that they have to the messages that heve been told to them. The first messages which are recognized in his awareness are not words, but the visual experience which picture causes.

The Love on the first sight - On the first place, that visual experience has to be pleasent to the eye, it has to be real harmony of colors, and unities have to be arranged by the rules of composition which suits to something that we are used to. Every little picture, every word, has to be the message for itself, but that all of them as whole make impression of preofessionalism.

The voice of the authority - Besides mentioned, the perfection in the looks and the experience, the credibility is above all made on the authority. How to create the credibility:

- To enable to the facts and the information can be easily checked;
- To demonstrate that the real and serious institution exists;
- To underline the expertise of the institution and to show it through announced content;
- To show that in the beckground there are people who can be trusted to;
- To enable the simple contact;
- To choose the commercials carefully;
- To avoid the mistakes of any kind.

The brand, oftenly, can be the only essence element of the differentiation in the complex market ambient. In the great number of cases, it presents asset wherewith, in this case the bank, can manage the strong competition, and be recognized and admited by potential clients. The bank can achieve significant advantage by creating a strong brand, because it provides significant place in the perception of clientele, and to the investors at the last, higher price of the stocks on the stock market.

The basic criterias for choosing certain elements of the brand are: Kotler ,K.L. Keller (2006)

- The Rememeberance – how easily can be remember and recognized;
- The Meaning – to which point they are crediable and suggestive;
- The Likeliness – how much attractive they are;

- The Transmissibility – in what size they increase value of financial products and services on which they are applied to, as value of the brand itself in the different geographic areas and the market segments;
- The Adaptibility – if they could adopt to new era;
- The protection law – in what sense can be protected from the copying.

The name of the brand of the financial institution and/or financial services and products is part of the brand which can be spoken. It can be contained of the words, the letters and the numbers. The name of the brand is often the only hallmark which differentiate one financial service/product from the others.

Successful name of the brand has the next characteristics: D. Jobber i J. Fahy (2006)
- *The Distinguishness* - it is identified and differentiated from the others at once;
- *The Relevance* - adduces benefit from the services;
- *The Effectiveness* - it is easily recognized, remembered and spoken;
- *The Flexibility* - it is suitable for introducing new financial products and services into offering program of financial organization.

The part of the brand which can not be spoken is called the logo and it presents an important element of the visual corporate identity of the financial organization. That is typographic sign which makes certain associations, belifs and expectations of client. Unlike the name of the brand , which presents the element of the brand in the awareness of client, the logo is element of the brand which is awarded by clients visually. There are three different types of the logo:
- *Textual* - it considers certain shape of the letters that is being written the name of the organization, financial products and services;
- *Graphical* - containes symbols, drowings, emblems;
- *Combined* - presents combination of previous two logos.

CONCLUSIONS

Creating image of the financial institution, in other words creating associations which are concerned on the financial institution and its offering program has the key influence on perception of client about quality of financial services and products. Especially are important associations which are concerned of the credibility, the assurance and the likeliness of the financial institution.

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CORPORATE SOCIAL RESPONSIBILITY IS WORTH MONEY

Branka Jajić, M.Sc*
Technical Faculty "Mihajlo Pupin", Zrenjanin, Serbia
bjajic2004@yahoo.com
Jelena Jajić
Faculty of Sports and Tourism, Novi Sad, Serbia

ABSTRACT

Successful modern business involves responsibility. Concern for the fate of capital and profit growth becomes obsolete unless it includes a concern for employees and the community. Application of corporate social responsibility, many companies in the world have made the reputation and profits. Pursuant to the growing social consciousness, increases the awareness of business and thus the concept of social responsibility of companies and enterprises is becoming increasingly important. The future of human society could be more human harmonization of acquisition and benefits. Longer a question of profit or ethics - the excellence of many international and domestic competitiveness of the company confirms that the answer is: the economy, and ethics. And there is no doubt worth it fair to do business - proved to be the ultimate business choices supported by ethics money worth. Commitment to the economy, without social commitment does not ensure success.

Key words: social responsibility, economics, ethics, excellence, worth

1. INTRODUCTION

"Never do anything against their
conscience, even if the state demands it."

Albert Einstein

Ethics is a behavior in accordance with the rules of morality and involves searching for the right decisions and right actions. Morality is a set of unwritten social rules, ideals and norms by which individuals, organizations, companies and enterprises, voluntary act ethically acceptable. Business ethics is a part of ethics which includes application of ethical and moral values in everyday business practices. It is a normative discipline that deals with issues of what is right and wrong, what is right and what is unfair in the business. Ethical values are important in all aspects of life and valued in human communities for centuries. Honest business is highly valued at all stages of social development and a promise of honest business partners guarantee that the business deal happen.

Business Ethics in the United States appeared sixties of the 20th century in the former Yugoslavia, much later, in the nineties. However, in enterprises and komapanijama ethical norms of the former Yugoslavia were very much present in the business. At the same time, JUS standard is meant high quality continuously and deserved respect in the international business circles.

Behavior in accordance with the law is the foundation of any business ethics. This means transparency in the work, providing truthful information, respect for competitors, employees, shareholders, partners, and commitment to social responsibility and sustainable development. Sophisticated organization that remotely holds up his business image introduces business ethics as the basis of business and ethical conduct set as a necessity in the activities of management and every employee. Benefits are multiple and long-term and reflected in the success of the business,

and the reputation of the organization. Social responsibility involves the obligation of management to take certain actions that will contribute to the welfare of the society, and business systems. Competitive advantage in modern business means not only increase profitability, but also achieve customer satisfaction, employees, shareholders, owners of capital. The imperative of business becomes more contribution to the betterment of the community. Management of social activities and responsibility of the society, according to Peter Drucker, one of the three key tasks of management. The key question is not: „Is what we are doing right? "But the key question becomes:" Is this what we do for our society and what the buyer paid? "

Among the many problems faced by countries in transition, especially Serbia, where it was painful too long, lack of ethical component of business is very strong. Economic analysts, as well as scientific studies indicate that it is the considerable presence in the business to gain the title of an ethical crisis. Warnings also came from abroad, but the legacy and existing social conditions and relations slow down the changes in favor of ethics.

Harsh economic crisis that has engulfed mankind leaves traces in all spheres of society. The law, which analysts warn that it is not only economic, but much deeper and more complex. At the global competitiveness index World Economic Forum, Serbia is at the 93rd place out of 133 economies listed in the report from 2009. year. As negative items, among other things, allegations of corruption and poor professional ethics.

2. SOCIAL RESPONSE OPERATIONS

Profit, as in the past and in modern conditions, was and remains a key business objective. But in the past and present, were advocates of a profit is not the only goal of business. People who do business have always been faced with the question of how to be successful for them and with as little harm to the people in the region. In modern conditions, both in the business world and in scientific circles, there is widespread perception that the role of business is much broader than making a profit.

2.1. From Idea to Practice

Modern history of social responsibility is linked to the U.S. and Britain and a few decades ago. The essence of corporate social responsibility means that enterprises and companies which make profits not only responsible owners of capital, or shareholders, but also individuals and groups (stakeholders) to which the profit, directly or indirectly, reflect. Given that the concept of corporate social responsibility is very broad, different authors have it at different times, in manuy ways defined.

Howard Bowen social responsibility is defined, is the 1953rd, as a leader in business, as an obligation of businessmen to follow these rules, make decisions and take steps that are desirable in terms of objectives and values represented in a given society. Social responsibility is, by definition that is, 1960. year, he told Keith Davis, Robert Blomström, refers to the obligation of businessmen to consider the consequences of their decisions and actions of the entire social system.

World Council of Sustainable Business Growth - World Business Council for Sustainable Development, as defined in 2000. years, CSR is viewed as a commitment to the company to contribute to the sustainability of economic development, in cooperation with employees, their families, local communities and society in general, to improve their quality of life.As seen in Porter and Kramer (2002), the companies are part of the environment and beyond can not be good. The Green Paper of the European Union in 2001. years, it is written to be socially responsible means not only meet legal obligations, but go beyond mere compliance with laws and invest more in human capital, environment and relationships with stakeholders. Socially responsible companies, according to the present, would have to hold at least three principles in business: economic, social and environmental impact. Economic growth means profits and companies and social development of society and concern for the future. Those companies that claim to the title of socially responsible would have to be intensively involved in the economic life of the community in which they operate, to contribute to its sustainability, transparency in respect and adhere to ethical principles.Kilcullen and Kooistra (1999) point out that it can be understood as the degree of moral obligations that are attributable to corporations beyond simple

obedience to the laws of the State.

The concept of corporate social responsibility is one of the key ethical and moral issues that have surrounded the corporate decision making and behavior (Branco, Rodrigues, 2006). In general, corporate social responsibility refers to the obligations of companies to society, more precisely, it refers to obligations to stakeholders and those who influence the corporate policy and practice.

Numerous studies show that business ethics and profitability and sustainable competitive advantage, are not terms that are mutually exclusive and the companies that are in its system of business included business ethics show better results" (Aleksic, 2007).

Social responsibility of companies to Kotler and Lee (2009) indicates their commitment to improve welfare of the community through discretionary (voluntary) practices, and contributions on behalf of their own resources. Current trends which are noticeable in the sphere of social responsibility are different from corporate philanthropy, as the traditional approach to corporate social responsibility.

Social responsibility company, established as a strategic approach, is contained, in essence, the long-term relationship with all stakeholders which is harder to copy and is it possible source of strategic competitive advantage (Jones, Bartlett, 2009). It is no longer a trend to do well in order to leave a good impression, although such phenomena today. The trend is an affirmation of the view that the reason for doing good in doing good (Kotler, Lee, 2009). Possibilities of building closer ties with its stakeholders in a company which is built on the principle of social responsibility.

Modern business the company is almost unthinkable without the obligation to herself, as well as society, protect and improve now and in the future (Staples, 2004), through various business and social action and to ensure the generation of the righteous (equal) and sustainable benefits for different stakeholders.

2.2. Stakeholders - benefits for all

Stakeholders are, in principle, all those who, for directly or indirectly, affect the operations of organizations, enterprises and companies. The various theories are different "lists" stakeholders According to Edward Freeman, there are six primary groups stakeholders: owners (shareholders), employees; consumers; managers; suppliers;
community. Autthors Donaldson and Preston classified istakeholders into the following groups: investors; employees; consumers; managers; suppliers; community; government; political groups. S"The Responsibilities of the Businessman", article written by J.R. Lucas discusses the concept of comprehensive stejkholdersa, indicating eleven groups: shareholders (owners, employers); employees and managers (employees and employers) customers – customers; suppliers; creditors; competitors; branches of industry or profession as a whole; local communities; State; international community and mankind as a whole; environment. It is, as noted, a multitude of interests and needs that they take into account when making business decisions, looking at their reflection and long-term effects. Immediate and short-term effect may make a success of the company, which is the same breath, but, nevertheless, the most important one that "builds up" over time (Babic, J., 2000).

Therefore, the social responsibilities of companies are especially significant in relation to the local community. Activities of firms depend on many things that directly affect the daily quality of life in the local community, Immediately, they are responsible for the wider community, country and humanity as a whole. So she maxim of the necessity of responsibility for the future of the planet is not a phrase, but an awareness that whatever we do today has a positive or negative impact tomorrow.

Social responsibility of companies would have to articulate a lot of obligations, of course, do not always include market justification and often questioned and one moral. Their interdependence is intertwined and complex, often unexpected demands effort and does not present the fruits of pleasure, but always harmonize the requirements of good business for the benefit of which cuts across the company, local communities and states.

Philosophy or the concept of corporate social responsibility involves internal and external benefits. In a changing, highly competitive environment, its acceptance and application can bring organizations enterprises and companies the necessary competitive edge.

It is believed that there are five types of philosophy of corporate social responsibility: increased staff morale and the ability to recruit and retain staff; enhanced reputation in the community; improving communication channels in the local community; protection of local supply chains, and better risk management; improved consumer confidence and partnership with suppliers

Corporate social responsibility and activity of employees, their initiatives and actions, as noted, can bring high dividends, as manifested as a high quality internal marketing tool. Intense identification with company employees, their engagement in order to create common values, brings the benefit of workers and firms in general. Development of reputation in the community creates the opportunity to strengthen certain sectors (and its security). Improved consumer confidence and partnership with suppliers inevitably leads to higher sales.

2.3 Standards - a safer road to competitiveness

After several standards that are different organizations, "prescribing" as opportunities to solve problems of social responsibility, partial (SA 8000, AA 1000 etc..), The International Organization for Standardization's, 2004. year, established a group to develop standards for Social Responsibility - ISO 26000 This international standard is not standard for system management, as outlined, and as the most important area of recommendations on key issues of social responsibility to identify: headship of the organization - "Organizational Governance", Human Rights, practice work, environment, fair business practices, problems users, inclusion to community development. The name and contents of each of these areas has just committed najaznačajnijim interests and stakeholders of the organization.

The essence of the concept of social responsibility really is to identify key stakeholders and interested parties, identifying their needs and interests, and an integrated management system projektivanje for real answers. In this sense, the development and creation of standards such as ISO 9001.Adopting the international standard ISO 26000 and its consistent application in organizations in Serbia safer way to competitiveness of domestic enterprises and their business with the world and securely connect with the European Union. Applying the concept of Corporate Social Responsibility is a practice that convincingly shows that social engagement and maximizing corporate profits and shareholder value, are not mutually exclusive but reinforce (Nancy Kotler and Lee, 2008)

Corporate social responsibility is indicating a practical example of strategic planning for sustainable development at the enterprise level. Sustainable business success must have at least three components: economic, environmental policy and social policy and must have leadership and decision-makers with a vision. It is also demonstrated by the authorities, but this kind of responsibility is different.

3. EXAMPLES OF GOOD PRACTICE IN SERBIA

The concept of corporate social responsibility (CRS) was formally introduced to the company in Serbia just before seven - eight years. Research shows that the business community, political elites, especially the media, have little knowledge of the essence of this concept, but the fact that about him lately more and more talk, and that more of those who have at least heard of him. Holders of this and other modern business trends, not only in Serbia but also in countries in the region, are foreign companies. In Serbia, the concept of CRS is understood mainly as a tool needed in the activities of marketing in view of building a reputation in the society, the media and government, business partners and customers. Improving quality and working conditions, consistent with respect for the rights of employees, professional development, relationship and cooperation with customers, suppliers and trade unions are still doing so, on the sidelines. One reason is, according to the study (Baseline study on CRS in Serbia), disrespect of existing regulations - the Law on Protection of Competition, Consumer Protection Act, Labour Law).

CRS activities in numerous Serbia follow the tradition whose essence is the idea of charity and investing in the local community contributes to the acquisition of social prestige, and prestige. According to research over the past few years, companies have realized the importance of incorporation of the concept of CRS to sustainable business. The management level in public relations are recorded and the biggest improvements in the implementation of this concept (different forms of donations, etc.).

In Serbia, 2007. , adopted the UN Global Compact, while the concept of CSR has become an integral part of the latest National Strategy for Sustainable Development. The UN Global Compact is ukljućolo 30 companies and civil society. In early June 2008. The 14 komapanija, led by Smart Kolektiv, with support from Business in the Community, presented to the public forum of business leaders in Serbia.

The first members of the UN Global Compact initiative in Serbia as BFC Lafarge, Holcim, Cisco Systems, EFG Eurobank, Piraeus Bank, Societe Generale Bank, Credit Agricole - Meridian Bank, National Bank of Serbia, and Smart Kolektiv. Since February 2008. The Global Compact has joined the Center for Democracy - an organization that is running the campaign, entitled Power of social responsibility.

The application and development of CSR concept is one of the major issues related to the development of the countries in transition, especially because in them the executive power is not enough, the legislative nefikasna, impoverished economy and a significant number of citizens living on or below the poverty line. Research indicates that the practice of CSR in the most developed branches of multinational companies, followed by certain Serbian companies that were privatized and then in other large and medium-sized enterprises.

Among the organizations that have developed their own CSR program or one of the most successful is B92 - broadcasting corporation that applies this concept since 2000. year to date. The program aims to improve the social and material conditions of life of vulnerable groups, especially persons with disabilities. Special contribution, in cooperation with civic and other komopanija the construction of safe houses for women. Among the areas for action are: health, vulnerable groups, youth and education, ecology, and media coverage of CSR events and promotion of other companies dealing with this. The company has established a foundation that

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4. CONCLUSION

Modern managers, like the political elite and intelligentsia, or the more should have a dilemma whether the economy and ethics - exclude. Although business ethics is not the only, nor a sufficient condition for business success, but are essential and other elements, it is certain that without ethics there is no business success. Especially since adherence to ethical principles does not necessarily mean immediate and direct increase in profit. Business ethics has a far wider impact and radiation, and indirectly contributes to the reputation and business success of the company. because there are other spheres in which business ethics has its place, and which indirectly contribute to the reputation of the company, and thus its success. They are reflected in respect for the rights of employees, to enable equal conditions for employment, quality of products and their safety, providing enough information about each of them, as a potential buyer would be a mistake when deciding to buy, and protect the environment. Since national governments are expected to develop a national strategy for CSR and contributes to a climate of its application - to raise awareness of knowledge and skills of all concerned social actors, especially the trade unions, consumer associations, business registers, through the introduction of CSR in higher education and expansion of inter-sectoral cooperation. All stakeholders interested in CSR should support the readiness of companies to address CSR education and to help them to develop CSR

practices to be effective and publicly verified, this means the inclusion of CSR in business strategy, development of techniques and institutions to expand CSR activities.

Organizations that, in the present day business conditions, they managed to achieve a balance between profitability and ethical principles can open a long-term ways that will enable growth and development. Ideas
about corporate responsibility and sustainable development is global and grew into a worldwide movement to respect and act locally and reflects the success of business organizations, companies and businesses and the community a good fit, better and happier place to live. It is a kind of call "to companies other than profit, and worry about all the business activities that are market considerations must take into account the environment in which they exist and all other stakeholders that identifies society.

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Session F: MANAGEMENT INFORMATION SYSTEMS

Papers (pp. 409-474):

VIRTUAL CLSSROOM AND MANAGEMENT OF WEB-BASEF EDUCATION IN RURAL AND REMOTE AREAS

Kristian Bereš*
"Politehnica" University of Timisoara, Faculty of Automation and Computers
Department for Computers and Information Technology,
Bulevardul Vasile Parvan, Nr. 2, 300223 Timisoara, Romania
kristianberes@gmail.com

ABSTRACT

The purpose of this project is to present the possibilities of Web-based education in case where the process of education is not possible to conduct in conventional face-to-face mode. The hypothesis of this paper is to use web technologies such as virtual classrooms as a solution in rural areas where there is not enough students or teachers to form a class or a school. The targeted subjects are elementary schools. The paper will offer an overview of requirements, advantages and disadvantages of virtual classrooms and class management solutions.

Key words: virtual classrooms, web-based education, rural areas, learning from home.

INTRODUCTION

There is no generation that had such an opportunity to obtain information about any area of interest. With today's technologies and young people that are native with technologies such as laptops, tablet PCs, smart phones and various digital technologies that can ensure an easy and effective way to educate students. Yet such advantages are not nearly enough exploited in educational system which would clearly solve the problems of education in rural areas with scattered house holds where there is not enough students to form a class, similarly in multi-cultural societies where there is not enough teachers to teach on particular language and where teachers have to travel great distances to work. Since the broadband Internet is a standard and the availability of this service is offered through various ways of technologies like wireless Internet connections, satellite broadband connection and Internet connection services provided by mobile companies, it is clear that on-line schooling mode is feasible.

VIRTUAL CLASSROOMS

The growing popularity of E-Learning has introduced new terms to education, as Virtual Classroom, where student will be present with his teacher and fellow learners in a classroom. They will not be present physically in the classroom but connected to the classroom via Internet. Virtual Classrooms are designed to simulate the experience of real "conventional" classroom but over the Internet.

The concept of virtual classroom is to simulate a classroom over the Internet and thus provide a convenient ways of communication between students and teacher just as in the conventional face-to-face teaching method. A virtual classroom provides a convenience to attend the class from any location in the world. So the logic of teaching and going to class are similar, the class is set at the specific time when all participants should be logged in to attend that class. The teacher and learners will interact using computers connected to Internet or WAN (Wide Area Network).

ADVANTAGES OF VIRTUAL CLASSROOMS

The advantages are clear in case of situations where students live in remote areas from one another, and a conventional teaching model of schooling is not feasible without student traveling long distance to school and back home. In this areas it is likely that during winter there will be no schooling at all. In this cases Virtual Classrooms have the advantages since, there is no geographical constrains, sessions can be recorded, easier and quicker to organize.

Since virtual classrooms allows learners to attend sessions from anywhere in world, it is very useful for distant learners and for students and teachers who cannot meet face-to-face, which will overcome the problem of education in areas where conventional schooling is not possible or difficult to organize.

Virtual classrooms remove the need to travel to a location in which to participate in the course or lessons, thus they are an advantage to students as they can be accessed from the students home and they do not have to travel or move as they would if they were attending a traditional classroom. Virtual classrooms can be accessed from any computer that has the necessary software, hardware, Internet connection, and Internet browser requirements in order to participate in the virtual classroom.

This also means that virtual classrooms are accessible to students with physical disabilities, which is an advantage over the real classroom, as they can access it from home. Learning over the Internet offers a wide range of learning flexibility in virtual environments that serve the individual needs of the learners regardless of their age, gender, religion, nationality or disability.

ORGANIZATION AND MANAGEMENT

Virtual Class management deffer from the standard face-to-face environment so as teaching practices. There is a requirement to use technological skills and to apply these skills to the appropriate educational context. This will imply that teachers have to modify their courses to reflect these changes. The system will expect that the teacher is familiar with information technologies and that is competent to adapt his teaching methods to the on-line paradigm of education.

Student will work from home, with the assumption that all technical requirements are met, the overall logic will not change, the student will have to be on-line and logged in at the specific time, the communication between the teacher and students will be over the email or over the school web site where the dates and times of the class will reside. Informations and materials for learning will be available for download on schools web site, which implies that all the lectures have to be available in a digital form.

As the virtual learning environment lacks human face-to-face interaction, critics are of the opinion that probably it has a long-term effect on the children's emotional development and interpersonal relationship when they would be grown up as adults in society. It is thought that children will miss out on the important friendships that are usually formed in traditional schools and this will lead to poor social skills in adulthood. Virtual classrooms are suitable for higher learning, not for primary level students, thus Virtual Classrooms should be implemented in special cases when conventional schooling is not physically possible.

Synchronous and asynchronous organization model

Generally web-based courses are not purely synchronous or asynchronous. Although their some parts include synchronous activities, they can be designed as an asynchronous course. For example, “respond immediately” tests and “timed” tests can be included in an asynchronous course. Thus,

the course can only be synchronous within a few hours.

Web-based technologies promote synchronous and asynchronous communication providing access to and from isolated sources in case of emergency situations, and quarantine. Most tasks that require thought and reflection would utilize asynchronous communication, like e-mails, forums, wikis etc. The use of synchronous communication tools such as Skype (www.skype.com) and Virtual Classrooms softwares that have possibilities for communication by chat and audio-video calls.

If learners need to discuss issues with other learners at length, most learners share the same needs and have the same questions, and learners need the motivation of scheduled events reinforced by peer pressure, then synchronous activities are chosen. If learners are from a wide span of time zones and countries, learners have inflexible or unpredictable work schedules, and learners have unique individual needs, then asynchronous activities are chosen. On the other hand, synchronous communication is problematic in world-wide teaching, because of time-zone differences, poor connections (especially transatlantic), and Internet latency and congestion, as well as differences equipment. Asynchronous models were more effective

As with any course, the quality is based on the organization of content and relevance of activities. Especially in an on-line environment, the instructor must continue to focus on goals, objectives, and outcomes. Many Web-based courses provide supplemental information, and, without the teacher present, students can all too easily become distracted by peripheral information. Because the teacher is not physically able to guide students or to emphasize particularly important points, it is imperative that the content be organized in a clear and logical manner and that the exercises emphasize the key concepts.

DIFFICULTIES

Virtual Schooling faces a numbers of challenges related to the way teaching and learning are implemented in on-line environment. First of these problems is authenticity, the verification of the student as the person who has completed the particular assignment and test.

Problem of virtual schooling:

1. Authenticity- verification that the test or assignment is the product of the student and him alone,
2. Socialization – Lack of given attention to teaching of community norms and values.
3. Experiential learning – activities that require face to face synchronous monitoring of physical processes
4. Responsibility and discipline – Hacking into administrative servers, Unothorized changes of data.
5. Teacher training – Vast majority of teachers that have no training for teaching in pure online mode.
6. Student suitability – Learning abilities of student may be mismatched to the available course.

So Web-based distance education delivery is not without its detractors. Among the concerns that deserve careful, critical consideration are the following:

- Web-based delivery requires competence in computer use. Competence that might be related to computer skills or support services discourages some learners and results in a high number of drop-outs from web-based distance education programs.
- In some countries, insufficient infrastructures remain a primary weakness of adopting the use of web-based distance education delivery.

CONCLUSION

Due to the ever growing availability of broadband Internet connectivity, lower hardware costs and evolution of Web technologies, on-line education is a resource that has potentials to overcome the difficulties of educational system to include every student in educational process. Virtual classrooms are one of the synchronous solutions and alternatives of face-to-face education.

Virtual classrooms can be established to enable schools in rural and remote areas, and particularly small schools with insufficient teachers, to overcome issues of distance and resourcing which might otherwise limit the breadth and quality of the curriculum offered to their students. In these classes, students would learn through videoconferencing with teachers, and often other virtual classmates, who are at another location. Other information communication technologies such as email, content and learning management systems and relevant websites may be used to support learning throughout the difficult period of time when the schools have difficulties to organize face-to-face education.

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RISK MANAGEMENT IN IT SECTOR

Ubedullah Phulpoto*
PAF-KIET University, Karachi Institute of Economics and Technology, Pakistan
uphulpoto@yahoo.com

ABSTRACT

IT sector is fast growing industry. Changes and technology advancement are happening on daily basis. There are many risks that should be systematically described and managed. This paper aim to present risk management methodology that could be applied in IT sector, specially in information system development.

Key words: Risk analysis, IT sector, information system, business process

1. INTRODUCTION

The principal goal of an organization's risk management process should be to protect the organization and its ability to perform their mission. The risk management process should be treated as an essential management function of the organization. Risk is a function of the likelihood of a given threat-source's exercising a particular potential vulnerability, and the resulting impact of that adverse event on the organization. Risk could be defined also as a probability of loss or harm, i.e. project performances or results threat.

The objective of this paper is to present risk management approaches and methodologies that could be applied in IT sector. Specially important risk area is mapping of business process needs to IT solutions, specially in information system development.

2. RISKS CATEGORIZATION

Two major categories are to be analyzed within risk management:

1. The process – activities of business processes or project processes that could generate failure
2. The result – elements and characteristics of result that are to be evaluated for needed quality, or that could be under threat of low performance measurements.

Development of complex systems like information systems need to be treated within project management framework of processes and results should be validated according to standards and requirements of business processes. In the context of information system development and maintainance, the two aspects (process/result) of risk management are:

1. Process - software development life cycle (SDLC) as a crucial process within information system development. There are many different approaches to SDLC. According to standard IEEE1074 there are 17 activities within 6 groups of process that make SDLC. These groups are: modelling of SDLC, project management, pre-development, Development, post-development, cross-development.
2. Result – elements and characteristics of software solution. There are many different approaches to software quality assesment. According to standard ISO/IEC 9126 there are 6 major characteristics of software quality, and for each there are a list of sub-characteristics.These 6 gruops are: functionality, reliability, usability, efficiency,

maintainability, transferrability (deployability and ability to be used in diversity of operational environments)

Project risks are estimated in advance and possible consequences and results are planned, in the context of preventive and corrective activities against project failure. Risk management is the process of identifying risk, assessing risk, and taking steps to reduce risk to an acceptable level. Risk management encompasses three processes: risk assessment, risk mitigation and evaluation. According to Blum, risk management includes following activities:

- RISK ASSESMENT – Risk identification (Checklist, decision analysis, decomposition, assumption analysis); Risk analysis (performance models, cost models, net analysis, quality factor analysis); Risk priority determination (Risk exposure,Risk impact (Risk Leverage), Compound risk reduction);
- RISK CONTROL – Risk management planning (risk avoiding, risk transmission, risk reduction, risk elements planning, risk plan integration); Risk processing (prototyping, simulations, benchmaring, analysis); Risk monitoring (Milestones overview and monitoring, Corrective actions)." (Blum 1992)

3.RISK ASSESSMENT

The risk assessment methodology encompasses nine primary steps (NIST 800-18):

1: SYSTEM CHARACTERIZATION – IT/IS system elements and characteristics

2: THREAT IDENTIFICATION - consider threat-sources, potential vulnerabilities and existing controls

3: VULNERABILITY IDENTIFICATION - analysis of the vulnerabilities associated with the system environment

4: CONTROL ANALYSIS - analyze the controls that have been implemented, or are planned for implementation, by the organization to minimize or eliminate the likelihood (or probability) of a threat's exercising a system vulnerability. Security controls encompass the use of technical and non technical methods. Technical controls are safeguards that are incorporated into computer hardware, software, or firmware (e.g., access control mechanisms, identification and authentication mechanisms, encryption methods, intrusion detection software). Non technical controls are management and operational controls, such as security policies; operational procedures; and personnel, physical, and environmental security.

5: LIKELIHOOD DETERMINATION - derive an overall likelihood rating that indicates the probability that a potential vulnerability may be exercised within the construct of the associated threat environment, the following governing factors must be considered: threat-source motivation and capability, nature of the vulnerability, existence and effectiveness of current controls.

6: IMPACT ANALYSIS - etermine the adverse impact resulting from a successful threat exercise of a vulnerability. Before beginning the impact analysis, it is necessary to obtain the following necessary information as discussed above.System mission (e.g., the processes performed by the IT system),System and data criticality (e.g., the system's value or importance to an organization),System and data sensitivity. Impact of a security event can be described in terms of loss or degradation of any, or a combination of any, of the following three security goals: integrity, availability, and confidentiality. The following list provides a brief description of each security goal and the consequence (or impact) of its not being met:
Loss of Integrity. System and data integrity refers to the requirement that information be protected from improper modification. Integrity is lost if unauthorized changes are made to the data or IT system by either intentional or accidental acts. If the loss of system or data integrity is not corrected, continued use of the contaminated system or corrupted data could result in inaccuracy, fraud, or erroneous decisions. Also, violation of integrity may be the

first step in a successful attack against system availability or confidentiality. For all these reasons, loss of integrity reduces the assurance of an IT system.

Loss of Availability. If a mission-critical IT system is unavailable to its end users, the organization's mission may be affected. Loss of system functionality and operational effectiveness, for example, may result in loss of productive time, thus impeding the end users' performance of their functions in supporting the organization's mission.

Loss of Confidentiality. System and data confidentiality refers to the protection of information from unauthorized disclosure. The impact of unauthorized disclosure of confidential information can range from the jeopardizing of national security to the disclosure of Privacy Act data. Unauthorized, unanticipated, or unintentional disclosure could result in loss of public confidence, embarrassment, or legal action against the organization.

7: RISK DETERMINATION - The purpose of this step is to assess the level of risk to the IT system. The determination of risk for a particular threat/vulnerability pair can be expressed as a function of: The likelihood of a given threat-source's attempting to exercise a given vulnerability; The magnitude of the impact should a threat-source successfully exercise; the vulnerability; The adequacy of planned or existing security controls for reducing or eliminating risk.

8: CONTROL RECOMMENDATIONS - controls that could mitigate or eliminate the identified risks, as appropriate to the organization's operations, are provided., so recommended controls are to reduce the level of risk to the IT system and its data to an acceptable level. While considering different controls, the following factors should be considered: Effectiveness of recommended options (e.g., system compatibility); Legislation and regulation; Organizational policy; Operational impact; Safety and reliability.

9: RESULTS DOCUMENTATION – documentation of the results of risk assesment – official report

4.RISKS IN IT SECTOR

The following text will present elements of risk analysis IT sector, specially for information system development environment. The risk analysis is to be presented with more details and more precisely for specific implemented project and IT system of an organization.

1: SYSTEM CHARACTERIZATION
- results: information system of an enterprise, that consist of hardware and software
- processes: development of information system, business process

2: THREAT IDENTIFICATION threat sources: - internal (results, process), external (users, other enterprises, viruses...) vulnerability:
- results: complexity of information system, integration of business process system with legacy systems and client-server applications that are developed according to business process needs
- process: IT process vs. Business process (parallelism of processes)

3: VULNERABILITY IDENTIFICATION system environment vulnerabilities: technology changes and development, diversity of operational environments, computer viruses, unauthorized attempts to access the system...

4: CONTROL ANALYSIS technology control: integration of heterogenous operational systems organizational control: business organization and strict role / responsibility determination

5: LIKELIHOOD DETERMINATION
1. First priority and likelihood of threat: internal factors (business organization and technology)
2. Second priority and likelihood of threat: external factors (technology development, virus, unauthorized access...)

6: IMPACT ANALYSIS -

- Loss of Integrity – application of constraints to data entry according to business rules is needed to be enforced at each node of information system. If any node dont use the same business rules, data integration from all nodes could be influenced and put on threat.
- Loss of Availability – business rules constraints include limited usage and functionality, and application of business rules could make the threat of loss of system functionality and operational effectiveness.
- Loss of Confidentiality - protection of information from unauthorized disclosure is needed because of need for centralized or controlled access to distribution of business rules to nodes of information system of an enterprise. If unauthorized access is under threat, functionality and conficence in proper business process software support is under risk.

7: RISK DETERMINATION – the most important risk elements threat/vulnerabilities are:

1. Complexity of information system development and integration of business process management system
2. Organizational distributed/centralized roles/responsibilities
3. External threats – unauthorized access, technology development

8: CONTROL RECOMMENDATIONS -

1. Strong internal organizational role/responsibility determination
2. The importance of IT sector and its integration to top management strategy plans
3. Enterprise application integration tools and technologies, as well as reliable technology for integration of remote databases and operational systems in distributed environment
4. User friendly tools for business rules management within all steps from business rules determination to business rules application evaluation

5. CONCLUSION

Enterprise is changing in the dynamic environment. IT support is crucial for rapid adaptation to those changes and for enabling continual function of every business process. Risk threat in information systems are itself a challenge for IT sector of large companies. Mapping of business process to IT solutions, i.e. information system is one of the most important aspects. Risk management needs concrete activities that are planned controls for threats not to harm functionality and reaching an enterprises mission during everyday dataprocessing. These activities are included in business design through strong organizational role/responsibility determination, integrative technology for enterprise application integration and information systems of heterogenous operating systems integration, key role of IT sector together with management sector of an enterprise, user friendly tools for business rules management from business rules capturing to evaluation of its application during operational and strategic processes of an enterprise.

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METHODS OF EFFORT ESTIMATION IN SOFTWARE ENGINEERING

Jovan Živadinović, Ph.D*
High school for business economy and entrepreneursip, Mitropolita Petra br.8, 11000 Beograd, Serbia
zjovan50@gmail.com
Zorica Medić
Ministry of Internal Affoirs – Repiblic Serbia, Kneza Miloša br. 101, 11000 Beograd, Serbia
Dragan Maksimović
Ministry of Internal Affoirs – Repiblic Serbia, Kneza Miloša br. 101, 11000 Beograd, Serbia
Aleksandar Damnjanović, M.Sc
High school for business economy and entrepreneursip, Mitropolita Petra br.8, 11000 Beograd, Serbia
Slađana Vujčić
High school for business economy and entrepreneursip, Mitropolita Petra br.8, 11000 Beograd,Serbia

ABSTRACT: The objective of this paper is to present the most relevant methods and models for effort estimation used by software engineers in the past four decades. Classification of the methods has been also suggested as well as brief description of the estimation methods presented.

Key words: estimation, effort, metrics

1. INTRODUCTION

In software engineering effort is used to denote measure of use of workforce and is defined as total time that takes members of a development team to perform a given task. It is usually expressed in units such as man-day, man-month, man-year. This value is important as it serves as basis for estimating other values relevant for software projects, like cost or total time required to produce a software product.

Reasons for effort estimation vary, some of the most frequent being:

- *Project approval.* There must be a decision on project launching on the part of an organization, preceded by effort estimation required for successful completion of the project.
- *Project management.* Project managers are responsible for planning and managing of the project. Both these activities require effort estimation as per respective phases in order for project to be completed.
- *Understanding by the development team members.* In order that development team could perform efficiently, it is necessary for its members to understand their individual roles as well as overall activities of the team as a whole.
- *Defining of project task*, that can be used for this purpose, is done by means of effort estimation.
- The accuracy of effort estimation is as current an issue for resarchers today as it was 25 years ago when it was launched by Brooks (1975) in his work "The Mythical Man Month". Even today these estimations are mainly unreliable, with no proof of significant progress that has been made in their improvement, despite considerable funds and activities that have been invested to that purpose. Different authors classify effort estimation methods differently. Following classifications have been adopted for this purpose: Empirical parametric (algorithmic) estimation models; Empirical non-parametric estimation models; Expert estimation; Analogue estimation models; Downward estimation; Upward estimation".

It should be mentioned that these categories do not exclude one another. Furthermore, estimation methods exist which, in respect of some of their features, belong to different groups.

2. EMPIRICAL PARAMETRIC ESTIMATION MODELS

These models rely on the experience gained on previous software projects in the sense that they connect size and effort value by means of one of the explicit function forms, by applying regression analysis method. In doing so, most widely used are linear and exponential dependence. For example, product value measure can be the number of code lines in the programme or another value measure used to quantify some characteristics of the software product. Effort is usually expressed in values such as man-day or man-hour, sometimes man-year.

Good sides of these models are: objectivity, formalism, efficiency, and the fact that they have been based on the experience drawn from engineering practice. Its bad sides are: necessity for calibration before application in the concrete environment, subjectivity of input values, they have founding in the past instead of future.

Over the time, a great many empirical parametric estimation models have been developed resulting in attempts to determine the best among them which would be pronounced standard. However, these attempts yielded no result due to certain shortcomings characteristic for these models. Once the form of such a model is determined, one should have sufficient data to be able to establish the connection between the estimated value and mutually independent parameters in the model. Furthermore, it is not often quite clear whether all the parameters participating in the function are actually mutually independent. Also factors that have impact on estimated values are numerous and hard to precisely quantify.

When applying empirical parametric models attention should be paid to following: to make them as least complex as possible, to carefully collect relevant data and to gather as many practical examples as possible.

One of the best known empirical parametric models developed hitherto has following form:

$$Effort = aLOCb, \qquad (1)$$

where effort (man-months) represents work required to realize the system, while LOC is the number of code lines to be written. This model has been researched by Walston and Felix (1977), Bailey and Basili (1981) and (Boehm 1981), Boehm (2004) as the basis for COCOMO model. Walston and Felix have reached the value for $b < 1$, while other researchers quote values > 1.

Kitchenham (1992), Kitchenham and Pearl Brereton (2010) in his research concludes that in the prevailing number of cases the value of *b is close enough to 1* which justifies consideration of introducing linear dependence between the number of code lines and effort. In order to verify this theory, Banker, Chang and Kemerer (1994), used model form:

$$Effort = a + bLOC + c\,LOC^{2}. \qquad (2)$$

In examining the data in respect of eleven software projects, they concluded that the quoefficient *c* considerably difffers from *0* in six cases. This proved the view that linear dependence of effort upon code lines can not be applied in a great number of of cases. Effort estimation models based on the number of code lines have one considerable shortcoming: the number of code lines is known only after the coding and testing, i.e. quite late in the lifecycle of software development. In order that these models could be used in the early phases, often an estimation of the number of code lines is made, followed by effort estimation. However, there also exist other metrics of software size which can be calculated in the earlier phases of the lifecycle than code lines.

The best known and most widely used metrics among them is function points metrics. A number of researchers, among them Albrecht and Gaffney (1983), (Kemerer 1987), Kemerer (1993) Matson, Barret and Mellichamp (1994), have examined models form:

$$Effort = a + b\,FP, \qquad (3)$$

where Effort (man-months) is work required for the realization of the system and FP is the number of function points.

De Marco (1982) developed a model whereby effort required for software project implementation is estimated on the basis of data flow graph and object – relation graph, i.e. rather early in the software lifecycle. Metrics introduced by this researcher are called "function explosion" and "data explosion". The basic shortcoming of these metrics is that they are not obtained by means of direct counting, but by means of introducing rather complex weight coefficients, like with function points. What is more important, no published results exist in practice concerning the application of this estimation manner. Basili and Panlilip-Yap (1985), (Basili et al., 1996), suggest a model that would be based on counting the number of pages of the system documentation

$$\text{Effort} = a + b\,NumberofpagesDocumentation, \qquad (4)$$

where the pages of the written material descripting the programme are counted, without taking into account the programme original code. Although the model, as the authors claim, showed rather good results concerning 23 research projects, it still failed to gain wider use for obvious reasons: the number of documentation pages is known even later than the number of code lines. In addition to this, the manner and volume of documented software projects do not vary not only from one organization to another but from one individual to another. This metric is affected even by factors such as font size used in documentation or page margine.

Brownlow (1994) researches effort estimation model that can be applied on object-oriented system analysis and design. It is based on the number of objects and services of the system. The form of the model researched is following:

$$Effort = a + b\ Numberofobjects + c\ NumberofServices \quad (5)$$

The basic criticism that can be voiced concerning this model is its verification on a small number of projects. One of the arguments voiced by researchers denying the linear dependence of effort upon value is that the greater the system the greater the number of development team members as well as the greater the team, the greater the time required for mutual coordination of decisions. Jeffery (1987), (Jeffery et al., 2000) examines dependence of productivity upon the code line numbers and maximum number of team members. He suggests following model form.

$$Productivity = a\ LOC^{\ b}\ MaximalTeamMemberNumber^{\ -c}, \quad (6)$$

where productivity is defined as number of lines divided by effort expressed in man-months.

Conte, Dunsmore i Shen (1989) introduce COPMO model, which also connects effort, value and number of personnel members. This model is based on a presumption that the total effort required for system development can be divided into individual team member effort plus effort required for coordination of their labour. The derived model has following form:

$$Effort = a + b\ LOC + c\ AverageTeammemberNumber^{\ d}. \quad (7)$$

where average team member number is calculated as quotient of effort and total project duration.

Project management, development team and users often need to estimate total project duration time from the beginning to the very end, or minimum time required for the completion of the system. System creation time obviously depends on the number of the engaged personnel. However, Brooks (1975) rightly pointed out that time dependence upon personnel number is not linear. This fact poses new questions to researchers: is there an optimum number of people working on a project, from productivity point of view? Is it possible to engage extra personnel to work on a project in order to reduce the creation time, at the expense of reduced productivity? At what point does this strategy cease to be achievable?

In order to answer these questions, researchers have developed a number of models connecting effort and time required to create a project. Putnam (1978) (Putnam et al., 2003) suggests a model which connects time required to deliver a system and total effort of lifecycle and the size of the system:

$$LOC = C_k\, K^{1/3}\, t_d^{\ 4/3}, \quad (8)$$

where LOC is number of code lines, K total effort of lifecycle, and t_d time until the system delivery. C_k is factor whose value depends on the project features. Typical values can be from *2000* in respect of poor software environments with no developed methodology or tools or the like, up to *11000* in respect of mature, developing environments.

Putnam's model presumes that the effort invested by the staff over the time follows Raylegh's curve. This presumption is based on earlier empirical researches (Norden 1963). The model has been derived from the distribution of work obtained in respect of large projects (total effort the size of 30 man-year), with the possibility of extrapolation to smaller projects. Parameter t_d is, in fact, time required to reach the maximum of Raylegh's curve. The model also relies on Putnam's empirical researches, from which he concluded that $K / t_d^{\ 3}$ ratio can only have certain discreet values.

Parr (1980) introduced a variation of Putnam's model. He substituted Rayleigh's distribution by similar one which does not intersects the coordinate. This substitution has been introduced in order to model the work of system analyzers, who were not taken into account by Putnam.

COCOMO (COnstructive COst Model) represents, in fact, a hierarchy of 3 estimation models, suggested by Boehm (1981), (Boehm et al., 2004) The models range from that of macro estimation of measuring as product value function, to that of macro estimation with structure analysis and 3 levels of multiplier set of phase sensitivity for every attribute of leading expense. Primary motivation for the creation of COCOMO model was to help people realize the cost of the consequences of the decisions they would make in executing, developing and supporting software product. Besides, it enables the estimate of software expenses. Following is the model hierarchy:

- *Model 1. Basic* COCOMO is static single-variable model which calculates software development effort and costs as a function of programme size expressed in estimated LOC.
- *Model 2. Intermediate* COCOMO model estimates effort as a function of programme size and set of "cost drivers" that include subjective assessment of four attribute groups (product, hardware, personnel and project).
- *Model 3. Advanced* COCOMO incorporates all characteristics of the intermediate model, with the addition of "cost drivers" which are evaluated for every phase in the software development (e.g. analysis, design, etc) individually.

Equation of the basic COCOMO model has following form:

$$Effort = a\ LOC^{b}, \quad (9)$$

$$NominalTime = c\ Effort^{d}. \quad (10)$$

Finally, it should be said that this, undoubtedly relevant estimation model, has no specifically high accuracy. Being aware of this fact, the designer of the model himself, B.Boehm, says: "At today's level, the software development model of cost estimation serves the purpose if it can estimate the costs within 20% of real costs, 70% time, and within project class on which it has been calibrated. This is not as accurate as we would like it to be, but it is accurate enough to ensure considerable assistance with economic analysis of software projects and decision making."

3. EMPIRIC NON-PARAMETRIC ESTIMATION MODEL

It is characteristic for empiric non-parametric models that they use data on projects realized earlier. However, the estimation is not done by applying given mathematic formula but by means of other approaches. Out of these models mentioned herein will be: optimized set reduction technique (OSR), decision-making trunk and neural networks.

Briand, L., Basili, V.R., and Thomas, W (1992). (Briand et al.,1999). OSR selects subset of projects based on which it estimates productivity of the new project. Productivity is defined as effort in man-months divided by the number of code lines. Projects grouped in optimum subset should have similar cost factors, like the new project. For example, all projects are of medium complexity, they have little reliability requirements and large databases. OSR takes the values of cost factors in such a way that the distribution of productivity in respect of the subset of selected projects can be good, in keeping with the introduced statistic criteria. The distribution of probability in respect of productivity is derived from the distribution of frequency of the selected projects above the volume of productivity interval. Productivity in respect of the new project is estimated by calculating the expected value on the basis of the derived probability distribution. Briand, Basili and Thomas, compared the accuracy of OSR technique and COCOMO model, and obtained results which indicated more accuracy in respect of OSR estimation model.

Significant OSR advantage is that it can be applied even with incomplete input data, i.e. when only subset value of the cost factor is known. Srinivasan and Fisher (1995) describe another two non-parametric methods for generating effort estimation model. The first method uses self-learning algorithm to obtain decision-making tree. The other method relies on neural networks. The neural networks model shows smaller mean error than the decision-making tree model. However, training of neural networks is often strenuous. Accuracy of these models is similar to that of the OSR. In order that these models can be applied in practice, calibration should be done on a great number of data, since these models have a great number of independently variable values.

4. EXPERT ESTIMATES

These models are based on consultation of one or more people considered to be experts in software development. For coordination of differing opinions among estimators, often used is one of formal techniques like Delphi. There exist a number of Delphi technique forms. Wideband Delphi ( )encourages those involved to discuss the problem among themselves. This technique is implemented in following steps:

1. Coordinator will acquaint every expert with project specifications and estimation manner.
2. Coordinator will call a meeting of experts to discuss the issues related to the value to be estimated.
3. Each expert will individually and independently complete the form.
4. Coordinator will call another meeting to discuss mainly the estimates that differ most from the others.
5. Experts will complete the forms again.
6. Steps 4 and 5 will be repeated until consensus has been reached.

5. ANALOGUE ESTIMATION MODELS

It is characteristic for these models that in order for estimations to be made, analogies are used between the new project and some of the already completed ones. Comparisons are made between the suggested project and similar projects for which data in respect of cost, time and effort are known. These models require as much data as possible concerning implemented projects. In some aspects, this approach is systematized expert estimation model form, since it is usually experts who decide what projects should the new project be compared with. These techniques require determination of those project characteristics that will be looked for as similar between this and other projects. Effort, time, cost values of these projects are used when making estimates concerning the new project. Basic difficulties with this approach concern identification of projects similar enough, on the basis of which estimates are to be made. Two best known analogue models are ESTOR Mukhopadhyay, T., (1992), and ANGEL Shepperd, (1996), (Shepperd et al., 2000). ESTOR is case-based reasoning model. This case-base reasoning form consists of 5 basic processes:

- Target case specification;
- Search for adequate case to serve as original analogy;
- Transfer solution from the source to the target case;
- Find the differences between the original and the target case;
- Adjust the initial solutions based on the differences found.

With ESTOR, cases are software projects, each of them being represented by a series of metric values. Metrics used by ESTOR are components of function points and input values in the intermediate COCOMO model. ESTOR requires original analogy as per function point value components of target projects. The closest project is identified by means of vector calculation, as smallest distance from the source project. Analogue project effort is taken as initial solution for effort estimation. Differences between analogue and new project are determined by comparing their metrics.

ANGEL has been based on the generalization of the approach by Atkinson and Shepperd (1994), Shepperd M., Jorgensen M., (2007). According to this approach, projects are presented by means of function point components. Analogue projects are neighbours of the new project, and they are reached by calculating vector distance from the new project. Effort concerning the new project is estimated on the basis of the mean effort value in respect of the neighbouring projects.

With ANGEL, user himself determines metrics needed for identification of analogue projects. ANGEL can also automatically determine the optimum metrics subset on the basis of the given data. It can search for 1, 2 or 3 analogue projects and calculate mean value of their efforts.

As one can see, ESTOR and ANGEL have many common features: in both cases, projects are represented by means of easily obtainable metrics, and analogue projects in both cases are identified by calculating vector distance. ESTOR uses only one analogue to determine the estimate, while ANGEL`s estimate can be based on several analogues.

The advantage of analogue estimation models over the empirical parametric models is in their successful application in the cases where valid statistic data dependence can not be determined. Schofield and Kitchenham (1996), (Schofield et al., 2000), give an example of a set of eight projects for which ANGEL gives estimate with mean relative 60% error, while regression linear model gives 226% error.

6. "DOWNWARD" ESTIMATES

Estimation of total effort is made on the basis of the software product global characteristics Shooman M.L, (1996), This estimate is usually based on previous projects and takes into account effort in respect of all function projects. Total effort is then distributed as per components.

7. "UPWARD" ESTIMATES

In this case estimation is made in respect of every project component individually, and total effort is calculated as addition of individual efforts Shooman M.L, (1996). Quite often such approach leaves many global effort components overlooked, such as those linked with integration, system testing and project management.

8. CONCLUSION

In the past four decades a great number of different models and effort estimation methods have been developed. This clearly indicates the awareness among the researchers of the need to improve effort estimation in software engineering. Unfortunately, the fact remains that even though, all the effort invested by the researchers yielded no result as they wished for and, even today, effort estimation still

remains rather unreliable. Whenever estimations are made one actually looks to the future, and naturally, accepts certain level of uncertainty and risk. Risks happen as result of insufficient information, which we can not know in advance. This is the point where good historic background becomes revealed. Risk is measured by uncertainty level in quantitative estimates of resources, costs and distribution.

One should not expect effort estimation to be ever an exact science. Many factors have impact on the software development process. These factors can be human, technical but also political and their impact can never be fully predicted. This should no way be understood as a call to give up estimating because even insufficiently accurate estimates are far better than none.

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DIAGRAM OF THE INFORMATION SYSTEMS FACTORS – FUZZY APPROACH

Aleksandar Pešić, PhD*
Duška Pešić, PhD
pesic@mpk.edu.rs

ABSTRACT

Effective audit of the Information Systems functional area implies detailed appraisal of the most important factors that influence productivity and competitiveness of the overall information systems function. Since the quantitative measurement methods based on the classical mathematical disciplines and two valued logic do not consider vagueness and uncertainty of the relevant factors, there is a need for the implementation of fuzzy logic that provide satisfactory degree of precision. The purpose of this paper is to increase the effectiveness of the assessment process by introducing fuzzy triangular numbers into the diagram of the information systems factors.

Key words: Information Systems Factors, Fuzzy Assessment

1. INTRODUCTION

Although the productivity and quality of the information system has proven difficult to measure, the assessment is essential to supply the feedback needed for the effective management and continuous improvement of the information system function. Therefore, appraisal of the key factors is crucial, basic activity in order to attain a systematic approach and support for decision making. It also indicates the overall competitiveness of the organizational information system.

In most situations it is not possible to differentiate factors clearly. That characteristic of the assessment process is especially pronounced in diversified, multibusiness organizations, where determining and evaluation of the strengths and weaknesses of the IS (information system) function is a very complicated task that requires a structured assessment procedure. A relevant analysis in this context should be not the one in which the most important information system factors are considered as isolated, but functionally linked, integrated within a dynamical system of the organization.

As a qualitative assessment of the information system factors can not give the satisfactory degree of precision, management of the organization should pay a special attention to the methods that provide a comparative, quantitative measurement; such that the objects of assessment that are expressed in the form of attributes can be transformed into a quantitative form, expressed as a quantitative variable.

There are various quantitative methods that managers and consultants can use for IS function appraisal, but certain structural problems still exist. The most important limitations are the lack of prioritization of the factors, lack of considering two-sided factors and lack of considering uncertainty and ambiguous cases. As Myers, Kappelman and Prybutok have pointed out, the Information System assessment is not well established and recent studies show that more research is needed.

Considering such statements, this paper introduces a comprehensive IS assessment framework based on the Fuzzy sets theory and Fuzzy logic as a innovative method aimed to increase the effectiveness of the IS factors appraisal.

2. FUZZY ANALYSIS OF THE INFORMATION SYSTEMS FACTORS

Fuzzy numbers represents physical world in more realistic way than regular, crisp numbers. Subjective assessments such as "production costs are approximately 3000" are not characterized by exact numerical value. Types of numbers" around 3000" or "near 1000" can be represented by use of fuzzy sets that under particular terms can be treated as fuzzy triangular numbers.

Fuzzy model suggested in this paper considers identification and analysis of the strengths and weaknesses of information systems key factors. Therefore, in this model, quantification of the degree of strength and weakness is also done in addition to identification. Managers are required to assess value of each relevant factor from the [-1,1] interval (figure 1). Negative numbers are used to estimate degree of weakness and positive numbers are used to estimate degree of strength for each factor (for instance, if the value of some IS factor is estimated by the number 0,8 then that factor represents strength of the organization with 80% of the value, analogly it refers for the negative numbers but in the sense of weakness).

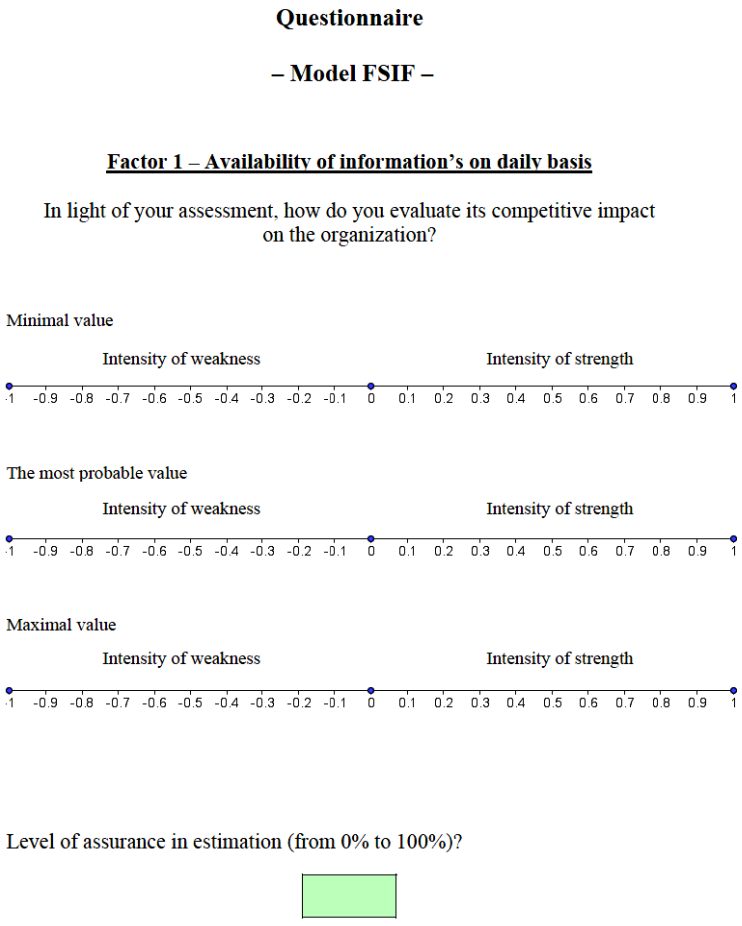

Figure 1: Questionnaire for quantification of the strength of the IS factors

Questionnaire provides following information's for each relevant factor F_i [$i = 1,...,k$].

- $\left[F_i^{\min}, F_i^{\max} \right]$ - interval which contains the value of the factor F_i ,
- $F_i^n \in \left[F_i^{\min}, F_i^{\max} \right]$ -most probable estimation of the factor F_i ,

In this way every factor is presented as a fuzzy triangular number $\overline{F_i} = \left(F_i^{\min}, F_i^n, F_i^{\max}\right)$.

Furthermore, the level of expert assurance α_i in estimation of factor F_i is also requested. Membership function of the obtained fuzzy triangular numbers is defined as follows:

$$\overline{F_i} = \begin{cases} 0 & if \quad F_i \le F_i^{\min} \\ \dfrac{F_i - F_i^{\min}}{F_i^n - F_i^{\min}} & if \quad F_i^{\min} < F_i \le F_i^n \\ \dfrac{F_i^{\max} - F_i}{F_i^{\max} - F_i^n} & if \quad F_i^n < F_i < F_i^{\max} \\ 0 & if \quad F_i \ge F_i^{\max} \end{cases}$$

Calculating the abscissas of the point of intersection of the line $y = \alpha_i$ and the membership function of fuzzy triangular number $\overline{F_i}$ we obtain the limits of the α_i - confidence interval for the factor F_i.

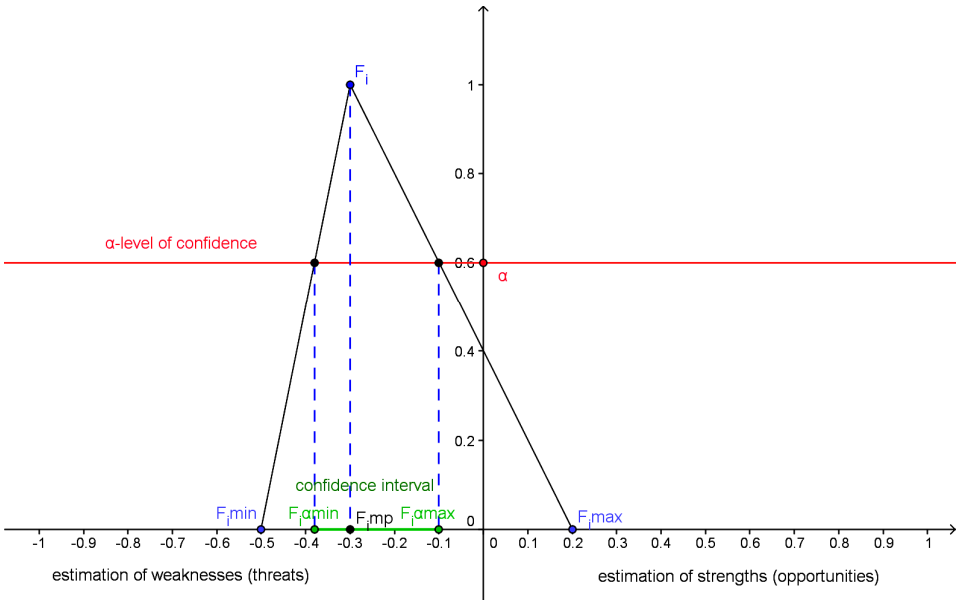

Figure 2: Level of confidence of the IS factors

The confidence interval for the factor F_i is denoted with $\left[F_{\alpha i}^{\min}, F_{\alpha i}^{\max}\right]$ (Figure 2):

$$F_{\alpha_i}^{\min} = \alpha_i \cdot F_i^n + (1 - \alpha_i) \cdot F_i^{\min}$$
$$F_{\alpha_i}^{\max} = -\alpha_i \cdot F_i^n + (1 + \alpha_i) \cdot F_i^{\max}$$

3. CASE ILLUSTRATION

In corporation K, management identified 10 relevant IS factors [F_j, $j = 1,...,10$] for determining strengths and weaknesses of IS function in 5 branches [$O_i = 1,...,5$] of the corporation.

Table 1: Obtained confidence intervals

	O1	O2	O3	O4	O5
F1	[0.14,0.26]	[-0.36,-0.12]	[0.82,0.98]	[-0.05,0.17]	[0.82,0.97]
F2	[0.25,0.33]	[0.46,0.85]	[-0.52,-0.49]	[0.15,0.41]	[0.6,0.85]
F3	[0.2,0.25]	[0.25,0.31]	[0.72,0.76]	[-0.85,-0.75]	[-0.671,-0.49]
F4	[0.75,0.95]	[0.35,0.55]	[0.6,0.85]	[-0.17,0.21]	[0.51,0.58]
F5	[-0.25,0.12]	[-0.74,-0.5]	[-0.34,-0.23]	[0.15,0.45]	[0.3,0.52]
F6	[-0.56,0.31]	[-0.85,-0.75]	[-0.82,-0.6]	[-0.71,-0.46]	[-0,76,-0.61]
F7	[0.5,0.85]	[0.71,0.82]	[0.32,0.55]	[0.37,0.65]	[0.13,0.42]
F8	[-0.7,-0.49]	[-0.72,-0.53]	[-0.19,0.25]	[0.28,0.55]	[0.16,0.48]
F9	[0.56,0.73]	[0.6,0.76]	[0.41,0.71]	[0.43,0.6]	[0.46,0.87]
F10	[-0.11,-0.01]	[-0.68,-0.49]	[0.12,0.32]	[-0.35,0.12]	[0.12,0.36]

Then, two new crisp sets are formed:

- The set of strengths $SN_i, i = 1,...,5$ – set that contains factors from branches O_i which confidence intervals in large percentage have value more than 0.5.
- The set of weaknesses SL – set that contains factors from branches O_i which confidence intervals in large percentage have value less than 0.5.

Table 2: Spreadsheet of sets:

SN	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_{10}
O_1				1			1		1	
O_2		1					1		1	
O_3	1		1	1					1	
O_4									1	
O_5	1	1		1					1	

SL	F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8	F_9	F_{10}
O_1						1		1		
O_2					1	1		1		1
O_3		1				1				
O_4			1			1				
O_5			1			1				

All possible combinations for 5 branches contains following set with $2^5 = 32$ elements:

$$P(O) = \begin{Bmatrix} \varnothing, \\ O_1, O_2, O_3, O_4, O_5, \\ O_1O_2, O_1O_3, ..., O_4O_5, \\ O_1O_2O_3, ..., O_3O_4O_5, \\ O_1O_2O_3O_4, ..., O_2O_3O_4O_5, \\ O_1O_2O_3O_4O_{5\partial} \end{Bmatrix}$$

Connecting all combinations of the branches with their mutual internal factors and all combinations of the factors with their mutual branches, following diagrams are obtained:

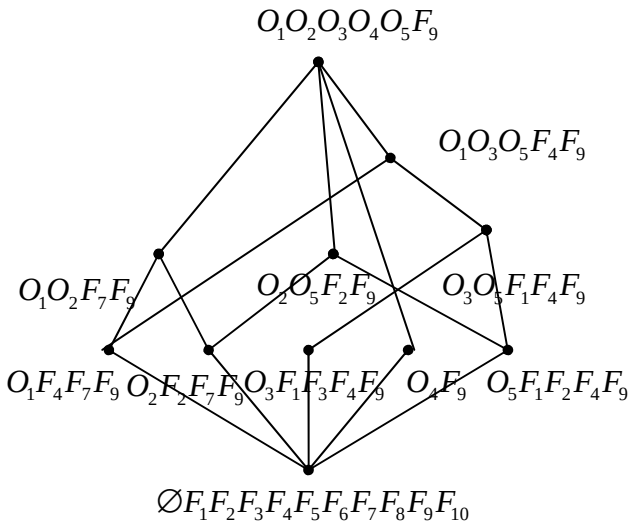

Figure 3: Diagram of the IS strengths of the corporation K

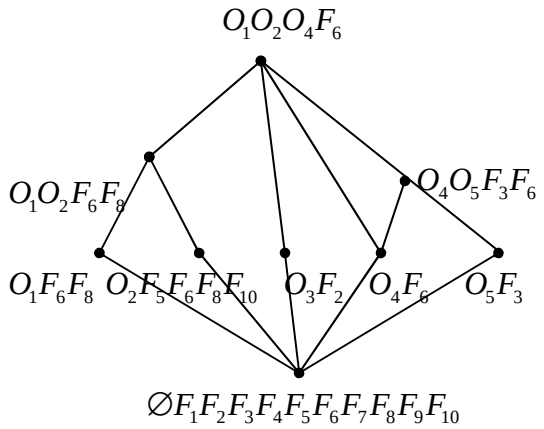

Figure 4: Diagram of the IS weaknesses of the corporation K

It can be noticed that number of branches increases when the point is closer to the top while the situation with the factors is quite opposite. Factor at the top of the diagram is singled out as factor of the IS strength (or IS weakness) in most of the branches.

The figure 3 shows that all branches have factor F_9 designed as factor of IS strength, and the figure 4 shows that factor F_6 represents IS weakness for the most of the branches.

4. CONCLUSION

Since the classical mathematical disciplines which are based on two valued logic could not be satisfactorily used in investigation of the complex systems, that is an argument for the implementation of fuzzy logic in solving specific problems in the assessment of the information systems factors.

Fuzzy set theory and fuzzy logic, as a mathematical approach to solving problems of analysis of IS functional area allows overcoming some of the problems faced by managers of organizations. Therefore the focus of this paper is on the fuzzy scanning of the IS factors. Furthermore, this paper presents fuzzy strategy framework that can be utilized to evaluate how an organization is performing in regards to identified IS factors.

An advantage o fuzzy-analytical method, FSIF in quantification of the organization's IS factors proposed in this paper, compared with other commonly used methods is in using fuzzy numbers by which vague information is better assessed and described.

Besides, the scales used in this paper are not graduated, as are the other scales using to measure IS factors in similar methods. The scales considered here can take any value from an interval, which better describes real situation.

Another advantage is that the additivity requirement, present in various quantitative methods (due to connection with classical probability theory) is overcome in fuzzy framework. The disadvantage of additivity setting is that if the importance of one internal factor is increased, then automatically

importance of other internal factors must be reduced. Another disadvantage of known methods is the fact that a number of factors should be limited which is also overcome by this method.

The information obtained and processed is clearly presented and analyzed using the method proposed in this paper. For each organization a new fuzzy model can be produced taking into account variation of IS factors and difference in degree of influence of factors on the performance of organization.

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THE ROUGH SETS THEORY BASED EXPERT SYSTEMS

Vladimir Brtka, Ph.D*
brtkav@gmail.com
Eleonora Brtka, M.Sc
brtka@sbb.rs
Visnja Ognjenovic, M.Sc
visnjaognjenovic@gmail.com
University of Novi Sad, Technical Faculty "Mihajlo Pupin", Zrenjanin, Department of Computer Science, Republic of Serbia

ABSTRACT

The paper deals with the decision rules synthesis in the domain of expert systems and knowledge based systems. These systems incorporate expert knowledge which is often expressed in the If Then form. As it is very hard for experts to formally articulate their knowledge, automated decision rule composing algorithms have been used. The rule composing algorithms are often based on the rough sets theory. Originally, rules are composed from data table by equivalence relation, while in this paper we investigate the rules based on dominance relation. The main goal of this paper is to single out possible benefits and advantages of dominance relation based rules over equivalence relation based rules.

Key words: expert systems, knowledge based systems, the rough sets theory, decision rules

INTRODUCTION

The history of the use of computers in engineering problems goes together with the developments in computer hardware and software technology. Engineer utilize principles of science and mathematics to develop new technologies which are then used to create products, structures, machines, processes or even entire systems. It is well known that different tasks in engineering problem solving require different computational tools. Inference from a set of facts, which simulate intelligent decision making, plays a important role in some problem-solving tasks, which involve creativity, while creativity implies the ability to produce novel solutions which are better than previous solutions. These computational tools should be able to use expert knowledge of the problem domain for decision making.
The software tools that involve expert knowledge and inference mechanism are called expert systems (ES). ES deals with knowledge processing and complex decision-making problems. The "bottleneck" of the expert systems is a problem of formal articulation of the expert knowledge. It is very hard for the expert to formally express knowledge. Broader based systems which use different knowledge sources are called Knowledge Based Systems (KBS). This paper investigates the If Then form based decision rules, defined or expressed by experts. These rules are readable and easy to understand (Luger, Stubblefield, 1993, Jones, 2008). It is well known that rule synthesis is possible by usage of the rough sets theory.
Originally, the rough sets theory based rule induction used equivalence relation, while in this paper we investigate dominance relation. The main goal of this paper is to point out the differences between equivalence relation and dominance relation based rules.

THE ROUGH SETS THEORY

The rough sets theory was developed in the early 1980s (Pawlak et al.). This new approach proved to be very useful for the data analysis in various domains. It is of importance to artificial intelligence (AI) and cognitive sciences in the domains of machine learning, knowledge acquisition, data mining, decision analysis, expert systems, decision support systems, pattern recognition and inductive reasoning. Many

results show that methods based on rough set model are most appropriate, especially in domains of medicine (Ohrn, Brtka et al.) and computer sciences (Dobrilovic et al.).
In many cases, data is represented in the form of a flat table with rows containing objects and columns containing attributes. Each combination of an object and an attribute can be characterized by a value, usually numerical, corresponding to a state. The rough set theory may be used to extract knowledge hidden in data and express it in the form of rules. The If Then rules are very useful because they can be inspected and interpreted directly, and the results of decisions are easy to explain. In the rough sets theory there is, usually one, attribute called decision attribute while the other attributes are called condition attributes. Information systems of this kind are called decision systems (Pawlak, Skowron, Greco, Benedetto and Slowinski).

The Indiscernibility Relation

The indiscernibility relation is the mathematical basis of the rough sets theory. Every object of the universe is described by certain amount of information expressed by means of some attributes used for object description.
Objects characterized by the same information are indiscernible in view of the available information about them. As in (Greco, Benedetto, Slowinski, 1998), let U be a universe (finite set of objects), $Q=\{q_1,q_2,...,q_m\}$ is a finite set of attributes, V_q is the domain of attribute q and $V=\bigcup_{q\in Q}V_q$. An information system is the 4-tuple $S=\langle U,Q,V,f\rangle$ where $f=U\times Q\to V$ is a total function such that $f(x,q)\in V_q$ for each $q\in Q, x\in U$, called information function. Each object of universe is described by a vector: $Des_q(x)=[f(x,q_1),f(x,q_2),...,f(x,q_m)]$, where $x\in U$. To every non–empty subset of attributes P is associated an indiscernibility relation on U, denoted by I_P:

$$I_P=\{(x,y)\in U\times U: f(x,q)=f(y,q),\forall q\in P\} \qquad (1)$$

This relation is an equivalence relation (reflexive, symmetric and transitive). The family of all the equivalence classes of the I_P is denoted by $U|I_P$ and class containing an element x by $I_P(x)$.

Set Approximations and Data Reduction

Formally, let X be a non–empty set of U and $\emptyset\neq P\subseteq Q$. Set X is approximated by means of P–lower (2) and P–upper (3) approximations of X:

$$\underline{P}(X)=\{x\in U: I_P(x)\subseteq X\} \qquad (2)$$

$$\overline{P}(X)=\bigcup_{x\in X} I_P(x) \qquad (3)$$

The P–boundary of X is denoted by $Bn(X)$:

$$Bn(X)=\overline{P}(X)-\underline{P}(X) \qquad (4)$$

Following relation holds: $\underline{P}(X)\subseteq X\subseteq\overline{P}(X)$. So, if an object x belongs to lower approximation of X, it is certainly an element of X, but if x belongs to upper approximation of X, it may belong to the set X. P–boundary set of X constitutes "doubtful region" – nothing can be said with certainty about the belonging of its elements to the set X.
One approach to data reduction is to identify equivalence classes. Savings are to be made since only one element of the equivalence class is needed to represent the entire class. Another important issue is data reduction. Main problem is how to keep only those attributes that preserve the indiscernibility relation (1) and consequently, set approximation. The rejected attributes are redundant (superfluous) since their removal cannot worsen the classification. Let $\emptyset\neq P\subseteq Q$ and $a\in P$. Attribute a is superfluous in P if $I_P=I_{P-\{a\}}$. Usually, there are several subsets of such attributes and those that are minimal are called reducts.

Decision Rules Synthesis

Each object *x* that belongs to a decision system determines one decision rule:

$\bigwedge_{a\in C} a = a(x) \Rightarrow \bigwedge_{d\in D} d = d(x)$, here $a(x)$ stands for the value of attribute a of an object x. The expression $a = a(x)$ is called descriptor. If there is one decision attribute d we have: $\bigwedge_{a\in C} a = a(x) \Rightarrow d = d(x)$.

Now, it is possible to investigate rules of the form: IF α THEN β. Here α (rule's antecedent) denotes a conjunction (AND logical operator) of descriptors that only involve attributes of some reduct and β (rule's consequent) denote a descriptor $d=d(x)$, where d is decision attribute. Once the reducts have been computed the rules are composed by overlaying every reduct over the decision table and simply reading the values. Rules supported by lower approximation are called exact, rules supported by boundary region are called inexact because they involve OR logical operator in the Then part.

SET APPROXIMATIONS BY MEANS OF DOMINANCE RELATIONS

As in (Greco, Benedetto, Slowinski, 1998) let S_a be an outranking relation on universe U, so that for condition attribute $a\in C$ and objects $x,y\in U$ we have xS_ay, which means: "x is at least as good as y with respect to attribute (criterion) a". Let $P\subseteq C$: object x dominates object y (denotation xD_Py), if xS_ay stands for every $a\in P$. Now, it is possible to define sets:

$$D_P^+(x) = \{y \in U : yD_P x\} \tag{5}$$

$$D_P^-(x) = \{y \in U : xD_P y\} \tag{6}$$

Let $Cl=\{Cl_t, t\in T\}$, $T=\{1, ..., n\}$ be a set of classes of U, which means that each element of U belongs to one and only one class. For $x,y\in U$ and $r,s\in T$ we have:

$$(x \in Cl_r, y \in Cl_s, r > s) \Rightarrow (xSy \wedge \neg(ySx)),$$

It is possible to define a set:

$$Cl_t^{\geq} = \bigcup_{s\geq t} Cl_s \tag{7}$$

Furthermore, it is possible to define P–lower (8) and P–upper (9) approximations of X:

$$\underline{P}(Cl_t^{\geq}) = \{x \in U : D_p^+(x) \subseteq Cl_t^{\geq}\} \tag{8}$$

$$\overline{P}(Cl_t^{\geq}) = \bigcup_{x\in Cl_t^{\geq}} D_P^+(x) \tag{9}$$

By analogy, for:

$$Cl_t^{\leq} = \bigcup_{s\leq t} Cl_s \tag{10}$$

we have:

$$\underline{P}(Cl_t^{\leq}) = \{x \in U : D_p^-(x) \subseteq Cl_t^{\leq}\} \tag{11}$$

$$\overline{P}(Cl_t^{\leq}) = \bigcup_{x\in Cl_t^{\leq}} D_P^-(x) \tag{12}$$

It is quite obvious that rules of the If Then form can be induced based on set approximations by means of dominance relation. The question is: What is an exact form of these rules and what is the difference to If Then rules induced by indiscernibility relation (1)?

CONCLUSION

By approximations (8), (9), (11) and (12) which were obtained by dominance relations (5) and (6) it is possible to induce following If Then rules supported by:
1. P–lower approximations of the classes (7),

$$\text{If } f(x,a_1) \geq v_{a1} \text{ and } ... \text{and } f(x,a_n) \geq v_{an} \text{ Then } x \in Cl_t^{\geq}$$

2. P–lower approximations of the classes (10),

$$\text{If } f(x,a_1) \le v_{a1} \text{ and } \ldots \text{and } f(x,a_n) \le v_{an} \text{ Then } x \in Cl_t^{\le}$$

3. P–boundaries of the classes (7) and (10),

$$\text{If } f(x,a_1) \ge v_{a1} \text{ and } \ldots \text{and } f(x,a_k) \ge v_{ak} \text{ and}$$
$$f(x,a_{k+1}) \le v_{ak+1} \text{ and } \ldots \text{and } f(x,a_n) \le v_{an} \text{ Then } x \in Cl_t^{\le} \text{ or } x \in Cl_s^{\ge}$$

This approach in general, gives more synthetic representation of knowledge contained in the decision table than the set of rules induced by classical approach based on equivalence (indiscernibility) relation (Greco et al.).

Possible benefits and advantages of the dominance based rules over equivalence based rules are:

- the minimal set of rules contains a smaller number of rules,
- smaller number of used condition attributes in the If parts of the rules,
- easier to understand and interpret,
- possibility to express more general knowledge.

The drawback is increased computational time needed to generate rules. Future work will include a further development of the software application for rule synthesis based on dominance relation. This application is a part of web based system for data analysis.

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MANAGEMENT APPROACH BASED ON ISO 11783-10

Slobodan Janković, Ph.D*
Amalgamations Group Pltd., Reg. Office: 862, Anna Salai, 600 002 Madras, India
sjankovic@sify.com
Miodrag Ivković
University of Novi Sad, Technical faculty "Mihailo Pupin", Zrenjanin, Republic of Serbia
Vladimir Šinik
University of Novi Sad, Technical faculty "Mihailo Pupin", Zrenjanin, Republic of Serbia
Dragan Kleut
SCA, Computer System Department, Belgrade, Republic of Serbia

ABSTRACT

The implementation of various electronic subsystems in farm machineries is constantly expanding. Accordingly the new machines, instead of being mechanical systems, became advanced mechatronical systems which application call for a new approach in management. Possibility of using the new and advanced standard ISO 11783 , named ISOBUS, seems to be extremely powerful tool on it. Out of other aspects the standard defines the task management i.e. the management of farm resources and field activities (ISO 11783-10:2008). The paper presents the overview global farm management enabled through ISOBUS, embedded hardware and software as infrastructure for managing farm resources and in field activities and in that way efficiency improvement of overall activities at particular farm.

Keywords: Management, ISOBUS, Agriculture

INTRODUCTION

Amongst many factors of interest in improvement of one existing management system there are two extremely important. The first one is availability of acquiring the accurate data of interest for the process which has to be managed. The second one is, definitely, the possibilities that measures which would be found as needful for management improvement (based on analyses of acquired data) can be implemented. In addition it is of great importance to reduce the time from the moment of determination what should be the new management measures which has to be implemented till the moment of lunching those measures in the process. That task is mainly oriented to the technical managers which are under great pressure to satisfy market driven dements for fast and reliable improvement of the process.

There are a lot of data which can be acquired and which are relevant for global management of agricultural business. A few of them which are of particular interest for management in agriculture. Those are data which gave insight to the:

(i) Expenses in energy consumption. Since energy aspect is of especial interest nowadays, for appropriate management decisions, the energy consumption, especially fuel consumption by agricultural machineries, is of great importance.
(ii) Duration of each in-field operation. Actually, duration of particular operation is of the importance since it can make serious impact to the total efficiency of agricultural business. Firstly, the longer time in operation means more expenses based on expenses for employees involved in it. In addition, longer duration of particular operation can reduce possibilities that some other operation can be done on time (based on insufficient machine recourses). It is

evidently that insufficiency of machines can be solved with new investment but, that is, again, related to the higher expenses.

(iii) Expenses related to the application of sprayers and fertilizers. Those expenses are not only direct expenses but also indirect expenses since applying of more pesticides and fertilizer creates more problems in ecology.

(iv) Expenses related to the crops removing. Etc.

One can easily recognize that acquiring data from agricultural operations and in that way enabling managers to make appropriate decisions is extremely difficult. For example, it is obvious that fuel consumption can be measured very difficult in the way which would enabled its allocation to each particular field and operation. Or, buy using sprayers and fertilizers, it is close to impossible to measure mass of chemicals disposed to each particular field and to put that in correlation with yield from that field.

THEORETICAL APPROACH TO THE NEW PROTOCOLS FOR FARM MANAGEMENT

The concept of the system defined in ISO 11783 is based on common situation on nowadays machinery already fitted with electronic networks which are in use for data interchanging among different controllers and their instruments. All those systems are covered with ISO 11898 and ISO 11783 standards. The last one is of particular interest for improvement in management activities in agriculture since it contents the following parts:

- Part 1 – General Standard
- Part 2 –Physical Layer
- Part 3 – Data Link Layer
- Part 4 – Network Layer
- Part 5 – Network - Management Layer
- Part 6 – Virtual Terminal
- Part 7 – Implement Messages Layer
- Part 8 – Drive Train
- Part 9 –Tractor ECU
- Part 10 – Task Controller & Management – The part important for the managers (see Fig. 1)
- Part 11 – Data Dictionary
- Part 12 – Diagnostic Services
- Part 13 – File Server
- (Part 14 – Sequence Control)

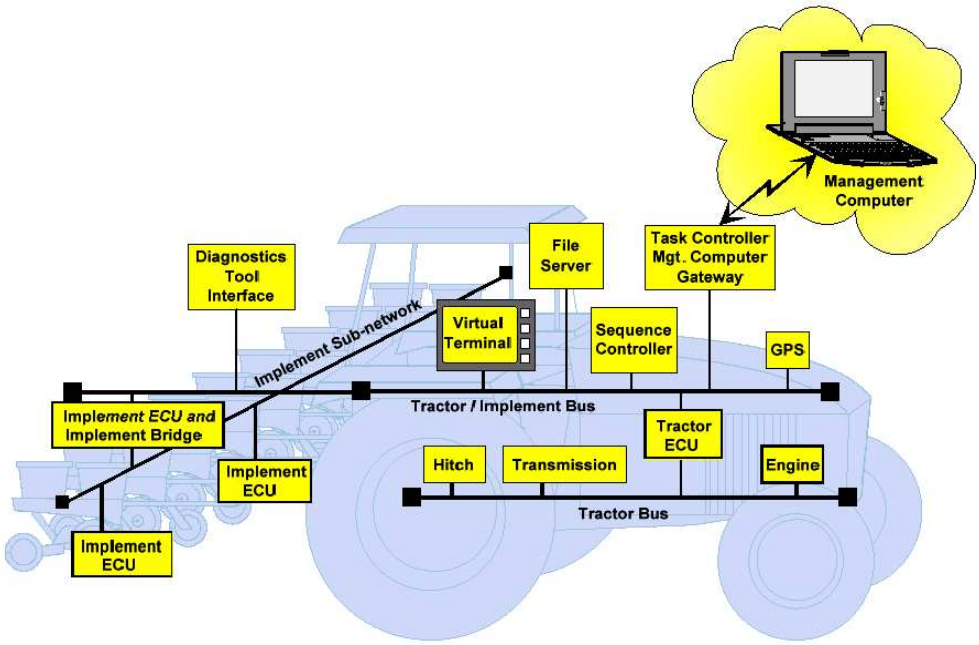


Figure 1- Hardware base for Task Control and Management on farm machineries.

In spite of the fact that there are a few protocols which are in use on agricultural machines' networks it is of importance to be noted that all of them are based, mainly, on the same physical layer which is, nowadays widely accepted by all producers. That is physical layer defined through ISO 11898 or frequently named as CAN 2.0B. As it is given in Fig. 2- right, all data which has to be transferred through this layer have to be organized in frames which start with SOF (Start of Frame) character, followed by 29 bits CAN identifier, RTR character, Control Field, 0 to 8 byte Data Field, CRC Field, Acknowledge Field and EOF (End Of Frame) bits.

From the message format is clear that data of interest for the managers would be placed in Data Field. But, to be in position to use those data a few problems have to be solved. Those problems are mainly related to the CAN identifier (ID).

As it is defined by ISO 11898 CAN ID has to be 29 bits long. But, different protocols use that identifier in different ways. For this investigation it is of importance to be oriented to the protocols which are dominant for engine and implements. As per situation in the market those controllers are mainly based on SAE J 1939 protocol. SAE J 1939 is a protocol with all 7 layers, but for the first two layers (lower two layers) it takes definition from ISO 11898 i.e. CAN 2.0B bus. Before establishing data acquisition from CAN bus it has to be analysed in which way SAE J 1939 uses CAN's identifier. In brief, in J 1939 the first 3 bits of ISO 11898 Identifier (ID) are in use for priority (000 for the highest priority and 1111 for the lowest priority). The next 18 bits are in use for PGN or Parameter Group Number.

The PGN is the key element for understanding possibilities for service data acquisition from the existing vehicle's network. Actually, all data which have to be sent to the CAN bus are organized in the groups. For example, all data relevant for the electrical transmission controller would be placed in the data message (according to the SAE J 1939 terminology: PDU i.e. Protocol Data Unit) in which PGN would be 61442 and 61445. Data available in messages (i.e. messages Data Fields) with stated PGN(s) would be: transmission selected gear, transmission actual gear ratio, percent of clutch slip, transmission input shaft speed, etc. It is clear that lot of data significant for transmission service load are already available on the vehicle bus in the messages with appropriate PGN's.

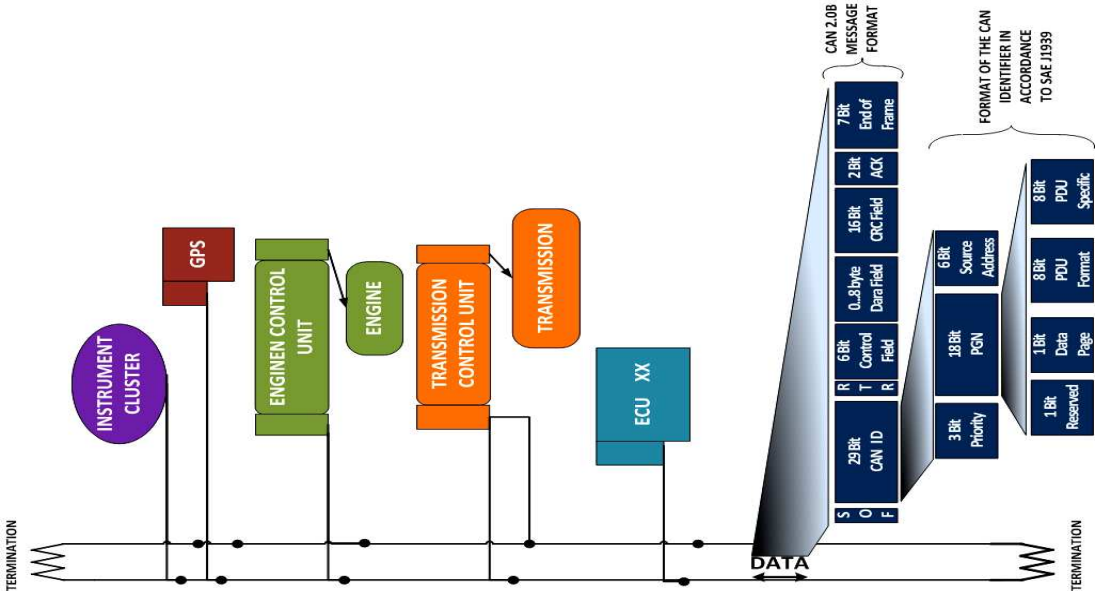


Figure 2.: CAN bus - base for implementation farm management in line with ISO 11783.

It is clear that for the concept of acquiring service load data it is essential to be familiar with the PGN concept. Unfortunately, the concept of PGN and establishing CAN identifier is not as simple as said above. Strictly speaking, PGN has 4 parts: Reserved bit, Data Page bit, PDU Format - 8 bits and PDU Specific - 8 bits. Also, it has to be recognized that PDU Specific can be defined in two different ways based on the value of PDU Formats: as the Destination Address (for PDU Format values 0 to 239) or as Group Extension (For PDU Format values 240 to 255). All of this makes approach to the messages on the CAN bus (PDU) very complicated and can cause a lot of problems. As it was explained, defining the proper PGN is not sufficient for successful data acquisition i.e. acquiring of data of interest from the

CAN bus. It is also important to know the position of the value of interest in Data Field. The Data Field is 8 bytes long and encloses different data. Their allocation in Data Field must be known for proper data extraction.

Based on explained concept of data flow trough CAN bus it is obvious that first interest in establishing the system for data acquisition has to be oriented to providing of adequate software tools for PGN, CAN Identifier (ID) and Data Field evaluation.

THE MANAGEMENT ASPECT – A NEW BUSINESS MODEL

As it was noted ISO 11783, Part 10 defines the task management, communication between task controller and electronic control units as well as data transfer between farm management information system and mobile implement control system.

The farm management information system is the complex of farm computers and management software while the mobile implement control system is group of devices that are coupled by ISO 11783 network. A task controller is the primary electronic control unit (ECU) on the agricultural machine responsible for sending, receiving and logging of process data.

The central atomic data management unit that comprises the agricultural resources, products, and operations is called task. A maximum of one task can be active concurrently on a single task controller.

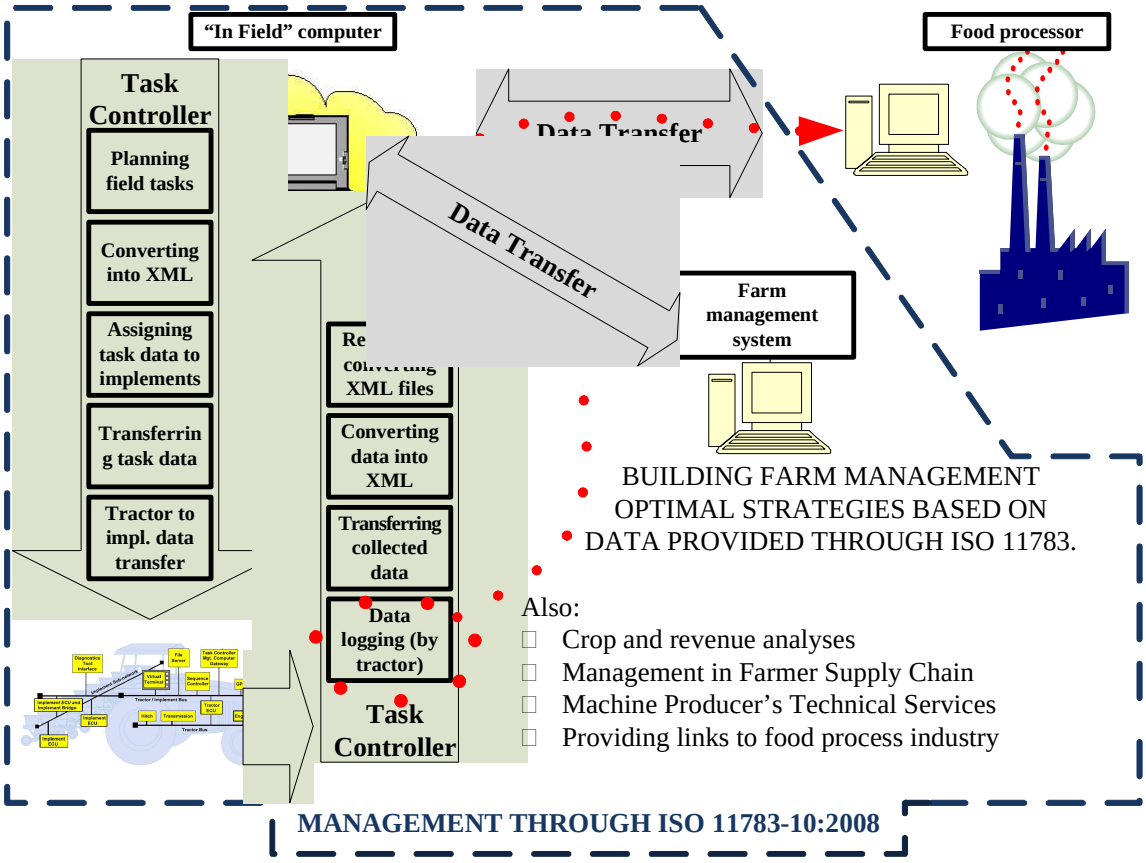


Figure 3: The farm management information system with implementation of ISO 11783-10.

As it was given in Fig. 3. the importance of Tack Controller comes from the possibility that it can be configured to control each particular task i.e. application which means that it contains all data for particular in field application. A task contains all necessary data for a field operation. The Task Controller also sends out all commands to a controlled implement during field operation. A Task Controller is typically used for example for precision farming. When the application rate of a sprayer

depends on the current position the Task matter Controller will prepare the sprayer with updated data during field operation. Another important aspect of the Task Controller is the logging capability. A Task Controller will not only accept and run tasks. A Task Controller will also log and report actual field application data back to the farm management system.

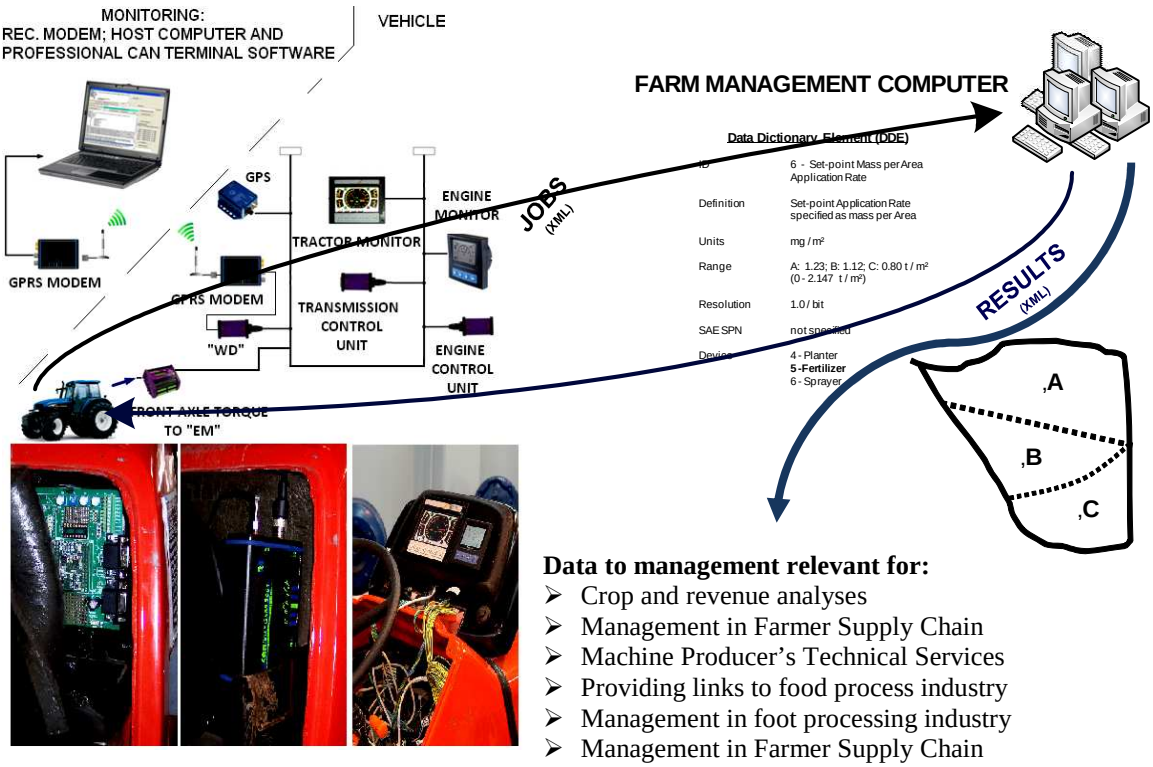
EXPERIMENTAL RESULTS ON APPLICATION

This section deals with implementation of the approach explained above i.e. system based on ISO 11783. The agricultural tractor with service mass of 2850 kg, mass distribution front : 1250kg, rear: 2600 kg, rated engine power of 66 kW at 2250 rpm with transmission concept 6x2 gear ratio forward, 4 WD and with it's own CAN bus was fitted with Watch Dog (WD) hardware, Extension Module (EM) hardware and GPRS modem as given in the Fig 4. On the "receiving" side it was established the server with installed "Professional CAN Terminal" software and receiving GPRS modem.

Tractor was submitted to the two types of tests:

- Regular service application (haulage, in field operation, etc.) as per predefined scenario and
- Non regular service application i.e. special tests created for in detail investigation of CAN based acquisition system's capability.

The important issue related to the management is given in the Fig. 3. As it is given in the figure the management process starts before operation starts. Actually, the manager of the process has to define the task on farm computer in which he can allocate different field in which agricultural machineries will perform operations. That part is visualized with at the bottom right on Fig. 4 where one can allocate fields marked with A, B, C, etc. Once when some kind of "splitting" of whole agricultural area of interest was done one has to define parameters of the DDE. It has to be recognized that in example given in Fig. 4 the DDE defines the deposit of the compost. It is obvious that, depending on operation, this parameter can be different.



Data to management relevant for:

- Crop and revenue analyses
- Management in Farmer Supply Chain
- Machine Producer's Technical Services
- Providing links to food process industry
- Management in foot processing industry
- Management in Farmer Supply Chain
- Machine Producer's Technical Services

Figure 4: The farm management information system in application.

Once when parameters were defined the whole DDE has been transferred (XML format) to the machinery. Important aspect is that, in line with technology of interconnection of particular controller built in agricultural machine, controller will enable performing of the operation in the field as per defined DDE and as per request from the farm management.

At the end of operation agricultural machine establish communication with the farm computer and transfer the results of operation back to the person who manages the process.

It has to be recognized that in this way all data of interest for the management process has been transferred back. If we take in consideration that all operations, from ploughing till the removing the crop from the field are performed in the same way the set of available data would be at the level which will enable to the manager to analyze the efficacy of the strategy he implemented and to make corrections for the next season. (This aspect is given in Fig 3 left side).

Moreover, implementation of Task Controller enabled significantly new approach to the business. By taken in consideration the whole picture i.e. possibilities for shearing information provided trough Task Controller among:

CONCLUSION

The process of management in agricultural applications has pass trough significant changes which are caused by dramatically improvement in technology. The latest technologies based on standard protocols in line with ISO 11783 enables to the managers to deal with accurate data which are acquired in real time during all in field operations. In that way the manager is in position not only to have relevant information for his strategic decision, but also to implement the new concept immediately after its' design. Instead to be oriented to the indirect data acquiring and to deal with limited number of parameters the manager is in position to work with large set of data in real time.

The new concept is accomplished by building up dedicated hardware and software. The results of initial testing of all developed components indicate their good performances. Through initial testing of the development platform it was accomplished accurate acquiring data from agricultural tractor and its implementation in real service conditions. All conducted test were done with approach named as "Manager decisions transfer back" to the agricultural system (DDE transfer) with the results which confirmed that chosen approach is generally applicable for different agricultural systems which consider local networks.

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E-COMMERCE IN B2C MODEL EXAMPLE

Marko Zakic, M.Sc
Higher School of Professional Studies Blace, Serbia, m.zakic@its.rs
Vladimir T. Mladenovic, M.Sc
Higher School of Professional Studies Blace, Serbia, v.mladenovic@vpskp.edu.rs

ABSTRACT

E-business in the broadest sense can be defined as any process that the organization carried out through computer networks, including one's internal and external communication flows. Electronic commerce is any transaction over a computer network, which includes the transfer of ownership or right to use goods or services. The transaction is executed within the selected e-business processes and is considered completed upon agreement between buyer and seller on the use of goods or services. Of course, the transaction may or may not be expressed in money. We have chosen to model the example of B2C company that provides Internet services and facilitate understanding of this example application and the benefits of B2C model. Potential on-line customers can check prices and availability of products on sites of different companies which is much cheaper and easier than the classical tour. A very important element in the model of B2C (Business to Consumer) is a wide range of information offered by users of B2C model. Of the Internet are wide and provides relief to wherever people are coming to all relevant information about offered products and services. E-commerce on the route from company to consumer or B2C mostly makes electronic shopping, electronic retailers, but also includes the provision of information through the network, use an online game, and the like. Form of business on the Internet that provides a direct interface between businesses and consumers. Consumers to order products and services electronically from the company. Internet provides various opportunities and marketing approach allows companies access to mass consumer products and services electronically. This category of electronic commerce has significantly increased the development of the web. Inetrnet operators for many years the benefits of electronic commerce, making it simpler for themselves and their business clients. We will in this paper show that the models and how they use the said firm. They operate on the territory of Serbia, and these options has improved interactivity with their users (customers). Potential or current user of the information can get on your computer, without going to the dealer or any contact with the seller, he can register or extended user account, create an e-mail account etc.. Internet operators is the introduction of B2C e-commerce in their business and facilitate perfected and thus raised its operations to a larger level. Internet presentation is intended to form the portal business with end users (B2C). In addition to information about services, current information, a site visitor has the opportunity to register as a new user, to extend the time as an existing user, change data, etc..

Key words: E-business, e-commerce, Internet, B2C, Internet provider

1. INTRODUCTION

E-business in the broadest sense can be defined as any process that the organization carried out through computer networks, including internal and external communication flows. The success of the business of a legal entity in Serbia depends on finding a place in the world division of labor, which becomes part of global business processes, which requires electronic business. Electronic commerce is any transaction over a computer network, which includes the transfer of ownership or right to use goods or services. The transaction is executed within the selected e-business processes and is considered completed upon agreement between buyer and seller on the use of goods or services. Of course, the transaction may or may not be expressed monetarily.

The division of electronic commerce on the basis of relations between the participants:

- B2C (Business to Consumer)

- B2B (Business to Business)
- C2C (Consumer to Consumer)

2. THE APPLICATION OF B2C MODEL ITS.NET

In addition to outlets, telephone and email support, potential or existing customer all the necessary information can find on the website of the company ITSOLUTIONS.NET which can be found at www.my-its.net. Internet presentation is intended to form the portal business with end users (B2C). In addition to information about services, current information, a site visitor has the opportunity to register as a new user, to extend the time as an existing user, edit information and so on.

On the home page of the presentation is optional MY ITS whose selection dialog appears to register a new or existing user authorization in order to be granted access to services for the users.By selecting Create a new account, a site visitor is sent to a page to register a new account.

Figure 1. www.my-its.net home page

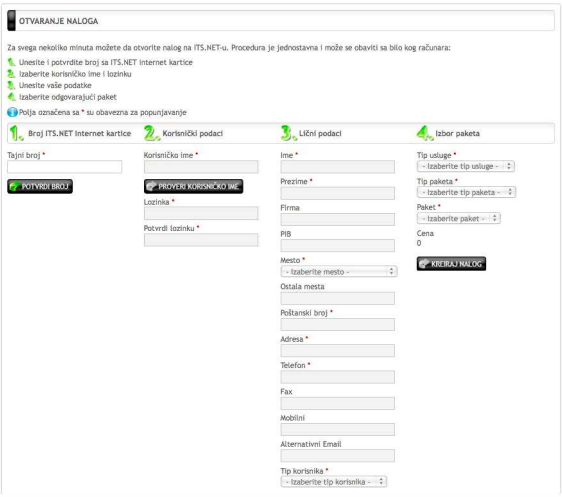

Figure 2. Account registration form

As is evident in the Figure 2., the procedure of registering a new account is very simple. The first step is to enter a secret number which is available on the voucher or via SMS. After validation of the secret, chooses a user name and password (there is an option to check the availability of user names), fill out the personal information and choose the package that has already been decided on the voucher (5, 10, 20 hours).

After successful registration account, the user can log in (authenticate) for use of customer service (Figure 3).

Figure 3. Costumer service home page

By entering a user name and password, and clicking the MY ACCOUNT user is reported to customer service. On the home page, customer service user receives a welcome message, for active service

package and review the received e-mail messages. On the right side of the page for customer service, the user has the option to choose several options:

Personal data

On this page the user has the ability to update your information if there has been some changes (phone number, etc.) (Figure 4).

Figure 4. Personal data page

E-Mail

E-mail option allows users to change passwords on the existing e-mail account or create a new e-mail account (registered user has the ability to open three e-mail account) (Figure 5).

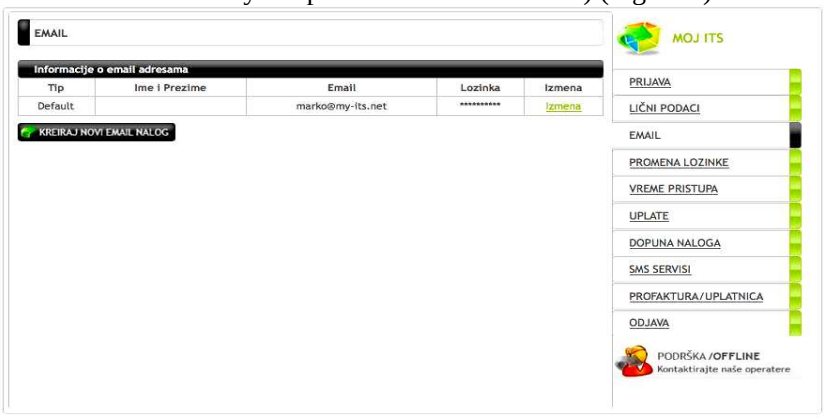

Figure 5. E-mail page

Change password

Here the user has the ability to change an existing password for your account. Having already authorized access to the very customer service, no need to check the current password but only enter a new one. (Figure 6)

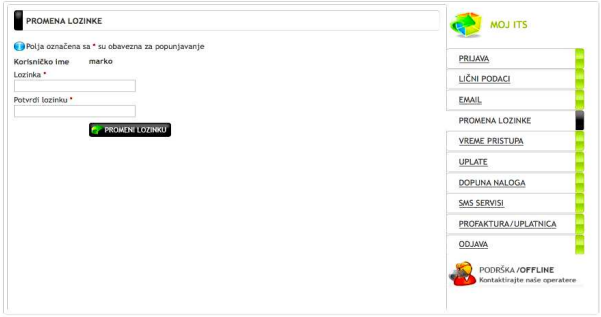

Figure 6. Password change page

Access time (Accounting)
This option provides the ability to obtain services for use with the statistics for each login separately. The user selects a service, the period for which the access time and pressing the *filter* gets an overview that includes the start and end of service, assigned IP address, telephone number from which the used services (workstation), amount of sent (upload) and recived (download) data and at the end of the duration of the specific session. (Figure 7)

Figure 7. Accounting page

Payment
This option provides for payments for a certain type of services and a certain period, with data on the active packet, the duration and time remaining. (Figure 8)

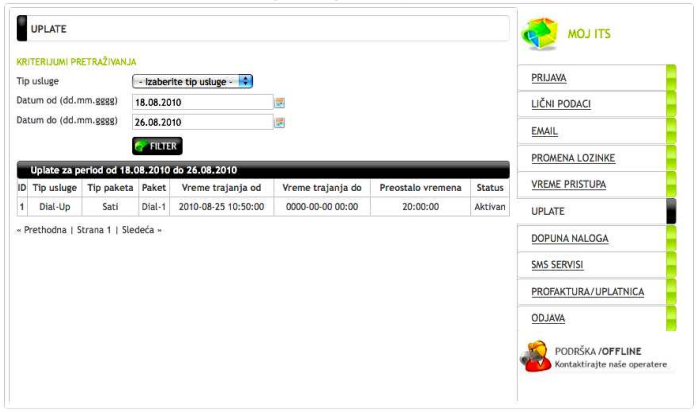

Figure 8. Payment method page

Amendment to order
Amendment Order is provided to users who buy (or receive) a voucher. As with registering a new account, update account voucher is done by entering a secret number and after its validation the type of service package and the amending order. Difference with the creation of a new account is that the user has already registered and does not need to enter personal information. (Figure 9)

SMS Services
SMS service allows a user to register his mobile number and receive information about the time remaining in his account. To check the remaining time just send a text message to 3007 (no prefix network) and receive a return message with the type of active packets and the time left in your account. (Figure 10)

Invoice/Payment slip
This option allows the user to select a package of services and creates an invoice for payment. Depending on the type of users and form of payment, the user can create payment slip (for residental) or invoice (if payment is made for company). (Figure 11)

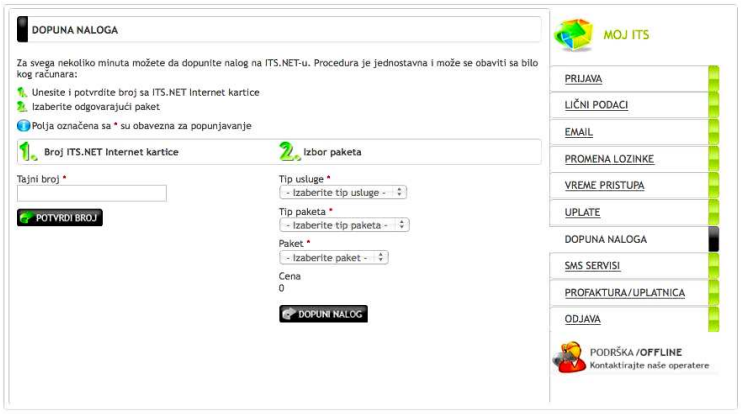

Figure 9. Amendment Order page

Figure 10. SMS Services page

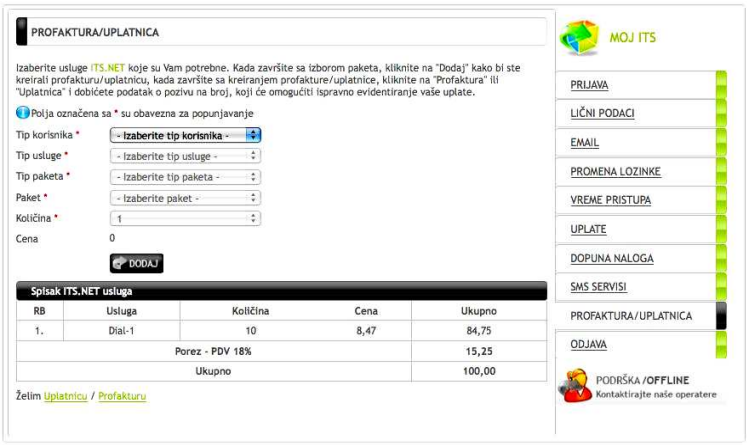

Figure 11. Invoice page

ITSOLUTIONS.NET company operates in the territory of Serbia, and these options has improved interactivity with their users (customers). Potential or existing customer information can get on your computer, without going to the dealer or contact the seller may register on or extend the user account, create an e-mail account etc.

3. CONCLUSION

By visiting the website, potential or existing customer can get information on his computer, without going to dealer or contact the seller, may register on or extend the user account, create an e-mail account, see all the information about the service and its use, etc. This model of B2C business (trade) is significant and has many benefits, one of them is online cervice order (service).

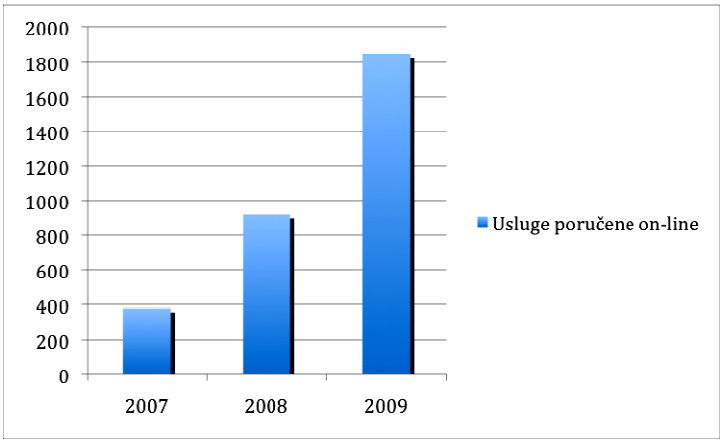

Figure 12. Number of service orders through the Web Site

One of the advantages in terms of better and easier operation and number of telephone calls to info services and technical support. Namely, the web site contains all relevant information about services and service packages offered to customers, and customer service to existing users to manipulate your customer account and service packages that are selected. Next we illustrate that in a given period, the number of calls fell by more than 50%.

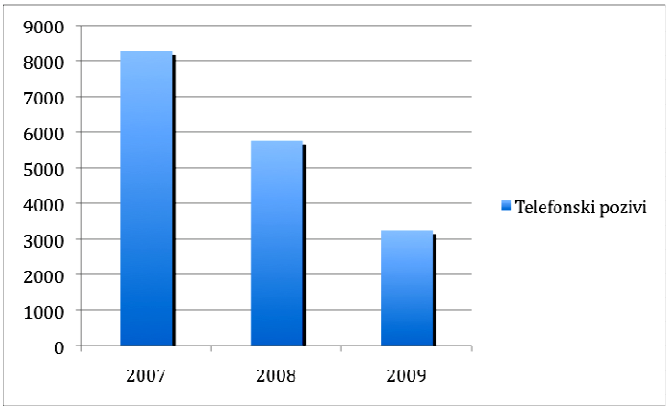

Figure 13. The number of phone calls to Info and Technical Support

Implementation ITS.NET Administrator application to business firms ITSOLUTIONS.NET, with its modules for e-business and e-commerce services, is a contemporary form of business company that cares about its customers and partners.

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BALANCED SCORECARD FRAMEWORK IN SOFTWARE PROJECT MONITORING

Ljubica Kazi, M.Sc*
University of Novi Sad, Technical faculty "Mihajlo Pupin" Zrenjanin, Serbia
leremic@tfzr.uns.ac.rs
Radosav Dragica, Ph.D
University of Novi Sad, Technical faculty "Mihajlo Pupin" Zrenjanin, Serbia
radosav@tfzr.uns.ac.rs
Milan Nikolić, Ph.D
University of Novi Sad, Technical faculty "Mihajlo Pupin" Zrenjanin, Serbia
mikaczr@sbb.rs
Narendra Chotaliya
H&H.B. Kotak Institute of Science, Kotak Science College, Rajkot, India
,narendra.chotaliya@gmail.com

ABSTRACT

Balanced scorecard is performance measurement system in enterprises and non-profit organizations. Many scientists and pracitioners adapted balanced scorecard to specific applications.This paper presents overview of implementing balanced scorecard in IT project management. We propose framework for software project monitoring based ob balanced scorecard and PRINCE 2 methodology for project management.

Key words: balanced scorecard, software project management, PRINCE 2 methodology, project monitoring

1.INTRODUCTION

Business performance management (BPM) can be described as a series of business processes supported by technology designed to optimize both the development and the execution of business strategy (Krolick et al, 2006). BPM standards group defined a BPM framework: an organization define strategic goals, create plan for implementing them, measure and analyze effectiveness of strategy implementation, determine the gap between actual and targeted performance and take corrective actions to improve performance (BPM group).

"Performance measurement is evaluating how well organizations are managed and the value they deliver for customers and other stakeholders". (Bocci 2004) The significance of performance measurement is described in well-known sentences: "if you can't measure it, you can neither manage it not improve it" and "what gets measured, gets done" (Kaplan et al, 1992). Performance measures must be (PerfMea): meaningful, unambiguous and widely understood; owned and managed by the teams within the organization; based on a high level of data integrity; such that data collection is embedded within the normal procedures; able to drive improvement; linked to critical goals and key drivers of the organization. There are four key steps in a performance measurement framework (PerfMea): the strategic objectives of the organization are converted into desired standards of performance, metrics are developed to compare the desired performance with the actual achieved standards, gaps are identified, improvement actions initiated.

2. BALANCED SCORECARD

"One of the best approaches to identifying the appropriate performance metrics (i.e. key performance indicators - KPI) is through the use of a methodology known as the Balanced Scorecard (BSC). The

Balanced Scorecard approach provides executives with a comprehensive framework that translates a corporation's strategic objectives into a coherent set of performance measures. It provides a framework that not only provides performance measurements, but helps planners identify what should be done and measured. It enables executives to truly execute their strategies. (About) The balanced scorecard approach is consistent with the concepts of cross-functional integration, customer supplier partnerships, continuous improvement and team accountability. (James) Since "not all long term strategies are profitable strategies." (James), Kaplan and Norton expanded the existing view of performance metrics, which were then primarily financial, into four perspectives:
(1) financial,
(2) internal business,
(3) customer, and
(4) innovation and learning (i.e. learning and growth)." (Krolick 2006)
The balanced scorecard suggests that we view the organization from four perspectives that effect each other in the process of implementing vision and strategy. Generally speaking, improving performance in the objectives found in the Learning & Growth perspective enables the organization to improve its Internal Process perspective Objectives, which in turn enables the organization to create desirable results in the Customer and Financial perspectives. (About) These four perspectives give a framework for developing metrics, collecting data and analyzing it relative to each of these perspectives (About).

- LEARNING AND GROWTH PERSPECTIVE includes employee continual learning, training, corporate cultural attitudes related to both individual and corporate self-improvement, ease of communication among workers as well as technological tools for knowledge management (About) This perspective "involves goals and measurements related to continuous improvement in the company's ability to innovate, improve and learn." (James)

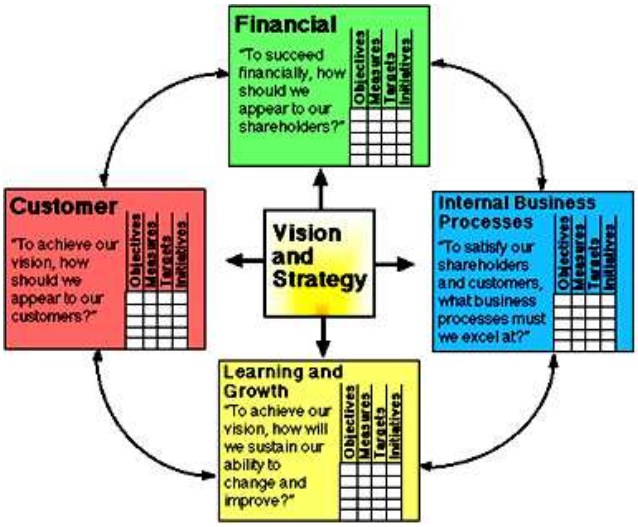

Figure 1: Balanced scorecard perspectives (About)

- INTERNAL BUSINESS PROCESS PERSPECTIVE - metrics based on this perspective allow the managers to know how well their business is running, and whether its products and services conform to customer requirements." (About) This perspective "includes the business processes that have the greatest impact on customer satisfaction, such as those that affect cycle time, quality, employee skills and productivity. These measurements should be decomposed to the local levels to provide linkages to upper level measurements on the scorecard to insure that lower level employees have clear targets for actions and decisions that contribute to the company's overall mission." (James)
- The CUSTOMER perspective importance of customer focus and customer satisfaction In developing metrics for satisfaction, customers should be analyzed in terms of kinds of customers and the kinds of processes for which we are providing a product or service to those customer groups. (About) Metrics include categories such as: lead time (i.e., time from order receipt to delivery) and quality (e.g., defect levels) of products and services(James).
- The FINANCIAL PERSPECTIVE - Metrics could include timely and accurate funding data, risk assessment and cost-benefit data, (About) cash flow, sales growth, market share, operating income and return on equity, operating expenses, asset turnover (James).

3. OPERATIVE IMPLEMENTATION OF BSC

Operative usage of BSC is ilustrated in e-government application (Dobrović et al. 2008). Activities are grouped in four levels, associated with appropriate working roles:

1. Government: Development policy determining, approving vision, approving strategic goals.
2. Management: defining vision, defining strategic goals, identifying SWOT elements, SWOT elements ranking, defining strategies, identifying activities for strategy implementation, defining activity goals, defining relationships among goals, identifying metrics, determining relationships among measures, reviewing strategies, managing by BSC model
3. BSC model administrator: BSC model updating, metrics feeding, data source creating, preparing BSC model validation, model validating
4. Database administrator: database administration, extending functionality (adding new data resources)

Authors in (Dobrović et al. 2008) describe the process of BSC operative implementation starts with government who determine development policy. Management of a public sector organization then define vision and strategic goals (previously created by using SWOT analysis) and government approve them. To achieve these goals, management define relationships among goals, strategies and activities for strategy implementation, identify metrics for activity success measurement. This way, management create BSC model, while BSC model administrator's role is to continuously update BSC model according to changes of goals, strategies, activities and metrics and to link metrics with data that feed them. Database administrator's role is to do administration of a relational database or other data sources and to extend their functionality as needed by BSC model changes.

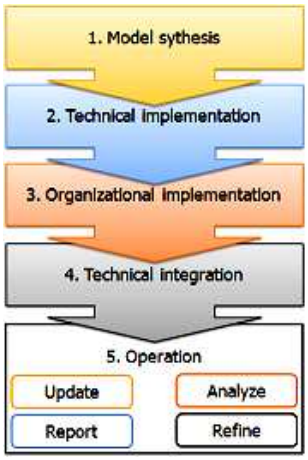

Figure 2. BSC implementation phases (Virtanen 2009)

To accomplish complex tasks of data feeding and processing for analysis and visualization, many commercial software solutions are provided. Generally they can be categorized as stand-alone applications and integrated solutions. One of solutions is QPR software system (Virtanen 2009) that enables integration of BSC software with data warehouses, databases and spreadsheets, such as MS Excel, for feeding BSC metrics. Additionally, in (Virtanen 2009) is described that "common tools used to help structure the strategy work are: Strategy Mapping, PEST (Political, Economical, Societal, Technological) analysis, SWOT (Strengths-Weaknesses-Opportunities-Threats) analysis, Porter value chain analysis, Porter Five forces of competition analysis, BCG Matrix analysis". Finally, it is suggested that introducing BSC to an organization need to be guided as a "management system development project, rather than an IT project", and that this process of including of BSC to everyday management practice need to follow these phases: model synthesis, technical implementation, organizational implementation, technical integration, operation (Update, Analyze, Report, Refine).

4. BSC IN IT PROJECT MANAGEMENT

Information Technology Aspects if BSC implementation include:
1) IT projects management:

- Alleman (Alleman, 2003) discuss that balanced scorecard and project management should be unified (especially for IT project focused organizations) in aim to link strategy and implementation.
- Brock (Brock et al 2003) proposes model of balanced approach to IT project management.
- Asosheh (Asosheh et al 2010) propose integration of balanced scorecard and data envelopment analysis (DEA) for information technology project evaluation in the process of selecting among project proposals.
- Control Objectives for Information and related Technology (CobiT) framework (CobiT 4.1. 2007) include linking business goals to IT goals, providing metrics (based on BSC) and maturity models to measure their achievement and ensure that the enterprise's IT supports the business objectives.

2) Software projects management:

- Specific methodologies, such as agile approach resulted in agile balanced scorecard (Agile), which emphasizes teamwork, velocity, reliability and performance as key metrics categories.
- Software Engineering Institute describes the synergistic application of the balanced scorecard and goal-driven measurement methodologies (goal - question - (indicator) - measurement) to develop measures and associated indicators (Goethert 2003).

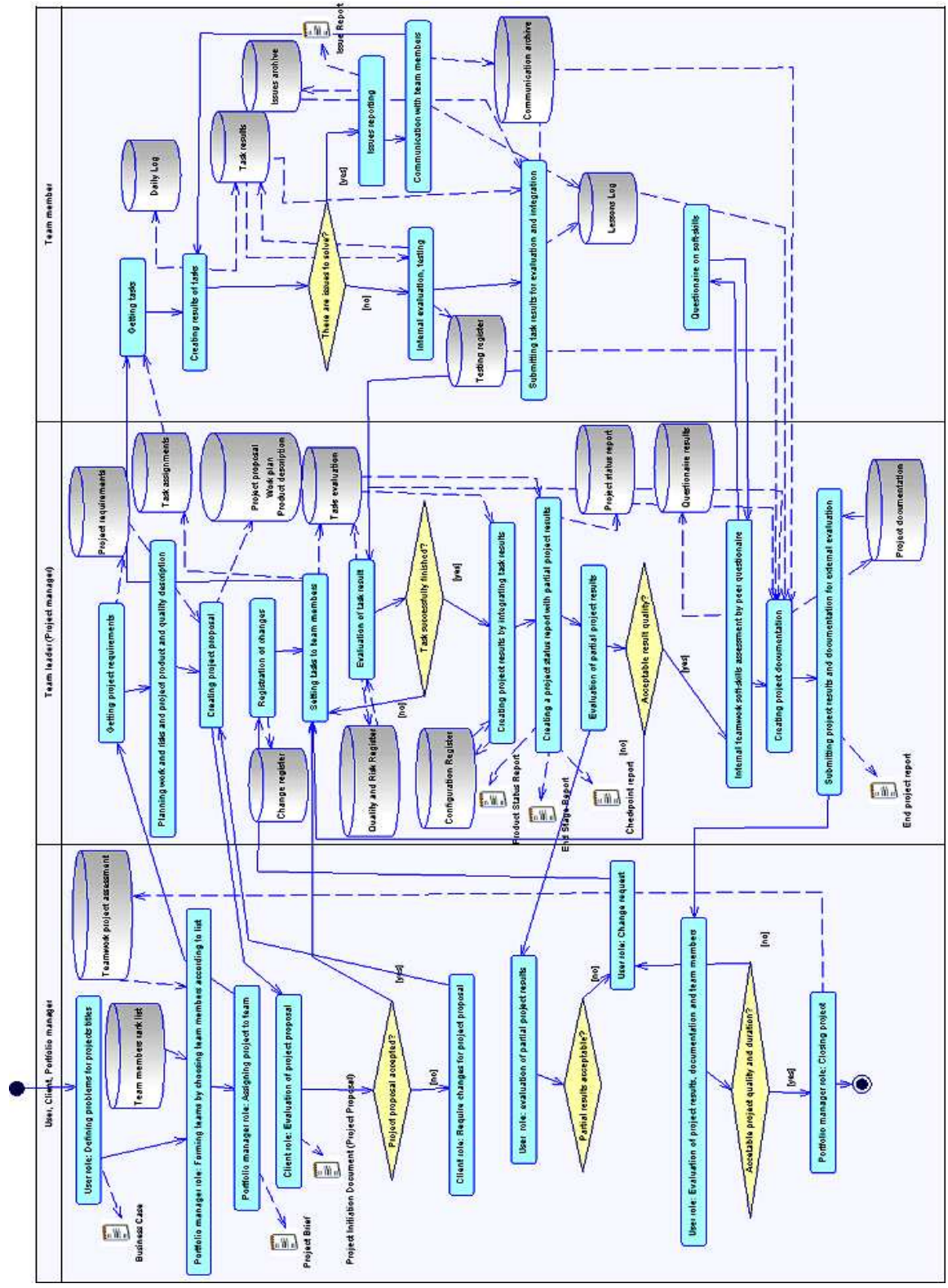

Figure 3. Business process model for software project management according to PRINCE2

5. BALANCED SCORECARD FRAMEWORK IN SOFTWARE PROJECT MONITORING

In this section we present business process model (Figure 3.) of project management activities and data stores according to PRINCE 2 project management methodology and document templates (PRINCE2Templ). Based on this business process model, we present balanced scorecard framework that describe elements of software project monitoring and evaluation from both process and product perspective.

Table 1. BSC model for software project monitoring

Scope	Perspective	Goal	Measurement	Data resource for measures
Process	Quality of team members	Choose quality team members	Team member rank (position at list)	Team members rank list
		Team member behaviour positively assessed	Assessment points at peer questionaire	Questionaire results
	Project proposal	Project proposal according to requirements	Number of change requests according to project proposal	Project proposal Change register
	Tasks	Achieavable results in project proposal	Percent of software functions implemented	Task results
		Setting achievable tasks	Number of issues per task	Task results, Issue register
			Number of tasks implemented per day/week/month	Task results
		Tasks finished within time and quality	Number of tasks finished at specified time	Task results
			Number of tasks finished at specified quality	Task results
			Number of functionalities implemented per day	Daily log
			Number of implemented use cases	Task results
			Number of software functions	Task results
		Not excessive workload to team member	Number of tasks per team member	Task assignments
	Issues	Minimum issues	Number of issues	Issues archive
			Number of issues per task	
			Number of issues per team member	
			Number of unsolved issues	
	Communication	Minimum communication	Number of messages	Communication archive
		Maximum clarification of tasks	Number of clarifying messages regarding tasks	
		Maximum team cohesion - mutual help	Number of issues solved by messages from team members	
Product	Partial results	Partial results according to project proposal	Number of change requests for partial results	Tasks evaluation
		Partial results according to user requirements and expectations	Number of change requests for partial results	Change register
	Integrated product	Has all modules integrated	Percent of modules integrated	Configuration register
		Has all functionality specified	Percent of software functions realized comparing to required number of software functions	Project proposal Task results
		Has minimum bugs	Number of test cases executed	Testing register
			Number of bugs resolved	

6. CONCLUSION

Balanced scorecard is widely accepted as performance measurement system as well as strategic management system. Many scientists and practitioners applied BSC concept as performance measurement system in the field of IT. This paper present a comprehensive survey on state-of-art in the field of applying balanced scorecard in IT sector, specially in IT project management. This way it is possible to use BSC framework at other fields of IT, such as data modelling evaluation or specific software project management performance measurements. By developing new BSC frameworks, it is

possible to enable creating new software that could be based on those frameworks. These software would be useful in systems such as large software producing companies.

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INTEGRATION OF CONCEPTUAL DATA MODELLING METHODS IN INFORMATION SYSTEM DEVELOPMENT

Ljubica Kazi, M.Sc*
University of Novi Sad, Technical faculty "Mihajlo Pupin" Zrenjanin, Serbia
leremic@tfzr.uns.ac.rs
Zoltan Kazi, Ph.D
University of Novi Sad, Technical faculty "Mihajlo Pupin" Zrenjanin, Serbia
zkazi@tfzr.uns.ac.rs
Biljana Radulovic, Ph.D
University of Novi Sad, Technical faculty "Mihajlo Pupin" Zrenjanin, Serbia
bradulov@tfzr.uns.ac.rs
Ofelia Stanciu
Tibiscus University, Faculty of Economics, Timisoara, Romania
ofelia.stanciu@gmail.com

ABSTRACT

One of the most important phases of information system development include data modelling processes, where conceptual data modelling presents an essencial part. There are many approaches and methods formally based or those that give heuristics as guidelines. This paper aims to present integration of models for conceptual data modelling. Special emphasize is given to comparison of methods and integration of data modelling process with other processess in information system development.

Key words: data model, process, development, information system, integration

INTRODUCTION

One of the most important phases of information system development include data modelling processes, where conceptual data modelling presents an essencial part. In fact, data modelling cant be separated from information system development, since it is based on results of previous phases and give results to following phases.

There are many approaches and methods formally based or those that give heuristics as guidelines. Some of these approaches are formally presented as algorithms that are basis for automated model generating. Automated systems can process their results only if they get data from projectants, so human role is crucial.

During data modelling process there are different activities and responsibilities of human roles. Most researchers and book authors in the field of database design agree that major responsibility to quality of data model is on database designer. His formal methodology and heuristics knowledge, intellectual skills and experience is crucial.

In this paper, we aim to analyze different methods and approaches for data modelling and to integrate them in order to have complete procedural framework for conceptual data modelling. This framework would improve educational and professional activities in conceptual data modelling.

INFORMATION SYSTEM DEVELOPMENT

Information system (IS) can be defined as a system which assembles, stores, processes and delivers information relevant to an organization or to society, in such a way that the information is accessible and useful to those who wish to use it, including managers, staff, clients and citizens. An information system is a human activity system which may or may not involve the use of computer systems (Avison et al., 2003). Information system is a backbone of every organization and its business.

Automated information system include components:

- software - including program applications, operative system, database management system, database, other applications (such as antivirus, office tools etc.)
- hardware - including personal computers, network equipment, servers, UPS, etc.
- lifeware - human personnel with their knowledge, skills, abilities, motivation etc.
- orgware - organizational forms, procedures, documents that describe business process procedures and constraints etc.

There are many methodology approaches to information system development, but most of them agree about major phases:

1. Business / Client requirements capturing and analysis - knowledge about business processes workflow and data needs ic captured by documentation analysis, questionaires, interviews, on-site monitoring etc. Client requirements are then more precisely captured by specific client who defines restrictions, specific conditions and functionality of solutions, expectations regarding functional and non-functional features.
2. Business process and data flow modelling - functional and information needs specification is formally presented by using business process and data flow diagrams, with data dictionary and semi-structured textual specifications where business processes, data flows and data stores structures are presented.
3. System design - include software specification and data modelling. Software specification include modelling of dynamic aspect of solution, i.e. software arhitecture and functionality, as well as static aspect - data models.
4. System construction and testing
5. System / module delivery and client feedback
6. System maintainance and change engineering / management.

These phases are implemented within the complexity scope of information system according to number of business processes in an organization, so more complex systems require division to ubsystems and application of these phases separately for each subsystem. Recent approaches introduce agile application of activities of these phases, so smaller modules are to be implemented iterative and incrementally; client would get results frequently and gets more involved in the process (Agile, 2001).

DATA MODELLING PROCESS

Each data model has three components (Mogin et al, 1996):

- Structural component - entities (objects, events), relations
- Integrity component - business rules as constraints / restrictions - on values of attributes, relations etc.
- Operational component - operations on data (read, write, delete, edit)

The difference between data modelling and data projecting is in the scope of process. While data modelling focus is on database description, data projecting include whole process starting with requirements capturing, business process modelling, logical and physical database modelling as well as database deployment. (Naiburg et. al., 2001)

Multi-level architecture approach to database description gives three mayor categories (Mogin et.al, 2000):

- Conceptual shema - independent from DBMS, presents main concepts from business world

- Internal shema - database shema within DBMS
- External shema (sub-model, sub-shema) - view from particular data user / software application; each application or user see "his own" view to database, with restriction to only those entities that are related to "his needs".

Nine major phases of the process of database projecting, i.e. database design and implementation (Mogin et.al , 2000) are:

1. User requirements capturing, analysis and formal specification
2. Conceptual design (conceptual data modelling)
3. Database management system (DBMS) choosing,
4. Implementation design (logical design),
5. Design of internal database shema (physical design),
6. Description of shema and phyisical structure of database design by DBMS language,
7. Data entry to database,
8. Testing,
9. Performance adjustment.

The role of conceptual design is presented in Figure 1.

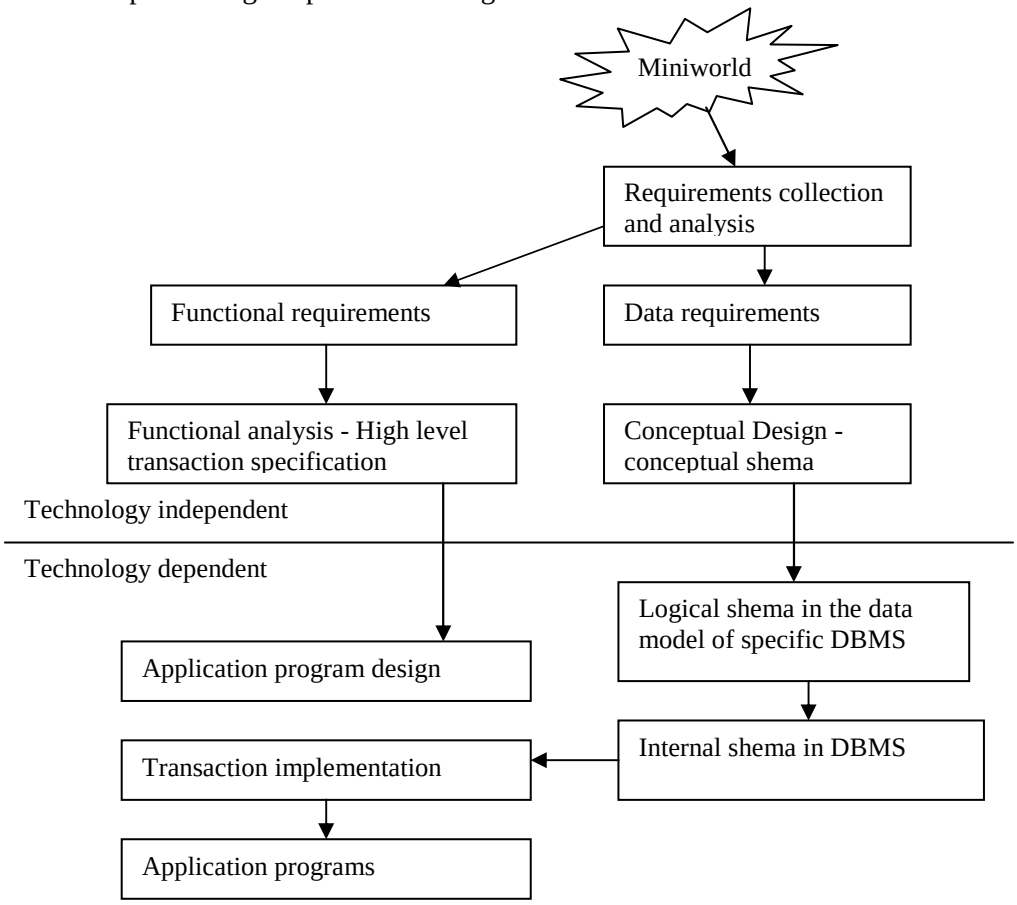

Figure 1. The role of conceptual design (according to: Elmasri et. al 2007)

CONCEPTUAL DATA MODELLING METHODS

In this section we will give list of different approaches with brief description of methods applied in conceptual data modelling. We present literature survey of autors from our country as well as foreign authors:

1. Grammar analysis of business domain textual description (Mogin et al, 1996) - basic approach to analysis of informal (not formal, not structured) text that describe knowledge about business

domain of an enterprise. Each noun is a candidate for entity, verb is candidate for relationship between entities. There are several heuristics regarding recognition and including specific forms of elements such as gerund, IS-A hierarchy etc.

2. Direct (complete) modelling vs. sequential (partial) modelling (Mogin et. al, 2000) - Direct modelling is one approach where all requirements from all user profiles and all views to database applications needs are collected and gathered as a single requirements list that presents a basis for creation of unique, complex data model. Sequential modelling approach introduce partial modelling for each external shema and integration of external shemas to complete shema for whole database. Sequential modelling is proposed as better solution in case of large-scale systems.
3. Integration of submodels, direct modelling based on text analysis, using design patterns, normalization of relations, transformation of models by direct and reverse engineering (Lazarevic et al, 2003):
   - Integration of submodels - Complete system is divided to subsystems by using functional decomposition by applying SSA (structured system analysis) method for business process and data flow modelling. Each primitive process is assigned a data sub-model, that is designed upon appropriate data flows and data stores that are used for that particular primitive process. By integrating sub-models, we get complete data model, but we must take care of consistency while integrating possible similar entities that could have different names. Using CASE tools would enable data dictionary and consistency validation.
   - Integration of submodels based on XML shema - XML shema structure could be basis for entity and relationship matching and data sub-model construction. By integrating those sub-models, we can get complete data model.
   - Direct modelling based on text analysis - For each use case there is a textual specification on action steps and flow, with exceptions and extension points. This text presents a basis for grammar analysis, where nouns are candidates for entities and attributes, while verbs are candidates for relations between entities.
   - Using design patterns - Patterns are general solution for class of problems. Professional working environment enable using data modelling design patterns that present general meta - model for class of domains, with possible adjustment to particular business domain needs.
   - Normalization of relations - Process of creation of relational conceptual data model, where each relation of the relational model should has appropriate normal form, avoiding anomalities (add, delete, edit data) that could occur in using database implemented according to that model. The main principles that normal forms are based upon are: functional dependency of attributes of relation and decomposition of relations (without loss of information) to other relations. There are 1st, 2nd, 3rd, Boyce-Codd's, 4th and 5th normal form. Data flows from SSA or XML messages data flows are starting material for analysis - they are not in any normal form and need to be processed for normalization. After analysis and decomposition to relations in normal forms, we proceed to synthesis, by consolidation and merging of relations that has equal identifiers.
   - Transformation of models by direct and reverse engineering - Direct engineering presents creating conceptual models according to needs and business specifications and implementing at particular DBMS. Reverse engineering implemented database bring back to a model representation.
4. Database modelling at each IS development phase (Naiburg et al. 2001) - For each of information development phase there are database modelling team to be engaged. This approach include using UML models in each phase, starting from business process modelling, requirements definition, analysis and preliminary system design. Elements from all previously created models are mapped to data model elements, like classess are mapped to entities, relations among classess to relations among entities, etc.
5. Iterative refinement for conceptual modelling, relational model normalization and operative efficiency adjustment of physical model (Elmasri et. al 2007) - Iterative refinement is applied at ER modelling level. "Conceptual design is considered an iterative refinement process, where initial design is created and then iteratively refined until the most suitable design is reached". Refinement of ER conceptual design is based on heuristics guidelines for design choices. Normalization (previously described at 3.) is applied at relational model, while adjustments for

operative efficiency are made at physical model level with implemented databases in specific DBMS. These adjustments include physical database design decisions such as indexing, denormalization to speed up queries, horizontal and vertical partitioning etc.

NEW DATA MODELLING METHODS

In this section, we propose new methods of direct modelling (Table 1).

Table 1. Contribution - proposed set of new methods for conceptual data modelling

IS development phase	Material	Method	Result	Activity order
Requirements of Business domain and client	Textual description of main processing object lifecycle	Grammar analysis of nouns and verbs - candidates for entities and relations	1st draft model - only entities	1
Business process and data flow modelling	SSA model	Creating submodels for each primitive process	Final complete model verification by dividing to submodels and checking: completeness or entities and relations. Each submodel has entities for reading and writing data, since each primitive process has input and output data flows	5
	Data dictionary - attribute	Each attribute from data dictionary has entity mapping ("belongs to some entity")	2nd draft model - adding attributes to egsisting entities (from 1st draft) or deriving more entities from attributes (attribute has to have an entity to belong to)	2
	Data dictionary - data store	Each data store from SSA model is to be normalized. Using substructure notations to analyze and derive sub -entities from a data store	3rd draft model - transforming each data store to set of entities and appropriate attributes, consolidating with entities from 1st and 2nd draft	3
Creating conceptual data model	1st, 2nd and 3rd draft data model	Creating a complete model by corrections and adjustments	Final model corrected by- Abstraction, redundancy validation, Adding missing attributes and identifiers, Extraction of general data from specific data	4
Creating physical model	Final conceptual model	Adding indexes for preserving semantic uniqueness	Physical (relational) model with added indexes	6
Implementing database		Automatically by using CASE tool	Database file, ready for data entry	7

These methods are used in teaching process of data modelling within subject: Information systems at fourth year of Bachelor study in IT engineering course at University of Novi Sad, Technical faculty "Mihajlo Pupin" Zrenjanin. During teaching and exam period, it has been shown that while students are facing real-world problems, in direct modelling of those large-scale systems they had problems of organizing complex set of draft results and finishing work on time. It was proved that sequential /partial modelling was a better choice.

INTEGRATION OF METHODS FOR CONCEPTUAL DATA MODELLING

In this section we present integration of all previously presented methods and strategies (Table 2).

Table 2. Integration of methods for conceptual data modelling

Strategy	Method	Material
Iterative and increment refinement		
At each IS development phase	Requirements collection	Text that describe business process and client requirements
	Business process modelling	Business process models
	System design	UML models of system design
Direct modelling	Complete model	
Sequential / partial modelling	Integration of submodels for each:	- primitive process from SSA
		- USE case from UML
	taking material:	- attributes
		- data flows (SSA)
		- data stores (SSA)
		- XML message
	Grammar analysis of text regarding:	Lifecycle of business process
		Use case specification - action steps
	Using design patterns	
	Normalization	Data stores
		Data flows

CONCLUSION

In this paper we presented literature survey on conceptual data modelling methods. We proposed new methods that supplement existing methods with detailed approach at some aspects. We also presented integration of all methods in aim to enable continuity of models in information system development.

Integrated model will enable framework for professional and educational purposes in the field of data modelling. This framework consist of strategic decisions, methods and material that is used for each of proposed methods.

Future work would include analysis of decisions that are made at each of presented methods as well as considering automation of applying methods or evaluation of conceptual models regarding appropriate method application.

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E-BUSINESS RELATIONSHIP MANAGEMENT

Danilo Obradović *
Higher School of Professional Studies-Blace, Serbia
danilo_obrad@yahoo.com
Bojan Vasović,
Higher School of Professional Studies-Blace, Serbia
bojan.vasovic@yahoo.com
Milan Deletić
Higher School of Professional Studies-Blace, Serbia
mdeletic@yahoo.com

ABSTRACT

Information in e-business gain a qualitative guideline - capital (knowledge capital) and become just as important as financial capital. Global economy development and global network has made a breaktrough for E-Business as new way of modern business. New rising market, based on World Wide network brings new possibilities in business, but also demands dramatic changes to basic way of trade, with new name e-Commerce. Selling over the Internet is becoming highly important. Companies now see tremendous opportunities in using the Internet. They identify how revenue can be increased and how costs of sales can be reduced by using the power of new edge the Internet. Nowadays the Internet is not just an additional sales channel but even more; it is the strategic sales channel through which the companies can offer their products & services. E-Business Relationship Management is managing of all customers, business partners and third parties through the Internet. It is not nothing else but Customer Relationship Management which contains two scenarios, Business to Business Scenario and Business to Customer Scenario. The Customer Relationship Management is the way to put our customer in the center of our business world. It is the solution that will give us all necessary information for successful managing our customers.

Key words: E - business, Management, E - commerce, Customer Relationship Management

1. INTRODUCTION

Internet technologies are fully opened their doors to the concept of e-economy by allowing for the creation of innovative business approaches in the field of sales, buying and creating internal business processes. Orientation of modern business organizations to a global market means the integration of information and communication technologies, which ensure the flow of data without spatial limitations.

Field of business operations and access management, which significantly changes the development of the Web as it serves to support the implementation of the usual daily tasks, but also helps in making strategic decisions of the organization, reflecting the success of the organization in a business environment. More demanding consumers and stronger competition, result in the development of new features and changes in the domain of business processes. In gaining market advantages, application and use of electronic resources as a virtual channel, and in business has proved to be cost effective and efficient way to exchange products and services.

2. E-BUSINESS RELATIONSHIP MANAGEMENT

In contemporary conditions, one of the basic parameters of a successful business is the quality relationship with customers. Customer satisfaction a good business cooperation, as well as

knowledge of customer needs, habits and desires, are unavoidable factors increasing their loyalty in terms of dynamic competition. Research has shown that there are numerous reasons why they were loyal, and therefore the retention of existing customers very important. Some of these reasons are as follows:

- sell the product / service to new customers 5-8 times more expensive than to sell existing customers
- an average unhappy customer will inform their bad experience with another 8-10 people
- Companies can increase their profits by up to 85%, increasing its annual customer retention by 5%
- probability of selling a new customer is about 15%, while the probability of selling an existing customer 50%.

All these and similar studies led to the understanding of the importance of existing customers, who can no longer be taken for granted, but must constantly work to improve services and relations with them. The manner in which it is best to do is learn as much about them and that information and knowledge use to personalize their services. Real information about the customer, are available at the right time in the right place have always been the key to success. In contemporary conditions, collection, analysis and use information about customers, in most companies is done systematically. A popular term for the overall process is the Customer Relationship Management (CRM), or translated into our language - Customer relationship management. Customer Relationship Management can be defined as a business strategy and communications with customers aimed at collecting information on customers who are used to increase customer satisfaction and loyalty to a relationship with them was better, longer and more profitable. It is a continuous business process at all levels of organizations focused on finding and retaining customers. CRM is an old concept - often used in small companies that have enjoyed the relationships that are created with customers.

The Customer Relationship Management is the way to put our customer in the center of our business world. It is the solution that will give us all necessary information for successful managing our customers. And if we look more dippers in the structure of it, we can ask our selves: What Customer Relationship Management solution has to have that we can provide good products & service to our customer? What it has to have that we can increase our sales and cat costs? What it has to have that our customer is satisfied with our offer? What it has to have that our employee who is working with it will be satisfied?

The answer is, the Customer Relation Management (CRM) solution has:

- to be open solutions that flexibly supports all customers-driven tasks,
- to be operational as well as analytical,
- to have all touch points – Internet, contact center and personal contact,
- to be integrated in entirely main Information System (ERP system),
- to give capabilities that link up e-Commerce, supply chain management and execution, financial management, human-resources, as well as business intelligence (Business Warehouse, Strategic Enterprise Management, Knowledge Management),
- to have user-friendly personal portal; Web-based work environment tailored to particular user roles (employee, customer, business partner) that gives fast, easy and fully customizable access to the internal and external applications, information and services.

Through integration with the main Information System (SAP or other) the CRM application gives us a complete view of relationship, and enables us to present one face to the customer. The Relationship Intelligence is based on the following components:

- **Shared business objects**, cover information such as business partners and contacts, product and services; relationship data such as activities, requests and opportunities, interaction history and content, as well as unstructured data. The shared business objects provide to every employee complete and consistent view of his customer.

- **Shared business rules and engines,** include engines for pricing and configuration, availability checks, product catalog, problem resolution and Web flow (a workflow technology leveraging the Internet).
- **Comprehensive business knowledge.** Thru the integration with main IS the CRM application has availability to use application and analytical tools, such is Knowledge Management and Business Warehouse. In that way we can do
- different kind of marketing analyses, for example: target group optimization, segmentation of target market, forecasting, shopping basket analyses, profitability analyses and so on.
- **Front - office and back - office integration by design** gives the integration with whole IS of our organization and supports immediate and consistent interaction within organization.
- **Openness** provides flexible links to all application, in main IS and in the other application which are not part of our IS.
- **Real-time Collaboration** provides that we can collaborate with our customer, partners and suppliers and on in that way add value to our product & services.
- **Support for hand-held devices** gives us that we extend the reach of our CRM solution to our employee on the field.
- **Personalization** makes that all users of CRM solution tailor their personal needs thru easy user-friendly interface; e-Workplace.
- **Synchronization of all customer touch points** enables that it does not important how our customer contact us. At any time he or she will get same up-to-date information and services.
- **Fully Web-enabled** means that CRM solution is based on Internet Business Framework infrastructure.
- **Integration CRM with the others e-commerce applications.**
- **Industry specific solution,** provides support to different industry branches.
- **Scalability and robust technology,** for trustworthiness.

The main objective of CRM is the integration of sales sector and sector relationships. Such integrated systems offer managers a complete picture of the customer, which includes all their needs, habits, desires, and thus ensure the provision of the highest possible service. CRM is sometimes called a "Precision Marketing", which gives quite a good picture of its aims and purposes. However, the approach to CRM is a very different approach than traditional forms of marketing. Traditional marketing, especially advertising, is based on organizing various promotional activities which are directed to a number of potential buyers, and as a result is likely someone from the audience to buy the product. On the other hand, CRM is based on the selection of a person, and based on its needs, interests, action should be implemented so that a high degree of certainty to achieve the desired goal. The CRM strategy has three essential steps for building successful and long-term partner relationship:

- **Convenient Access**. Necessity of opening up to customers and give him or her the good starting-point for collaboration with us; focus on customer convenience & empowerment.
- **Synchronized Interaction**. It is necessary to provide consistent view of the customer at any time because of creating one face to the Customer. Also the using of relationship knowledge to design our Business helps to make better customer relationship business processes .
- **Intelligent Collaboration.** Collaboration is now on the higher level then ever before. The main activities for extend the subsistent collaboration are: creating customer value through intelligent, knowledge-based collaboration;

3. CUSTOMER RELATIONSHIP MANAGEMENT (CRM) KOMPONENTS

The main components of fully Customer Relationship Management solution are:

- **Internet Sales & Marketing** (Sending mailing lists to mail, Flexible mailing forms, Customer self profiling, Product Catalog, Dynamic design, Personalized Web pages, Product Encyclopedia, Online Shopping, Multimedia presentation, Enrolment of new customer, Virtual shopping basket, Definition of payment method…).

- **Internet Customer Self Service** (Account information, Move-in and moveout, Bill payment, Customer data change, Customer enrolment…).
- **Field Sales & Field Service** (Product Catalog, Opportunities, Product Encyclopedia, Agreements, Services, Advertising, Campaigns, Contact persons, Activities, Customers, Monitoring and planning of field Sales, Download service requests, appointments and customer data, Register resources, Call stock information, Maintenance product orders…).
- **Service Center and Service Interaction Center** (Call Center, Contact Center for technical Problems, Access to all technical data, User Manual, Internet based solving data base, Creation of Service order, Q & A, Planning and distribution of service order, Planning and distribution of service notifications, All resource Information available, Planning of return calls…).
- **Business Partner Collaboration** (Tailored Product Catalog, Tailored products, prices, terms and conditions…).
- **Tele Sales & Tele Marketing** (Flexible Call Center Surface, Outbound campaigns, Inbound Calls, Access to all customer data, Dynamic scripting, Enrolment of new customer…).
- **Marketing Analyses and Product Brand Management** (Customer analysis, Market analysis, Potential analysis, Marketing planning/budgeting Target group selection, Campaign and event management, Product knowledge/product encyclopedia...).
- **Sales Management & Support** (Monitoring & Planning, Opportunity management, Performance analyses, Visit reporting, Sales forecasting, Commission management…).
- **Customer Development** (Evaluation and definition of customer segments, Evaluation of selling potential, Individual Product proposals…). **Tired Servicing and Relation Management** (Customer Value evaluation, Strategic customer segment definition, Loyalty programs due to customer value…).

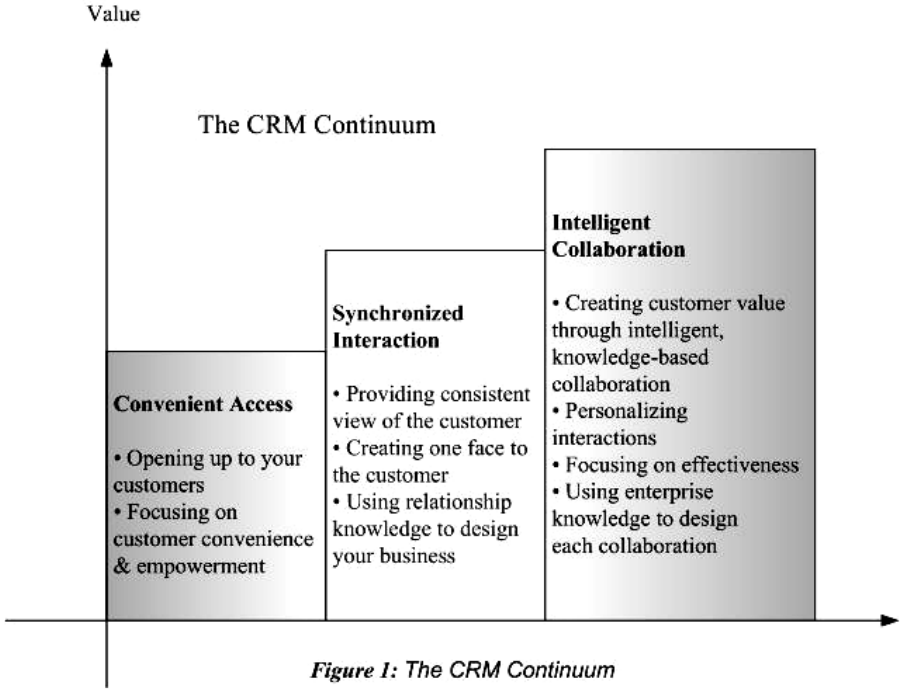

Figure 1: The CRM Continuum

The Customer Relationship Management has three Internet Sales scenarios. First is for managing relations with business partners and third parties, Business to Business Scenario, second is for managing relationship with end customers, Business to Customer Scenario and third is Business to Reseller Scenario. These business scenarios are delivered through role-based portals to meet requirements of specific users.

4. SUPPLY CHAIN MANAGEMENT

Supply Chain Management (SCM) is a term used to describe the flow of materials, information and resources through the supply chain, from suppliers through manufacturers of individual components, the final merger and distribution (warehouses and retailers) to the final customer. This process often includes additional services that accompany the product after the sale and return the product for recycling. The value chain is a set of business processes that connect suppliers, manufacturers, retailers, businesses, and others involved in the creation, sale and delivery of goods to the final customer.

Value chain network suits companies that work together and coordinate their actions towards the delivery of products on the market. It is an additional activity that has become a necessary part of work to meet the demands of their customers. Delivery chains are imbued with the problems caused by incompatibilities between the material and information flows. Lack of visibility and information flow regarding the status of orders, the level of goods or time of delivery, for example, can cause uncertainty and volatility in the supply chain. This uncertainty leads to a surplus of goods and hoarding. To ensure availability of merchandise and customer satisfaction, it is necessary to minimize and if possible to completely remove the delay in delivery. As the main activities of the value chain, are:

- Internal logistics - receiving and storing raw materials, and their distribution to manufacturing site
- Operations - the processes of transformation of inputs into final products
- External logistics - storage and distribution of finished products
- Marketing and sales - to identify customer needs and increase sales
- Service - customer support after they sell their products

The stated primary activity should be supported by infrastructure companies, in terms of the organizational structure, control systems, company culture. Also, a successful value chain management requires adequate human resources and necessary training of employees. In order to realize the value chain automation, it is necessary that there is adequate technological infrastructure. There are many advantages of automation of the value chain, including:

- increase in operating activities
- a measurable increase in productivity
- reduced process time
- harmonious quality products thanks to a real process control
- Reduce costs by eliminating paperwork and the"hand"of the process
- direct the flow of information between employees and consumers
- Increase employee satisfaction and customer satisfaction.

Thanks to the Internet and other developments of information technology is defined and the concept of supply chain management. He is now based on the idea of sharing and exchange of information between participants in the chain. Information technologies have had a significant impact on the development of this concept systems are ERP (Enterprise Resource Planning) and APS (Advanced Planning and Scheduling), which include finance, forecasting, tracking orders, sales analysis, local and global distribution and quality control. They have very powerful tools for monitoring and reporting, but are quite rigid and their implementation requires a well-defined information.

5. CONCLUSION

Upon review of the literature in this field, this paper summarizes the existing and potential application of CRM in the era of e-business, with emphasis on modern management of relationships with clients as well as supply chains, whose exceptional importance in electronic business do not need further explanation.

The main objective of CRM is the integration of sales sector and sector relationships. Such integrated systems offer managers a complete picture of the customer, which includes all their needs, habits, desires, and thus ensure the provision of the highest possible service.

CRM solutions to match customer needs in accordance with our products and services in. In this way integrate our web service, and tools to work independently according to their customer requirements. This solution allows us to monitor and participate addressing the demands of our clients.

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OBJECT ORIENTED DESIGN THROUGH EXAMPLE CLINIC FOR AESTHETIC SURGERY

Gordana Stanković, B.Sc*
Medical High School „Kozma i Damjan“, Vrbas, Serbia
gordanastankovic@rocketmail.com
Ivan Tasić, Ph.D
University of Novi Sad, Technical Faculty "Mihajlo Pupin", Zrenjanin
tasici@tfzr.uns.ac.rs

ABSTRACT

This paper aims to demonstrate method of diagram UML. The theme of this work is private clinic for aesthetic surgery. This theme has been taken as an example because it is wide and has possibilities to demonstrate method of diagram UML.

Key words: Use Case Diagram, Sequence Diagram, Activity Diagram, Class Diagram, Package diagram.

1. INTRODUCTION

This Clinic offers following services: operation as well as the interventions like removing of moles, etc. For these interventions neither hospitalization nor special tests are necessary. Interventions are performed with or without local anesthesia. Preparations are necessary for operation, that is procedure done by team of experts psychologist, internist with cardiologist, and aesthetic surgeon.

2. DESCRIPTON OF A PROBLEM

2.1. Procedure before patient reception

Persons interested in Clinic services, at first, in operations, come to appointed meeting and testing with psychologist. After positive estimation given by psychologist, they are sent to aesthetic surgeon for agreement. Surgeon estimates whether expectations are real and if they are he claims laboratory analyses and as well as thinking of internist. After summering of results, surgeon makes final decision whether potential patient will be operated or not. In the case that some of results are unsatisfactory potential patient is rejected. In other case patient can be sent to the nurse’s guidance to the reception.

2.2. Description of the classes and characteristics

If the potential patient is sent to operation he is registered in Clinic IS. Patient characteristics are: PIN, name and surname, telephone number, date of birth. Operations which are input are input of new patient and listing. These data are saved and it’s not allowed to be deleted. During the reception of patient, his patient list has been opened with the data of reception and all necessary operations.

Pricelists contain the prices, identification and name. Services can be the interventions, and the time needed for them, and operations, with days number for hospitalization. All classes include operation input(), listing() and deleting().

For doctor are following data: name, surname, mobile and official phone, and ID. Patient list contains the names of all doctors in charge of patient as well as the services scheduled and/or performed. There is also space for description of the moment condition or some other important fact for the patient. Patient list contains operation form the discharge list(), by which the discharging list of patient is formed.

3. UML DIJAGRAMS

3.1. Behaviour diagrams

Behavior diagrams emphasize what must happen in the system being modeled. Since behavior diagrams illustrate the behavior of a system, they are used extensively to describe the functionality of software systems.

Use case diagram: describes the functionality provided by a system in terms of actors, their goals represented as use cases, and any dependencies among those use cases (Figure 1).

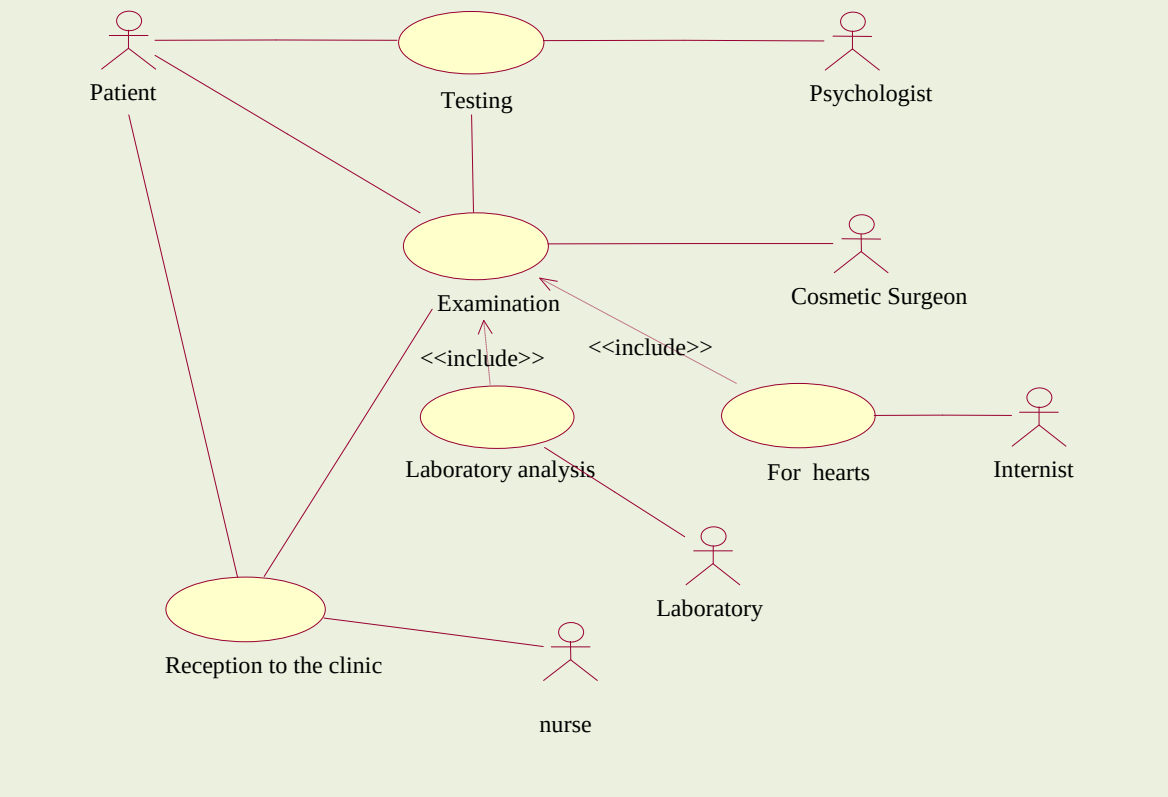

Figure 1: Use Case Diagram

Activity diagram: describes the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control (Figure 2).

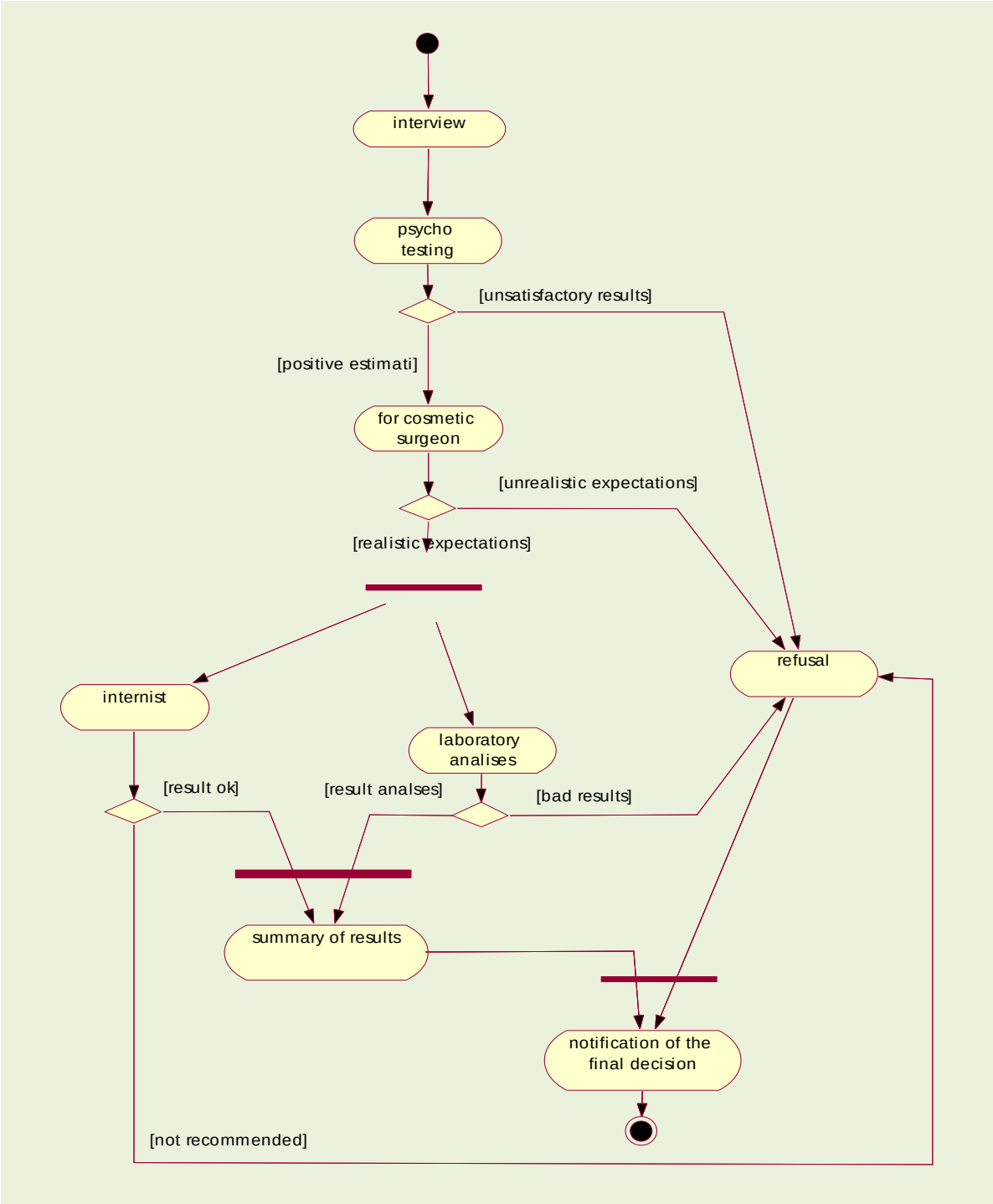

Figure 2: Activity Diagram

3.2. Interaction diagrams

Interaction diagrams, a subset of behaviour diagrams, emphasize the flow of control and data among the things in the system being modeled:

Sequence diagram: shows how objects communicate with each other in terms of a sequence of messages. Also indicates the lifespans of objects relative to those messages (Figure 3).

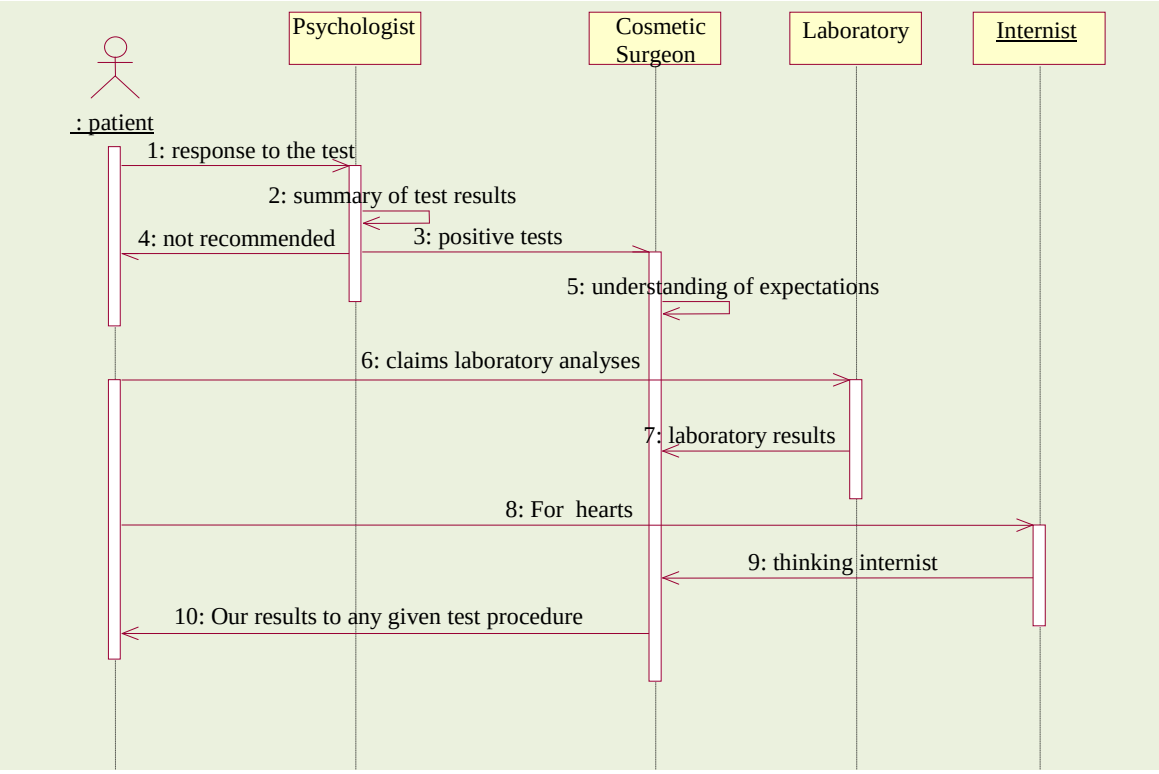

Figure 3: Sequence Diagram

3.3. Structure diagrams

Structure diagrams emphasize the things that must be present in the system being modeled. Since structure diagrams represent the structure, they are used extensively in documenting the software architecture of software systems.

Class diagram: describes the structure of a system by showing the system's classes, their attributes, and the relationships among the classes (Figure 4).

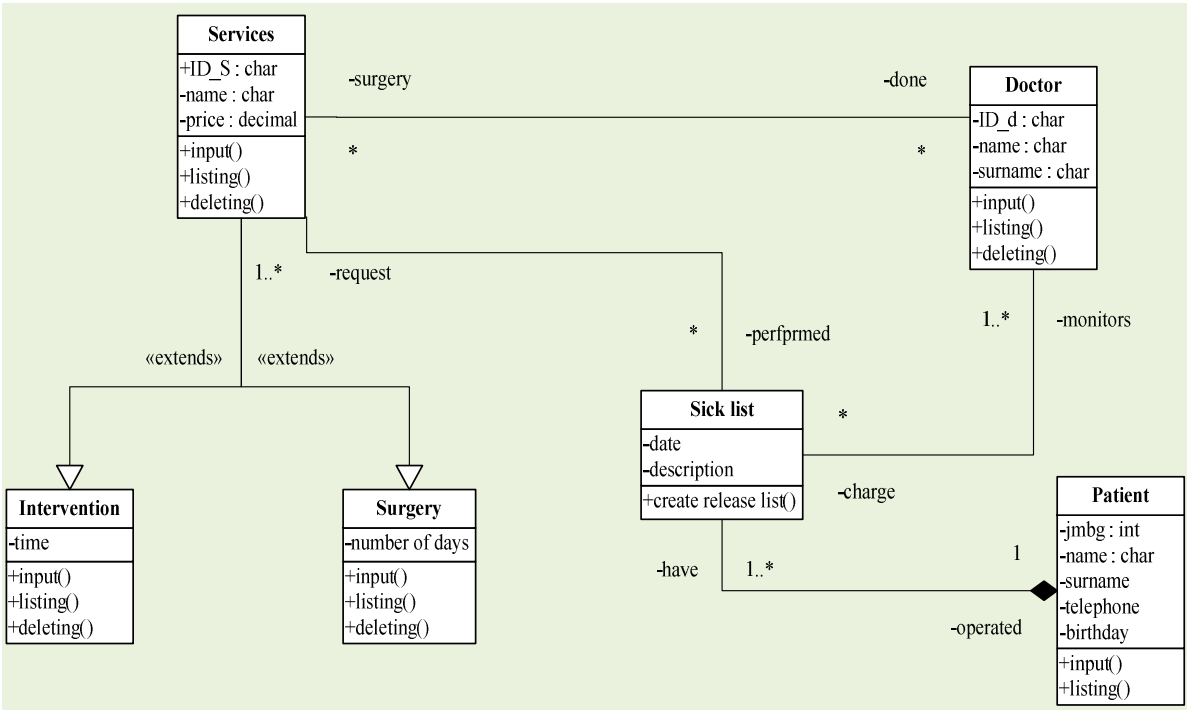

Figure 4: Class Diagram

Package diagram: describes how a system is split up into logical groupings by showing the dependencies among these groupings (Figure 4).

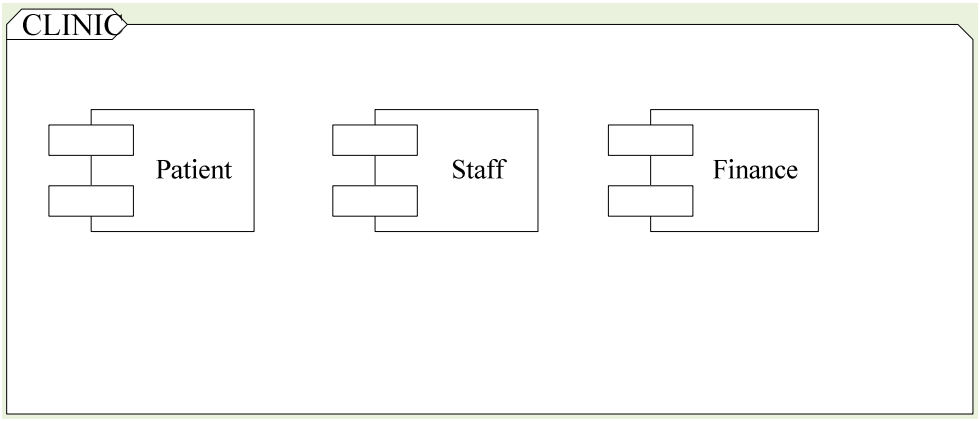

Figure 5: Package diagram

4. CONCLUSION

Solution to the problem of the part of the business of plastic surgery clinics is shown in diagrams UML. Thisexample suggests that it is possible to simply change the designed information system (IS) in the future. Using the implemented IS it happens that the existing procedures are not related to the current business or after a while it comes to legal and organizational changes. In this case it is necessary to modify the existingIS. After the object designed information system can be accommodated and work on the existing IS, whichis often largely synchronized (primarily for staff).

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LEVELS OF LEARNING AT SCHOOLS

Snežana Jokić*
Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia
smaletin@tfzr.uns.ac.rs
Višnja Istrat
Technical faculty"Mihajlo Pupin", Zrenjanin, Republic of Serbia
visnja.istrat@gmail.com
Marjana Pardanjac
Technical faculty"Mihajlo Pupin", Zrenjanin, Republic of Serbia
mpardanjac@yahoo.com
Branko Markoski
Technical faculty"Mihajlo Pupin", Zrenjanin, Republic of Serbia
markoni@uns.ac.rs
Predrag Pecev
Faculty of Technical Sciences, Novi Sad, Republic of Serbia
predrag.pecev@gmail.com

ABSTRACT

The purpose of this study was to investigate the application of the concept of organizational learning at schools in order to determine whether the schools developed levels of organizational learning. For the purposes of research we used the survey method by using questionnaire techniques. A questionnaire designed for this research investigated learning characteristics. A questionnaire study was conducted on a sample of thirtytwo schools and two hundred and twenty-four respondents. The research showed how many schools expressed the individual components that characterize levels of organizational learning at schools (an individual, team and organizational learning). The results showed that our schools generally have a positive attitude towards statements about the level of organizational learning, but that these components are not fully expressed and accepted in practice.

Key words: organizational learning, education, schools

1. INTRODUCTION

How an organization can adapt to constant changes that happen every day? The answer to this question is a constant education and improvement of the individuals and the entire organization. Organizational learning is a challenge for every organization. In order to be able to respond to any changes in the environment organization need to change continuously. This is the main means characteristic of an organization that continuously learn. Education and schools as key components of society must follow and adapt to new changes in environment. The ability to achieve this is to transform the traditional schools into organizations which teach, and one way to do this is to improve all levels of learning in it. Learning ensures changing of an individual as a member of the organization and is generally the most difficult to achieve. Therefore, it is necessary to create the organizational conditions in which all employees, including managers at all levels, need to be motivated and encouraged and required to permanently improve their knowledge and skills and share it with others. Improvement and development of an organizational learning becomes a primary goal for any organization.

2. ORGANIZATIONAL LEARNING

Oganizational learning (OL) is subject to controversy and flux in the organizational learning literature. The most popular definitions of organizational learning could be categorized into the following three camps. First, the adaptive learning perspective, which focuses on individuals as agents of learning (e.g. Heneman et al., 1989; Argyris & Schon, 1978; Argyris, 1992; Van Maanen & Schein, 1979; Senge, 1994). Second, the development of knowledge based perspective Duncan & Weiss, 1979) and the institutionalized experience effects perspective (Abernathy & Wayne, 1974), which focus on organizational change through better knowledge and understanding. Third, the assumption sharing perspective, which focuses on the changing of shared mental models related to operational policies, norms and performance criteria (e.g. Shrivastava, 1983; Dixon, 2000). In this study, we integrate the above three approaches, and view OL as change in an organization's potential behavior as a result of acquiring new shared mental models, change in norms, rules, processes, structure, or coordination of behavior. As a property of the organization, OL is both a process and an outcome. Although it could occur at an individual, group, organizational, or inter-organizational level, the learning outcomes would stay at the organizational level, and not be entirely lost due to the loss of an individual. Taking a behavioral perspective, Huber (1991) notes: An entity learns if, through its processing of information, the range of its potential behaviors is changed.

Weick (1991) argues that the defining property of learning is the combination of same stimulus and different responses. However, it is rare that organizations don't learn or that they learn but in nontraditional ways. He further notes: "Perhaps organizations are not built to learn. Instead, they are patterns of means-ends relations deliberately designed to make the same routine response to different stimuli, a pattern which is antithetical to learning in the traditional sense" (p. 119).

2.1. Individual level learning

Individual level learning is the learning of the individuals in order to improve their personal development. The organization is made up of the individuals; organization learn through its members and members of the group (Kim, 1993). Individual members of organizations expand their capabilities through learning and sharing their knowledge with colleagues, and generate new skills and competence. With regards to organizational capacity which reflects the abilities of individual members (Cohen, 1991), an individual learning contributes directly to the development characteristics of the OU. The focus of individual-level learning is a strategy which improves valuable human resources of the organization (King, 2001). Managers must encourage individual members to learn and develop their potential. In addition, individual levels of learning provide a starting point for learning in teams and organization systems. In order to provide individual development, managers should encourage employees to realize their own development plans (Bennett & O'Brien, 1994). Managers need to reward their people (Burgoine, 1995, Gephart and Marsick, 1996), and to provide opportunities for learning (Hill, 1996). Level of individual learning is the basis for the development of OU.

2.2. Team-level learning

Team-level learning is the learning of the group of qualified individuals through the exchange of mutual experiences that creating of new knowledge. Team members need to actively ask questions, discuss errors that involve experimentation and reflection, and seek an external feedback. In order to be successful learning in teams, it is essential to have support of management, trust and cooperation among team members to achieve positive results (Louro and Cunha, 2000). Also there should be a clear and strong team goal, adequate resources, information and prizes. Learning at this level takes place within the team and / or across teams within the organization. It is very important because it is the link between individual and organizational levels of learning.

2.3. Organizational learning

Organizational learning is built on the ability of individuals and teams to learn and exchange knowledge and experience. It is a doctrine that flows from the individual members of the team and / or teams and eventually throughout the organization. It refers to the process of improving and learning ability in the organization. However, learning of team at organizational level, is not just the sum of each individual's learning (Fiol and Liles, 1985, Reading, 1997). "The organization learns through individual members and affect directly or indirectly to the individual learning" (Kim, 1993), he suggests that organizational learning depends on the improvement of individual oppinions, and what it is explicitly important to the development of new opinions is to be shared. The organizational level of learning required is the effective cooperation and mutual learning (Francis, 1997).

3. RESEARCH

The organization must be able to respond to any changes in the environment. It also need to be able to overcome and continuously create changes within the organization. This means that schools need to act as organizations that continuously learn. Education and schools as key components of society must be able to follow and overcome many changes. The ability to achieve this is to transform the traditional school into learning organizations. The aim of this study is to determine (on a random sample) how many of schools expressed the individual components that characterize an organizational learning (the individual level of learning, team learning level, organizational learning)[1]. General research hypothesis for this study is : *different characteristics of learning were recognized in the studied schools*. The importance of research is that the results of research show real situation in schools with positive and negative factors related to the transformation of traditional school in LO. Moreover, it is analised why is necessary to introduce affirmative actions in the field of training personnel for the functions of leadership and management at schools, as well as other teaching and non-teaching staff and thus contribute to the education system in general.

4. MATHERIAL AND METHOD

Through the research we use the survey method by questionnaire techniques. For this study, a questionnaire was designed in order to investigate the learning characteristics. The questionnaire contains 33 questions were grouped into 3 categories of learning characteristics. The questionnaire consists of questions with the answers in form of Likert scale, where respondents circle one of the alternatives with the degree of acceptance. Answers have meanings: 1-disagree, 2 - partially disagree, 3-do not know, 4 - partly agree, 5 - Agree and 0 - no response. Sample was random and included 32 schools in Vojvodina (Apatin, Sombor, Zrenjanin, Sremska Mitrovica, Ruma, Sid) and about 224 respondents.

[1] This research is part of the research conducted in the framework of doctoral thesis titled: Transformation model of traditional school in learning organization.

Table 1: Sample characteristics

1. Level of professional subjects	number of respondents	%	total
IV[2]	13	5.8	232
VI	15	6.6	
VII/1	184	81.4	
VII/2	7	3.1	
VIII	13	5.8	
2. Position of respondents in the organization	**number of respondents**	**%**	**total**
Director	3	1.3	194
Assistant Director	3	1.3	
Pedagogue	12	5.3	
Psychologist	15	6.6	
Teacher	161	71.2	

The existence of systematic differences in respondents' answers to each of three subscales questionnaire for evaluation of OU, we tested the discriminant analysis.

5. RESULTS OF RESEARCH

To answer the question whether and to what extent the respondents identify and use the levels of OU in the framework of their school, we calculated the average unit measure of recognition of individual, team and organizational learning for each participant. When answers had been compiled to the same scale with values of 1 to 5, we obtained an average measure of recognition at the OU level of the entire sample that can be seen in the table. Since the value of recognizing the level of OU in the majority of respondents, ranging between 3.19 and 3:53, (see table 2.), we can say that most respondents recognize and use all three levels of OU.

Table. 2. The average values of the level of recognition characteristics of organizational learning

	m	sd
learning of individuals	3.194	0.851
learning of teams	3.260	0.858
learning of organisations	3.295	0.847

5.1. Differences in the recognition and the use of certain levels of ES between groups of subjects of different occupations

The existence of systematic differences in respondents' answers to each of the three subscales of the questionnaire for assessing the levels of DU, we tested the discriminant analysis.

Table 3. The results of discriminant analysis in relation to the occupation of respondents

function	Eigenvalue	Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
1	.578(a)	.605	.493	148.314	95	.000
2	.143(a)	.354	.778	52.699	72	.958
3	.073(a)	.261	.889	24.666	51	.999
4	.039(a)	.193	.954	9.875	32	1.000
5	.009(a)	.096	.991	1.952	15	1.000

[2]Levels of education: IV- for-year degree, VI- higher degree, VII/1 - University degree level 1, VII/2- University degree level 2

We obtained a statistically significant discriminatory factor that explains the function 1 In other words (this is shown in Table 3), it was found that the respondents belonging to various occupations is significantly associated with recognizing and using the OU level..

Table 4. Excerpt from the matrix structure of discriminatory factors.

Structure Matrix	Function				
	1	2	3	4	5
organizational learning	**-.043**	.217(*)	.150	.026	.036
team learning	**-.083**	.067	.350(*)	-.176	.006
individual learning	**-.045**	.092	.313(*)	-.013	.144

If we observe a feature that is statistically significant only following a negative pole dimensions can be detected. This is shown in Table 4. It is characterized that the attitudes of the organizational learning, group and individual learning can be defined the present satisfaction of employees by level of learning, and changes in organization relating to them are introduced without major problems.

Table 5. Group centroids on discriminant factors

Functions at Group Centroids	Function				
occupations	**1**	2	3	4	5
Directors (1)	**-6.331**	.092	-.040	.143	.116
Assistant Director (2)	**-.892**	.427	.015	-.333	-.785
Educators (3)	**.083**	1.083	.335	-.493	.100
Psychologists (4)	**.303**	.838	.030	.568	-.023
Teachers (5)	**.078**	-.186	.094	.003	.003
Other school staff (6)	**.121**	.099	-.672	-.088	.020

Based on the size and sign of group centroids (table. 5.) To a function that is statistically significant, we can say that the estimates obtained in terms of greater or lesser presence of the described features, not to their extremes. However, we note that the dissatisfaction of recognizing and using the OU level in the organization of the most characteristic for the patients from group 4 and 6, to less extent for the patients in group 3 and 5, while satisfaction with the recognition and treatment with different levels of OU in the organization is the characteristic of the patients in group 1 (managers). The biggest difference is between groups 1 and 4, i.e. between the director and psychologist.

5.2 Differences in the recognition and use of certain levels of OU among different groups of level of education

The existance of systematic differences in respondents' answers to each of the seven subscales of the questionnaire for assessing the levels of OU, the discriminant analysis were tested.

Table 6. The results of discriminant analysis in relation to the qualifications of respondents

Function	Eigenvalue	Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
1	.632(a)	.622	.479	152.393	76	.000
2	.110(a)	.315	.782	51.034	54	.590
3	.101(a)	.303	.868	29.392	34	.693
4	.047(a)	.211	.955	9.473	16	.893

We obtained a statistically significant discriminatory factor that explains the function 1. It was found that the respondents belonging to a different level of education is significantly associated with recognizing and using the level OU. The results is the discriminative dimension, which determines the positive pole of dissatisfaction with the level of implemented personal training, mental models, building shared vision level, realization of individual, group and organizational learning, as well as the level of systems thinking.

Table 7. Excerpt from the matrix structure of discriminatory factors.

	Function			
	1	2	3	4
learning of organisations	.380(*)	.261	.218	.110
learning of individuals	.350(*)	.164	-.047	.091
learning of teams	.334(*)	-.008	-.113	-.003

Tabela 8. Group centroids on discriminant factors

level of education	Function			
	1	2	3	4
III	-11.251	.922	.293	.489
IV	.424	-.159	1.015	.476
VI	-.566	-.790	.359	-.526
VII/1	.089	.117	-.069	-.017
VII/2	-.304	-1.231	-.879	.619

Based on the size and sign of group centroid (Table. 5.8.) To a function that is statistically significant, we can say that the estimates obtained in terms of greater or less presence of the described features, not to their extremes. However, we note that the dissatisfaction with the level of recognition and the use of OU in the organization is the most characteristic for the patients with IV level of education and to a lesser extent, the VII / 1 level. Satisfaction with the recognition and use of OU levels in the organization is the most characteristic for patients with III and to a less extent with VI and VII / 2 levels of education. The biggest difference is between examinees of III and IV levels of education.

6. DISCUSSION

Based on the results of research conducted in the schools, we can say that generally there is a positive attitude towards the claims related to the characteristics of learning organizations, but these components are not fully expressed and accepted in practice. Individual level learning, which is based on team and organizational learning, proved to be the weakest performance. The emphasis of the development of OU definitely has to be at the individual level, as well as the personal and professional development. Staff in schools need to be informed, motivated and trained to more easily accepte these components. Organizational learning with the highest score of recognition also suggested that respondents "know how to look at the whole" but obviously do not know how to apply with respect to the scores of other features are weaker. The results showed that subjects belonging to different skills and occupations are significantly associated with identification and use of characteristics of the OU. The presented results show a need to pay more attention to this problem, examine the details of its individual segments and use a systematic approach to solve it.

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Session G: STUDENT PAPERS

Papers (pp. 477-528):

WOMEN MANAGERS

Danka Rus
Student of Tehnical Faculty "Mihajlo Pupin", Zrenjanin, Serbia
danka.rus@gmail.com
Edit Terek
Tehnical Faculty "Mihajlo Pupin", Zrenjanin, Serbia
terekedita@gmail.com
Sanja Ristić
Student of Tehnical Faculty "Mihajlo Pupin", Zrenjanin, Serbia
sanjicaristic@yahoo.com
Snežana Radosavljević*
Student of Tehnical Faculty "Mihajlo Pupin", Zrenjanin, Serbia
snekirzr@yahoo.com

ABSTRACT

This paper is about women in management, their position and presence in business. As the role of women has changed in the past decade in society, so have changes been made in the work place. Women are not only represented in the work force, but they are also key players in the decision making process. As women continue to be represented in greater numbers, they are developing their own unique management style in the work place. This paper examines contrasts the management style of women versus that of men. It also includes term glass ceiling, remarkable women in the world and in Serbia.

Key words: women, management, glass ceiling, world, Serbia

INTRODUCTION

Economic activity of women is present even in prehistoric times, but their participation in the workforce has changed throughout history, depending on various cultural and social factors. 2000th BC, in Babylon women participated along with men in keeping livestock. In addition to these activities, they were involved with raising children, preparing food, clothing and doing similar jobs. With the development of cities, women first began to work outside home as a nurses, vendors at markets and like that.

In the 14th century in France and England women began to engage in trades such as tailors of women's clothing, so they began to be respected equally as men. During the 18th and 19th century, when the Industrial Revolution took place, with the construction of factories women started to get employment in them. After the Second World War the social position of women began to improve dramatically. Women have begun to acquire the same rights as men, which resulted in their entry into the business world, which until then was reserved only for the "stronger sex". 1948th The International Labour Organization adopted the Convention on the Elimination of All Forms of Discrimination against Women. Before the adoption of this Convention, women had no rights compared to men.

Throughout history, women have worked to satisfy their economic needs. If they were poor, they were working, regardless of their marital status and if a man could not earn enough for the family. They have always been responsible for raising children, regardless of whether they had a job or not. Women were generally at a lower professional status and have less paid work (Radić, 2008).

CHARACTERISTICS OF WOMEN MANAGEMENT, FEMALE VS MALE MANAGERS

Women are becoming increasingly important in the world market, not only as workers, but also as owners, entrepreneurs and managers. We are witnesses that nowadays there is a larger number of women who are on management positions, and that, the opportunity to demonstrate their capabilities in the process of managing companies and making strategic decisions, are given to them.

Numerous studies have shown that skills and knowledge held by women contribute to the improvement of companies. Women are always trying to create a pleasant atmosphere for work and an environment of trust, they rarely apply strict style of leadership.
The main differences between male and female managers: male managers have a completely different approach to motivate employees, provide advices/orders and conduct meetings. Women are bringing a style of management into the work force that is more caring and intuitive than that of their male counterparts. Men are thought to have a traditional approach to management. The traditional approach has characteristics of control, rigidity and chain of command.

Women, on the other hand, are bringing a style of management to the work place with characteristics of openness, inclusion and empowerment for employees. Female managers are persistent, flexible, team "players", democrats, resourceful, decisive, focused on the details, creative and charming.

Female managers want to show everyone that they could be just as good, even better, than men. This fight for changes will certainly bring them a better position, but also should serve as a great signal to male managers, as well as the entire society, that in future will be more and more assertive and ambitious women. Very interesting fact is that companies which are run by women are safer, more stable and last longer than companies managed by men.

Successful women are influential in business decision-making, powerful in coordinating their work projects and teams, decisive in choosing actions, good at fostering relationships and open to learn. Women often have to choose between paid work and family, or they have to prioritize one over another at some stage during their lives. Men seem to be able to “have it all” more easily, but traditionally their participation in household tasks is far less than that of their female partners.

Table 1: Management positions for employees aged 16-64 by type of specialist, 2008
*(*www.scb.se/Pages/PressRelease____289990.aspx)

Managment function	**Women**		**Men**		**Distribution**	
	Number	**Percent**	**Number**	**Percent**	**Women**	**Men**
Finance and administration managers	6 200	30	7 800	16	44	56
Personnel and industrial relations managers	2 900	14	1 900	4	60	40
Sales and marketing managers	3 400	17	12 000	25	22	78
Advertising and public relations managers	900	4	800	2	53	47
Supply and distribution managers	900	4	4 600	10	16	84
Computing services managers	900	4	3 700	8	20	80
Research and development managers	600	3	3 000	6	17	83
Specialist managers not elsewhere classified	4 700	23	13 900	29	25	75
All specialist managers	20 400	100	47 700	100	30	70

The distribution between women and men is balanced in management positions of finance and administration, personnel/industrial relations as well as sales and marketing. The largest male dominance is among research and development managers and computer service mangers. None of the management categories with specialist functions are dominated by women.

Almost all of the companies that have floundered during the global economic crisis have been led by men; coincidence or a sign that the times should change? Globally, fewer than five per cent of the world's top companies are led by women. Here in Serbia that percentage is even lower. However, some intelligent, ambitious and diligent members of the fairer sex have managed to clamber to the top of business in Serbia.

GLASS CEILING: SITUATION IN THE WORLD AND IN OUR COUNTRY

"Glass ceiling" is a term coined in the 1970s in the United States to describe the invisible artificial barriers, created by attitudinal and organizational prejudices, which block women from senior executive positions. Although women share nearly 50% of total employment in the so-called "developed world" (and Serbia), they still occupy few of the positions with the most power. The glass-ceiling phenomenon refers to an informal barrier that women face in getting to the highest management positions. The reasons for its existence are numerous and persistent. They involve traditional gender roles, work and life organization, social attitudes toward women managers and women workers themselves. Also include cultural sanctions, educational barriers, legal restrictions, corporate obstacles and women's disinterest in pursuing a traditional masculine career. Most of the time they are the only female at that level and are surrounded by males. Some women have faced sexual harassment, wage inequality, blocked movement and gender stereotyped roles With the reasons for the problem so deeply rooted, solutions involve the whole society. Foreign experiences show that once it is recognized – the glass ceiling can at least crack. A number of different tactics are offered. However, their implementation in Serbia is questionable, because when it comes to the glass ceiling – the society remains ignorant and silent.

The overall employment situation of women has not evolved significantly since 2001. The ILO's *Global Employment Trends* (2003) reported that women continue to have lower labour market participation rates, higher unemployment rates and significant pay differences compared to men. Women represent over 40 per cent of the global labour force, approximately 70 per cent of women in developed countries and 60 per cent in developing countries. There has also been little change in their share of professional jobs in the last few years.

Occupational segregation is the principal reason for persistent pay gaps. Women are also likely to have shorter careers than men of the same age because they tend either to leave their jobs or work part-time in order to fulfil family responsibilities and return to full-time employment at a later stage. This leads to slower promotion and less pay. Differences in fringe benefits and bonuses offered to men and women managers are also factors contributing to earnings gaps.

In general, countries in North America, South America, and Eastern Europe have a higher share of women in managerial jobs than countries in East Asia, South Asia, and the Middle East.
New research from Grant Thornton International reveals that women still hold less than a quarter of senior management positions in privately held businesses globally. 24% of senior management positions are currently held by women - a figure identical to 2007 and only a marginal improvement from 2004 when only 19% of senior level positions were held by women. 34% of privately held businesses globally have no women in senior management. Women hold a mere 1 to 3 per cent of top executive jobs in the largest corporations around the world. (L. Wirth, 2004)

The greatest percentage of women in senior management is in the Philippines where women hold 47% of senior positions. They are followed by Russia (42%) and Thailand (38%). The lowest percentage continues to be in Japan where only 7% of senior management positions are held by women. Also appearing low down the league table are Denmark (13%) and Belgium (12%).

Countries in Central and Eastern Europe such as Estonia, Hungary, Latvia, Lithuania, Poland, the Russian Federation and the Ukraine are among the highest ranking for women in management,

along with other industrialised countries such as Canada, Ireland, New Zealand and the United Kingdom. The United States also appears in this league under a data category that includes administrative workers.

Many governments throughout the world have acted to promote gender equality in all sectors of society with varying degrees of success by introducing quota systems or “temporary corrective measures seeking to increase women’s representation in decision-making and policy making processes. Across Europe, only 10 per cent of board directors of the largest companies are female (quotas have made Norway the exception, with more than 40 per cent) and the numbers are even lower in Asia.

Serbian version of glass ceiling is very interesting, because of effects of several factors converge here:

1. Traditionally patriarchal culture and returning during the nineties (Women can be seen as housewifes and mothers; women were sent to forced rest)
2. Socialism from the recent past (equality at work while retaining all household tasks)
3. Attempting to turn in the EU- the transition which includes compliance with European legislation on gender equality in the labor market (Lukić, Jovanović, 2003, stated that women go worse in transition because they neglect the specificity of their position).

According to data SIEPA women account for less than 42% of total labor force in Serbia. Sex segregation of occupations is expressed. Lukić i Jovanović (2003) report that women are under-represented in managament in the corporate sector, which has better prospects nad higher salaries. The researches dealing with working women are small numbered, and those one about women in the managerial positions are even less. That is somewhat surprising, given that now some prominent positions, although very few, are covered by women (eg President and Vice President of the National Assembly of the Republic of Serbia, 4 Minister of the Republic of Serbia, the Rector of Belgrade University).

THE MOST SUCCESSFUL WOMEN IN THE WORLD AND IN SERBIA

Each year Financial times publishes a list of 50 most successful women managers. The same was done at the end of 2010 when it presented annual list of the top women manager. This report celebrates women business leaders around the world. The fact is that their numbers remain tiny. Just 3 per cent of Fortune 500 chief executives are women. Across Europe, only 10 per cent of board directors of the largest companies are female (quotas have made Norway the exception, with more than 40 per cent) and the numbers are even lower in Asia. This is all the more surprising given the substantial evidence that better gender balance has a positive impact on performance.

According to this list the first place was taken by Indira Nooi. This 55-year-old Indian is manager of Pepsi since 2006. She is on the leading positon at Financial times for two years. The second is the manager of Avon cosmetics Andrea Jung, who has managed the company during the last 11 years. Third place is taken by Güller Sabanci, manager of the Turkish Sabanci Group which has more than 60 000 employees in 15 countries. Another manager in the food industry takes a high fourth place among the top 50 female managers, Irene Rosenfeld who directs a multinational company Kraft Foods, based in the Unated State. Fifth place went to a Chinese Dong Mingzhu who is the head of the company manufacturing household appliances Gree E Lectric Applieances. She is the most famous Chinese woman in the business who is highly regarded in her country. Next on the line is one africo- american women, Ursula Burns, executive director of the famous Xerox Corporation and this year was first appearance in the list of top female managers. Yoshiko Shinohara, 76-year-old Japanese woman who run the company Temp Holdings is in seventh place. Another "rookie" on the list found among the top 10. This is Ellen Kullman, director of the American company Dupont. On the ninth place ranking list is another Chinese woman, Cheung Yan founder and director of the company Nine Dragons Paper, whose wealth was estimated at 5.6

billion dollars. List of the top 10 completes American Patricia A. Woetz who leads a ADM company from Illinois which employs 29,000 people in 60 countries.

Draginja Djuric - President of the Banca Intesa Executive Board, the Banker of the year in Serbia seven times. under her leadership, the bank became part of an international group, successfully reorganised its operation and harmonised it with the policies and standards of its parent group, as well as international banking principles.

Jelena Drakulic-Petrovic, General Manager of the largest Media Publishing House in Serbia, Ringier D.O.O. have been at Ringier since 2004, started from marketing, through business development and publishing management till becoming general manager of all Ringier activities in Serbia in 2008.

Ivana Veselinovic, President of the Port of Belgrade; Senior Vice President of Delta Holding Veselinovic is also a member of the Governing Board of the Belgrade Chamber of Commerce, MTEL and the Executive Committee of NALED (National Alliance for Local Economic Development); and a member of the Serbian Business Club Privrednik and the Italian Council.

Dragica Pilipovic Chaffey, CEO SBB – Serbia Broadband – Serbian Cable Network, Pilipovic-Chaffey has contributed to raising the quality of SBB and has entered the company into new technological and software projects in Serbia and the region.

Jasmina Knezevic, General Manager of Belmedic General Hospital, in 1995 she founded the Clinic Bel medic and by 2005 it had developed to become the Bel Medic Private General Hospital and Health Centre, intended to provide treatment for children and adults in almost all areas of medicine.

Smiljka Mileusnic Adzic, Jugohemija A.D, Director General, with Mileusnic Adzic at the helm, Jugohemija has established a new medical supplies model, expanded imports and the distribution of foreign medicines, introduced and broadened the appeal of domestic medicines and focused on other areas of the industry.

Draginja Radonic-Petrovic, M&V Investments A.D. Novi Sad, Chairman of the Board of Directors founded in 1995, M&V Investments has grown to become one of Serbia's leading Borkerage Houses, boasting over 27,000 contented clients and controlling between 17 and 18 per cent of the total stock exchange business in Serbia.

Jelena Petkovic, the Executive Director of Tigar corporation, has won the award Business Lady of the Year 2010.

CONCLUSION

As far as women's share of managerial positions is concerned, the rate of progress is slow and uneven. Women are not given as many opportunities as men to do the more demanding responsible jobs, which would advance their careers.

A postulate on democracy is the equality of all members of society, including working women and their presence in management. On this aspect of their gender in Serbia is still always so much talk, but in economically more developed parts of the world the importance of the presence of women in managerial structures of all industries have long been observed. Researches show that working women in Serbia feel unfairly unbalanced and that they easily identify the factors that hinder their career advancement.Women are currently untapped resource of potentially great value, especially during the fight for some sort of competitiveness in world markets. There are already developed models of problems solving glass ceiling or at least mitigate of action, but the first is that public must wake up consciousness of it.

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BENCHMARKING

Aleksandra Jović*
Technical faculty Mihajlo Pupin, Zrenjanin, Serbia
malena@inbox.com
Sandra Kostić
Technical faculty Mihajlo Pupin, Zrenjanin, Serbia
volare1989@yahoo.com
Jelena Radanov
Technical faculty Mihajlo Pupin, Zrenjanin, Serbia
jeska@neobee.net

ABSTRACT

Today's business world characterizes rapidly changes, and it is imperative strategy to improve quality and profitability must make sense, work quickly and pay off. The Father of the Quality Evolution, Dr W. Edwards Deming once said "Adapt, do not adopt". Benchmarking means the process of measuring an organization's internal processes then identifying, understanding and adapting outstanding practices from other extraordinary companies. In addition, it does not mean copying. Your business is not precisely like any other, however it is essential to discover which business processes your company must follow and to increase your awareness of how much is to learn from other successful companies. Meanwhile, customer needs must be on the first spot in every company. The essence of customer requirements is the perception and understanding is what the customer wants and when it wants. Companies need to focus their goals on customer requirements and therefore must monitor their own performance, to compare with other companies, because that way determines the position, the advantages and disadvantages compared the competition. The principles of corporate social responsibility are very important in understanding the process of benchmarking as a basis for achieving entrepreneurial goodwill.

Key words: quality, competitiveness, process, customer, corporate social responsibility.

1. INTRODUCTION

The first time when the term benchmarking was used was when cobblers started to measure people's feet for shoes. Cobblers would place someone's foot on a "bench" and mark it out to make the pattern for the shoes. Particularly benchmarking is mostly used for measuring performance using a specific indicator.

During the 20th century, the Japanese began to visit the best companies in America and Europe, with intention to gather knowledge and ideas of successful business. The Japanese significantly promote their business through applying and modification of collected information. Japanese companies have become competitive and leading in the global market. Benchmarking philosophy has roots in Japan, where it is called Dantotsu, which means: striving to be the best. Dantotsu was used in Japan since World War II.

Nowadays, the concept of benchmarking is developed in the USA during the 60s in 20th century. Originally it was developed by companies that function in industrial field. The pioneer in the implementation of benchmarking in the USA is Xerox Company. This company started its overall transformation when Japanese companies appeared. The Xerox Company had a problem with Japanese competitors who support the idea of good, but cheap and in the same time profitable. Successful companies at the end of 20th and the beginning of 21st century use benchmarking as a technique of strategic management.

Benchmarking is defined as the continuous activity of identifying, understanding and adapting best practice and processes that will lead to superior performance. American Productivity & Quality Center (APQC) gives the best definition of benchmarking. Benchmarking is the process of identifying, understanding, and adapting outstanding practices and processes from organizations anywhere in the world to help one organization to improve its performance.

Peter Drucker claims that benchmarking is the instrument, which helps company to determine whether or not globally competitive. To be as good as a leader – precondition to be competitive and everything what one company does, the other should aim to at least do equally well. Philip Kotler said that benchmarking means learning from companies, which do particular assignments better, than the other companies. Evolution of benchmarking is shown in Figure 1.

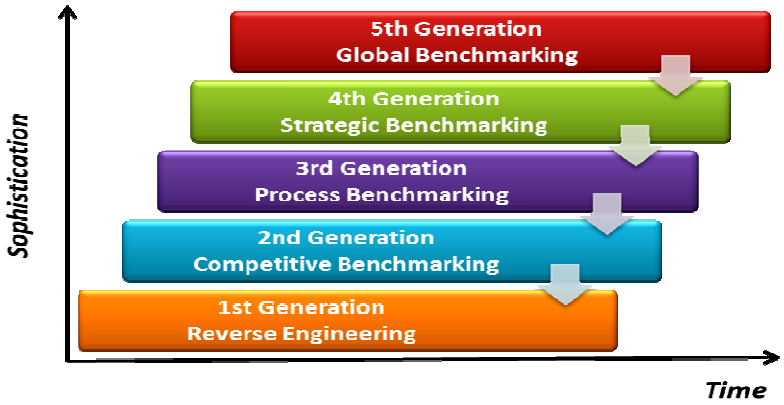

Figure 1: Evolution of Benchmarking

2. THEORY

Approaches to benchmarking are:

- **Process benchmarking** - measuring and comparing an organization's business process against leaders anywhere in the world, to gain information which will help the organization to improve its performance.
- **Financial benchmarking** - financial analysis and comparison of the results to assess companies overall competitiveness and productivity.
- **Benchmarking from an investor perspective**- observing the companies that can be considered as a profitable investment from the perspective of an investor.
- **Performance benchmarking** – the process of comparing products and services between initiator and target companies to check their competitive position.
- **Product benchmarking** - the process of redesigning of current products and designing of new products. The company can see its own strengths and weaknesses through comparing products with competitor ones.
- **Strategic benchmarking** – is used when organizations seek to improve their overall performance by focusing on specific strategies or processes.
- **Functional benchmarking** – the process that compares single functions of two or more companies. Functions such as Human Resources, Finance and Accounting and Information and Communication Technology are unlikely to be directly comparable in cost and efficiency terms.
- **Best-in-class benchmarking** - includes learning from the leading competitor or the company that best carries out a specific function.
- **Operational benchmarking** - involves every activity of the company from staffing and productivity to office flow and analysis of procedures performed.

The basics of benchmarking process include four questions and it answers. These questions are:
What should we benchmark?, Whom should we benchmark?, How do we perform the process? and How do they perform the process?. When company decides it is ready to benchmark, and chooses potential partners, it must pay attention on ethical principals, which gives The International

Benchmarking Clearinghouse. These principals are principals of legality, confidentiality, exchange, use, first contact and third party contact.

3.METHODS

The basic phases of benchmarking process, which APQC, EFQC and other companies support are: planning, analysis, integration and actions. Benchmarking process phases are shown in Figure 2.

Planning – company needs a good preparation for benchmarking to be successful. Firstly, before company even starts looking at whom to benchmark, it has to decide what to benchmark. Company must select the process that will be compared, then analysed to the details and measured its performances. Then, it is good to form a benchmarking team which will create a process map and confirm all indicators based on the measuring performance process. In addition, processes are compared in costs and productivity and it is necessary to determine time schedule. In this phase, company's first steps are scope and research, and then identify whom to benchmark. World-class leadership companies or functions with superior work practices, wherever they exist, are the appropriate comparisons. Company need to contact the companies and see if they will benchmark with company. The selection depends on company's characterises, environment and goals, which are meant to be achieved. Finally, Benchmarking team has to collect data about company and prepare it for benchmarking. Primary source of information company can get by visiting competitive company personally. Those visits must be well planed, because there is a possibility that benchmarking company will not cooperate. In that case, company uses secondary source. A wide array of sources exists, and a good starting point is a business library. An electronic search of recently published information on an area of interest can be requested. In addition, company can use different articles, case studies, books, media reports, and blogs by leaders of the best benchmarking companies.

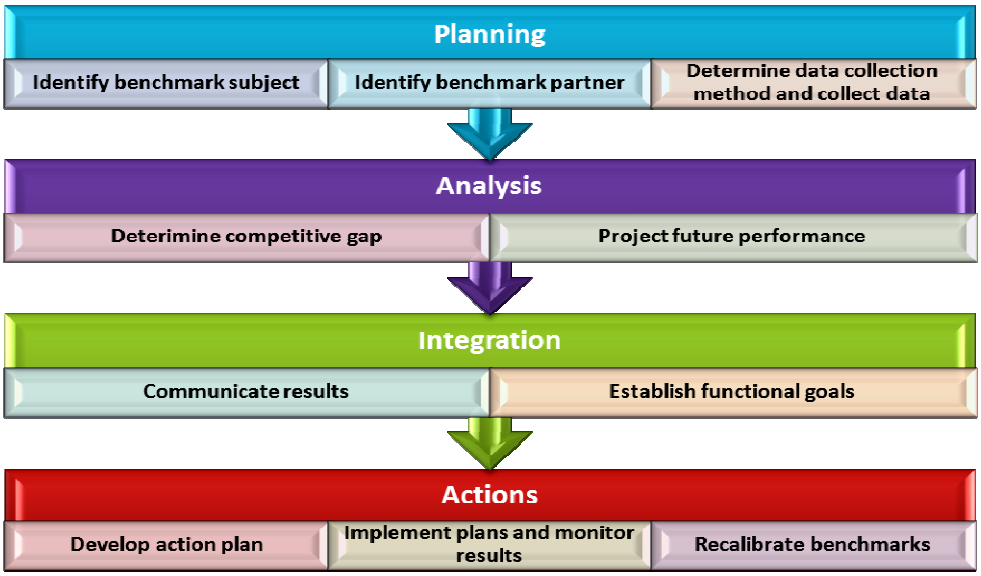

Figure 2: Benchmarking process phases

Analysis – It is important to have a full understanding of internal business processes before comparing them to external organizations. After this step, company has to examine the best practices of other organizations and finally to measure the gap. Quantifying the company's current performance, the best practice for the process, and the performance gap is vitally important. Gap analysis is a key component of any benchmarking process and helps that project achieve the most important objectives. Gap analysis is divided into the following three main phases: baseline – where the company is at present, entitlement – the best that the company can achieve with effective utilization of their current resources and benchmark – the best practice performance of a truly

optimized process. In order to utilize gap analysis effectively, the benchmarking process must be able to produce quantifiable results.

Integration – Communicate benchmarking findings, gain acceptance from upper management, and revise performance goals. Thus, goals that reflect projected improvement are necessary. On the basis of the benchmarking findings, the targets and strategies should be integrated into business plans and operational reviews and updated as needed. Therefore, company has to redefine goals and incorporate them in to the planning process.

Actions – In this phase, company need to develop action plan and to apply action plans. Information and knowledge gained are applied in business and begin to monitor to achieve the set goals. Finally, company has to recalibrate the benchmarks. Best practices are implemented and periodically recalibrated as needed. After this phase is the phase of **maturity**, in which company must determine when a leadership position is attained. Maturity is achieved when best practices are incorporated in all business processes, when benchmarking becomes a standard part of guiding work and when performance level are continually improving toward a leadership position.

4.FINDINGS

After benchmarking, organization becomes redesigned and functions on completely different basic then before. In benchmarked organizations, everything is submitted to changes, which brings new requests and challenges to the top management. Table 1 shows how company looks before and after benchmarking.

Table 1: Before and after benchmarking

Before	***After***
- non-invention	- using of all good ideas
- only 1 possible solution	- more alternatives
- accent on internal environment	- accent on external environment
- goals from the past	- the best goals
- lack of understanding the market	- better understanding of the market
- internal priorities	- users priorities
- we are good	- we need to be better
- managing by experience	- managing based on facts
- following others from own branch	- leaders in own branch

5. DISCUSSION

Benchmarking is used the most in the USA and Japan. Nothing points so clear on need for changes in organization like gap that exists between organization performances and the best competitors. No one can stay peaceful and be against changes in some car factory in the USA. For example, Japanese car factories have average zero mistakes per one new car, while American have about thirty. Japanese companies have developed Kaizen tools that western managers do not accept. Successful companies proved that it is possible to predict changes and respond to challenges until they can handle the changes. Japanese companies successfully design, produced and placed on market competitive products using Kaizen strategies. Those strategies the Japanese managers use more than thirty years while western managers do not pay attention to them. Kaizen strategy emphasizing does not mean that innovation can and needs to be forgotten. If company wants to develop it needs Kaizen innovations. Japanese success did not depend on cultural facts and their solutions can be applied anywhere. Kaizen management represents the element of overall control of quality management, and refers to continuous long-term change approaches with respecting of human needs and qualities.

6. CONCLUSION

"The most effective way of successfully managing of changes is to create them." , claims Peter Drucker. There are many methods used by companies in an effort to improve quality in both their products and services. In the fast-paced environment that surrounds industries today, they find themselves faced with the pressure to discover fail proof ways to run their businesses. Benchmarking provides companies the opportunity to assess their own procedures and helps them to understand their industry better which leads to innovative thinking. Some benefits of benchmarking are a better understanding of customers and competitors, reduction in waste, quality problems and reworking, quicker awareness of important innovations, a stronger reputation within the market, and increased profits and sales turnover. The benchmarking process is not an easy one. It requires more time and effort than most managers think. There are a series of steps to follow to ensure that the benchmarking process is successful. Benchmarking encourages a company to become open to new methods, ideas, processes and practices to improve effectiveness, efficiency and other performance. Most important, regular benchmarking encourages a culture of continuous evaluation and improvement.

7. IMPLICATIONS

To determine if company's business, unit or organisation is ready for benchmarking, it has complete the following questionnaire, based on American Productivity and Quality Center (APQC) material. Company need to study the statements and tick one box to reflect the level to which the statement is true for its business, unit or organisation.

	Most	Some	Few	None
Processes have been documented with measures to understand performance.	☐	☐	☐	☐
Employees understand the processes that are related to their own work.	☐	☐	☐	☐
Direct customer interactions, feedback or studies about customers influence decisions about products/services.	☐	☐	☐	☐
Problems are solved by teams.	☐	☐	☐	☐
Employees demonstrate, by words and actions, that they understand the mission, vision and values.	☐	☐	☐	☐
Senior executives sponsor and actively support quality improvement projects.	☐	☐	☐	☐
The organization demonstrates, by words and actions, that continuous improvement is part of the culture.	☐	☐	☐	☐
Commitment to cange is articulated in the strategic plans.	☐	☐	☐	☐
Add the columns:	☐	☐	☐	☐
Multiply by the factor:	x 6 =	x 4 =	x 2 =	zero
	☐	☐	☐	☐
Grand total:		☐		

The answer will come from score:

32 - 48	**Ready for benchmarking**
16 - 31	**Need some preparation**
0 - 15	**Need some help**

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PUBLIC RELATIONS

Sanja Pantić
Maja Siljanovski, B.Sc*
majasiljanovski@gmail.com
Ana Đuričić
University of Novi Sad, Technical faculty "Mihajlo Pupin", Djure Djakovica bb, Zrenjanin 23000, Serbia

ABSTRACT

This work is an attempt to get through the basic definitions and development of the characteristic concepts, approaches and enters the world of public relations which also entails breaking the typical bias that public relations associative equate with marketing or on organization of special events. Truth is that public relations represent global activity with excellent opportunities for development. The challenge is define and in practice to implement public relations in a way that, in the public interest, promote understanding and harmonious relations between peoples and organizations. In this work will be shown how to manage public relations in company "Mercedes Benz".

Key words: public relations, communication, promotion, marketing

1. INTRODUCTION

When exists an intellectual gap in the development of a scientific discipline, developed countries and certain areas, will find ways of defining the problems, and the general level details who followed in approaching a given topic. Each new scientific field, and public relations, towing behind a lot of miss steps in understanding matter and implementation of knowledge from them. Economically, public relations are mostly developed in the United States, where organizations, estimated to be allocated to this activity $ 10 billion a year. Despite poor statistics, it is estimated that European companies spend $ 3 billion on public relations. This figure continues to grow by establishing the European Union and developing market economies in Eastern Europe and the new states of the former Soviet Union. Areas with great development potential in Europe, public affairs, corporate relations, health care and marketing communications. Also, many students around the world studying public relations as an area in which they want to build a career. In the U.S., more than 250 colleges and universities offer programs in the field of public relations, while this subject studying on 80 European universities. And many Asian universities, particularly in Thailand, have degree programs of public relations.

2. PUBLIC RELATIONS-PR

2.1 Definition and characteristics

Public relations are usually defined on the basis of easily observable activities, such as publicity in newspapers, television interview with the spokesperson of the organization, or on the basis of celebrity impressions at a special event.[3] What people do not understand is that public relations are a process that involves many subtle and profound aspects [1]. This process includes research and analysis, policy formulation, programming, communication and feedback from many types of audiences. Practitioners of public relations work on two different levels-as advisors or their clients, or top management, organization, and as technicians who produce and send messages through various media channels. Public Realations –PR are a type of business activities, taken for the

planned and deliberate communication, establishing and maintaining relationships with the environment, in order to create favorable publicity and image of the organization, and advocacy against rumors and stories that occasionally occur. This class is sure to be focused in several directions: developed a special way of dealing, communication or contact among employees within an organization; in addition it includes a special form of communication and behavior toward customers, but a special form of context and relationship with business partners, investors, suppliers, media, competitors, financial institutions, public agencies, professional institutions and others [5].

All the known world organization, interested in successful operations, have formed the whole teams of experts for public relations, which together with the management of participating in market competition of the struggle for survival.

Over the years formulated a number of definitions. One of the earliest, most widely accepted definitions formulated by the Bulletin News PR: "Public relations are the management function that evaluates public attitudes, identifies the policies and procedures of the individual or organization with the public interest and to plan and implement the program of activities aimed at gaining public understanding and patience."

Rex Harlow, one of the first educators in the field of public relations, who founded what would become the Society of Public Relations of America (PRSA), one has collected more than 500 definitions in almost the same number of sources. After it is well studied and talked with leaders in the area, Harlow presented the following definition [9]: Public relations is a special control function that contributes to the establishment and maintenance of channels of mutual communication, understanding, acceptance and cooperation between the organization and its group of public, include the management of problems or important issues and helps the management to inform public opinion and respond to it, defined and stresses the responsibility of management to serve the public interest, helps management to keep pace with the changes and use them successfully, serving as an early warning system that helps to predict trends, and uses research and ethically correct techniques of communication as their main tools.

2. PUBLIC RELATIONS VS. JOURNALISM, ADVERTISING, MARKETING

Although writing is a common activity and experts for public relations and journalists, despite the many common techniques, these two areas are fundamentally different in scope, objectives, audiences and channels. Publicity, as one of public relations, use of mass media to send messages, as does the advertising, but the format and context are different in that it involves paid advertising space or time. James E. Grünig, editor of the Excellence in Public Relations and Communication Management, clearly distinguish public relations from marketing: Marketing function should be communication with the markets in which the organization sells its goods and services. Public relations should affect all groups of public organizations. The main purpose of marketing organization is making money by increasing the slope of the curve in demand [4]. The main purpose of public relations organization is saving money by building relationships with public groups that restrict or enhance the organization's ability to accomplish its mission. We can conclude that the functions of public relations can be folded down to marketing, but PR builds cooperation and creating a good reputation, while engaged in marketing and selling products to consumers. However, public relations and marketing could be viewed through mutual support. Philip Kotler, a professor at the University Nortwest and author of leading textbooks in marketing, says that public relations is the fifth "P" marketing strategy, which includes the other four "P" - a product (product), cost (price), distribution (place) and Promotion (promotion). The objective of the organization is best achieved by integrating functions of marketing and public relations, where, communications organization should be consistent.

3. PUBLIC RELATIONS AND PROMOTIONAL MIX

As an important business function and an integral part of business policy, public relations in modern business practice is getting very important role in the coordination of communications and promotional activities of the organization. At the same time, public relations programs almost always have communications and promotional goals and objectives, and thus gain an important place in the promotional mix of the company. In addition, the goals, means, techniques used and the ultimate effects of the activities of public relations and other promotional activities often coincide, very difficult to accurately separation and determination of place in communications and promotional mix., Considering the fact, differently interpreted the relationship business functions of public relations to promote, and therefore the relationship of this function to certain types of promotions in the promotional mix of the organization.

For example, some authors consider the promotion of a network of communication that includes a number of marketing instruments: economic advertising, sales promotion, adjusting sales, publicity, public relations, packaging, design, customer service and propaganda "by word of mouth."

Bearing in mind that public relations in addition to promotional goals includes a number of other specific targets, and other public organizations in the target environment, many authors agree that they represent a much broader concept of promotion, and that can not be considered just a form of promotion , such as advertising or publicity.

The effects of promotions, in modern conditions, are increasingly becoming dependent on the degree of achieved coordination of promotional activities in the communications and promotional mix with other instruments of marketing mix. Thus, professional public relations became the main carriers of complete communication programs and also receive a coordinating role promotion and other marketing tools in the marketing mix of companies. In this way, public relations "go out" beyond the concept of marketing mix and promotional mix. Their close relationship with other business functions in the company implies a multidisciplinary approach to the management and requires consistent coordination with other business functions.[7]

4. TARGET PUBLIC RELATIONS

Target public relations allow the organization to formulate a specific strategy of communication with each of the target public. Target audiences that require planning and strategy-driven two-way communication, are in fact two kinds of public: internal and external.

Internal flow (public) - means a form of negotiation, the domain of strategy of an organization in achieving certain goals, through an internal flow of information. Internal public consists of all employees. The ultimate goal is to create a corporate culture, collective way of thinking, which primarily includes the total shared values, moral and ethical principles and rules of conduct.

External flow (the public) - means the complex process of communication with the environment and reflected in the contacts with the media, in the form of public speeches and appearances, consumers, competitors, state, church, banks, and other figures outside world.

Three main stages of the target of public relations as:[8]

1. Segmentation of the environment and the public.
2. Choice of target audience within the identified segments.
3. The formulation of specific public relations and the instruments through which to act.
4. Strategy performs in relation to target audience:
5. Undifferentiated strategy-a strategy groups and developing programs for the largest target group

6. Differentiated strategy-specific programs for specific segments of the communications
7. Focused strategy - focus on a limited number of target groups; communication programs for selected target groups.

Sum, we conclude that research and analysis of external and internal environment and identify potential problems or difficulties in communication, in order to form a database of target audiences and other important factors relevant to each specific situation, is an essential item and an important factor in the segment of public relations and possibilities for its successful and smooth operation.

Figure 1-Interaction between organization and public[2]

5. THE ROLE AND IMPORTANCE OF PUBLIC RELATIONS IN SOCIETY

In public relations that are the subject of this paper will be presented through theoretical and practical observations, because the attitude towards this area is primarily a manner that is more about the craft that is learned through practice, but a specialist or academic knowledge. Of course, that initially will be to distinguish between public relations that were an integral part of the state administration, as this area was earlier, the modern concept of public relations as a discipline management.Information that exist in the field of public relations, indicate that in addition to the general tendency within the profession of public relations, there are specific directions for individual educational institutions (college, high school, colleges, specialization), and in some states.

Public relations are a multidisciplinary field that has seen development in the last 30 to 40 years. The appearance and development of electronic media (especially television) and their importance in shaping public opinion, are turning moments in the development methodology of communication with the public. Also, we must not forget that the return of multiparty democracy in our country has increased the importance of communication with the public for the operation of all sectors of public administration. The process of reform and harmonization of requirements up to date, and strategically focused approach to the public either through the mass media, either through direct communication. The principles of transparency and public accountability that actively promote the process of stabilization are just one of many reasons why a set of methodologies was appointed as the PR (Public Relation or just a short PR) is vital for the functioning of all segments of public life.[6] Nowadays, the management of any successful company, public institutions and nongovernmental organizations, and management communications includes the organization, or the existence of a strategic program designed public relations (PR). Why communication management and PR are got so much in importance in the contemporary world and more himself why we can not afford to ignore public relations? What are public relations and what are the activities of PR?

Through the clarification of basic concepts, techniques and methods, the practices, the paper pointed out the value and purpose of public relations (PR) and instructs the basics of working in the area.

6. MANAGEMENT OF PUBLIC RELATIONS IN THE COMPANY "MERCEDES BENZ"

The first advertising activity public relations concerning to the class A appeared in may 1996. year 18 months before the start of production. In that period Mercedes was controlled mass advertising, publicity activities and public relations. Media received only certain information. During car show in Geneva no journalists or audience could not test the car. Regardless of all this, class A received very positive comments months before than it appeared. [5]In June and July 1997. year class A presented to the media [5]. Several journalists were tested car, and the conclusions of independent comparative tests were fine. Class A has received an excellent rating for safety. No one has expressed any doubt in the field of stability. During the testing A class was removed inner part of the wheel, and the outer rear are turning to rubber wall. The driver commented that the steering wheel locked, thus making it impossible to correct the car. No matter, the car has not capsized. Scandinavians have become suspicious. The first cars are produced and all looks good to 21. October that turned in a nightmare for company Mercedes Benz. During the test, car classes A begin to tumble on speed of 60 km/h, and driver ended up in hospital. Company managers, known for their passive attitude with the public, especially with media, reacted very slowly and their official report was: "We assume that the incident caused by extreme driving conditions that pushed mass far." Actually, they did not have the necessary information on this test. Further, appeared 4 different personalities that are on their way interpret mentioned event.

On car show in Tokyo, were also specialized journalists. As a result newspaper reports were most appeared in the tabloids. The leading German newspapers stressed that the *baby-benz* turned into "problem child". One newspaper published a headline "Mercedes A-class is dead ". Mercedes is sent video footage by the Auto-build all the newspapers. On them the wheels were enlarged showing different sizes. Were asked where Mercedes mounted. The editor confirmed that the tires were changed before the test, because they had a minor accident, that he is disappointed, that its reporters did not mention this fact. But, it basically did not change the essence, the negative attitude of the public. Mercedes has decided that to 29 October organizing the press conference in Stuttgart. Message Company Mercedes were focused on three aspects. First, they argued that the test was not realistic. Second, Mercedes has drawn attention to the fact that one of the tires was different from the others. Third, Mercedes announced it will install electronic stability program (EPS) in all cars A class. In November Mercedes is sent modified car in Džerez to test. A class has passed all tests, and experts and official sources called it a light test.

In the end, November, driven by the real media war in which one group claimed that everything was fine with A class, and the other was convinced that A class is not safe. A class is awarded the gold point by the popular German magazine Bild am Sonntag. Even Jack Bruno, the designer of A class, received the prestigious European Award Lucky Strike Designer Aword. Thanks to the efforts made by the company, A class was almost regained the confidence of consumers. Awareness of brands is high, 94% of consumers.

9. CONCLUSION

The structure and contents of this paper were designed to review the concept and phenomenon of public relations and promotional strategies, through theoretical analysis and practical example. Introduction talked about the different definitions, key aspects of the functions and processes and types of the public who are engaged in public relations. Continuation is concentrated on the basic explanation of the processes, planning of public relations, with a brief reference to how the planning and the types of plans. The third part make position of public relations in the field of

education, where he explains the necessity of organized public relations, and its place in the organizational structure. At the end of the section presents a brief example, as a slice of research conducted in local practice. The last part presents an analysis of the promotional mix as well as its instruments of public relations, concrete example of the Faculty of Organizational Sciences. Its purpose is to give impetus to a better organization and public relations, and development in the same proportions in which to make the most successful universities in the world. The proposals, presented from time to time, only to have the theoretical basis, that would be used, hopefully soon, could be used for developing serious public relations activities, which would thus come to improve the position of the Faculty in all social and business spheres.

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INTERNAL COMMUNICATION AS AN ELEMENT OF QUALITY IMPROVEMENT

Jovanka Rkman*
jovanka.rkman @ gmail.com
Jovana Pecanac
pecanacjovana@hotmail.com
Melita Ćoćkalo – Hronjec, B.Sc
University of Novi Sad, Technical Faculty "Mihajlo Pupin" Zrenjanin, Djure Djakovica bb, 23000 Zrenjanin, Republic Serbia

ABSTRACT:

In this paper it is described how communication impacts on a quality improvement inside a business organization. Futher on, it is shown the connection between the quality improvement, application of ISO 9000 standards and productivity of business organization. It was observed how efficient and important is internal communication as for the market promotion and for business with other companies, too. Serbian business orgnizations are still not aware of this. In the first place, there is a lack of knowledge. Therefore, the training of domestic managers is needed and their introduction with the impact of internal communication on the business quality improvement.

Keywords: internal communication, quality of communicaton, ISO 9000 series of standards, business quality improvement, productivity

1. INTRODUCTION

Nineties have shown that the era of the global competition came into being; it is characterised by forcing the standard of the world market and international orientation of the firms. Firms wishing to develop and do well on a long term scale, must behave globally.

It is considered that the two determing factors influenced development of business activities: technology and homogenization of the consumers (Rakita 1993, p 72). Fast technological progress created conditions for technology to become available to all in the world under acceptable conditions. On the other hand a quick spread of technological progress influenced on lessening monopoly over knowledge, which as a result, had a possibility of entering to all that are organized and ready financially for fighting over the world market.

A traditional way of thinking about a successful increase and development of a firm on national frame under the conditions of global trends and global surrounding is an inadequate one if one says it in the mildest way.

According to Porter (1990, p 578) a competitive advantage on international scale is based on: inovation and changes of products including the inner system of values, continuous improvement on doing business, building up the resources and a global approach to strategies. Modern running of business understands to restrict business functions. From traditional understanding, denoted by a liberal way of thinking, where all business functions had importance, more or less at the same level, firms must turn to proactive thinking which means understanding and creating changes, giving importance to those business functions which enables firms to create, maintain and develop a competitive position at the global market. Functions having a strategic importance for running

business of a firm are: research and development, quality and marketing (Djordevic and Cockalo, 2007.).

The quality of business consists of three dimensions: market, business, social. From the point of view of the organization, improving the quality of business means, besides the achievement business aspects of quality – lower costs, higher productivity, profit increase and the market aspect of quality – meeting demands of customers, achieving customers' satisfaction, making competitive advantage and stable market position, achieving a social aspect of quality, which is reflected in protecting people health, protecting consumers' interest, environment protection, saving natural resources e. t. c. Quality is getting the features of integrated management approach which unites management, marketing and developing aspect of business running to a final goal of satisfying users' and consumers' need, and the whole social community too.

The function of marketing appears as an integrating factor of business functions because of its basic characteristics (Djordjevic and Cockalo 2004, p 3). Marketing as a business function enables a firm to anticipate changes in the surrounding which their firm adapts to but more and more the firm takes part in changes even creates them. It is a function in a structure of organization too, make conditions to be implemented in managing changes. That is, mostly marketing enables managing the knowledge i.e., makes possibility for increasing knowledge productivity of other business functions of a firm. Marketing represents a key instrument which makes knowledge more productive. Managing of marketing for its final goal has achieved satisfaction of the users and is aimed to gain users' loyalty.

2. CHARACTERISTICS OF INTER – COMMUNICATION

Inter – communication includes all the communicative and information activities among the members of an organization, it is a part of communicative management and is oriented towards success. Nowdays, in many countries, inter – communication is considered one of the most important means in managing the organization. Inter - communication represents interchange of ideas and information inside the organization. This interchange should be performed in a way, as efficient as possible, in order to make qualitative inter – communication which will influence the organization directly.

Characteristics of communication:

- Dynamics – an active interchange of information and messages
- Irreversibility – communication is irreversibly
- Proactivity – means the wholeness of doing, at the side of a communicator
- Interactivity – means dynamic relationship of doers in various communicative roles in business environment
- Content – is inseparable out of a personal communication. (Saifert et al., 2006).

A great problem of today is that many companies are not aware of the very same influence of communication inside the organization, to what extent it is essential for further prosperity. Motivation at the side of employees strengthening their moral, increase of productivity, strengthening the image of a firm, a better relationship management – employees and so on; all these are in direct or indirect way connected by inter – communication. It was proved that people much more listen to than speak. At the organizations people wish to communicate only to people who are higher in rank, who can help with solving some of their tasks. They also wish to improve their position in a firm by communication. The importance of inter – communication reflects in understanding both parties: others to understand us and them to understand us better. Then there is a factor of motivation with the employees, organized culture etc. Like cases as these, here occur problems and mistakes. The basic mistakes in communication are: the management commands too much; there is little frankness, little is understood of what is said, greater part of the content relates

to management and not to employees, and the like. Problems occur in the relationship among people: for instance, if it comes to move the people or their leaving and the like.

Management should understand that nothing is "considered by itself". They make a mistake at the very beginning. They should draw the line in situation that everyone has grown up in a different surrounding, under different circumstances and rules. Therefore he cannot understand things the way his superior does. Bringing in any of the changes in the organization causes fear at the side of employees and sometimes revolt. Because of that, there should be communication with employees, involving them in the process of planning, and implementation of changes.

It also should take care of pointing out the benefits and then the problems. Every problem and a mistake made in communication should be notices and removed, as soon as possible. They should not be neglected and their solution postponed, for only satisfied workers are successful workers. Communication in relationship management – employees contributes to creating a positive atmosphere among the employees whish influences the result of the business. Employers' duty is to get the worker all necessary information and to give a sound explanation of what is expected out of him. Managers talk with workers; for a well instructed and informed worker is an efficient worker too. He will obtain good results in business, make the image of your firm, increase productivity e. t. c. half of the firm's success in business is at the side of the employees.

Trust between the management and the employees is of a great importance in achieving a good communication. If there is trust and respect together with frankness, the manager will correct the workers' behavior easily and direct it towards his will in achieving the goal. The relationship should be fair and correct on both sides.

3. THE INFLUENCE OF INTER – COMMUNICATION ON IMPROVEMENT QUALITY OF RUNNING THE BUSINESS

Preconditon for improving business of a firm is in accepting education of all employees, starting with boart itself.

One cannot expect of an ordinary worker a higher knowledge, respect, politeness, if a manager himself does not posses them the goal of improving business is connecting the manager to employees. Such is the way confidence is established, and a pleasant relationship among them, which influences a social community significantly. And even more the extermal business of a firm. The three steps to more successful communication and the increase of company's productivity:

- Daily meetings – short daily meetings will enable management the knowledge of certain sector's work on a daily basis – they serve to basical information.
- Pyramid of Communication – quick and effective way of sending information (Saifert et al., ,2006.)

During the increase of productivity it is very important for all the employees to understand it as their benefit, too. The quality of an organization and productivity is mutually an inseparable connection. Improvement of quality has a direct influence on decreasing the costs, and their decrease leads to increasing productivity. The first and the last chain in improving quality are employees in the organization.

As managers are the main factor in handling the quality, their task is to found business policy of a firm, to communicate with employees and harmonize their productivity of the organization alone; and doing these the quality of business doing.

The quality improvement bearers are all the employees in an organization. Quality education considers the employees' readiness for changes and installing a culture of education, the of

people's relationship should develop a spirit of enthusiasm for quality at the side employees through communication and good information about all the changes.

One of the basic tasks for creating quality changes in an organization is the courage of employees in suggesting new ideas, no matter a hierarchic position. It is more and more desired on developing an attitude with the employees to notice a problem connected to quality and solve it. Earlier employees feared to identify the quality problem, because it was considered being their responsibility and they would have been punished. In recent times a concept is introduces that promotes a system of awarding for the employees who detect the quality problem (Saifert et al., 2006.).

A highly motivated and a loyal employee who has the feeling of belonging to the company he works in is ready to fight for achieving its goals, because he feels the company as his own and, at the same time, the company's success is his own.

Education influences essentially, too, at a degree of the motivation of employees on their being more loyal to the company which they are not only bound to earning wages but have the feeling of their belonging to the company. According to a management model system of quality based on a process it is clearly seen that users' demands are a starting point for management of the board. The board is responsible for everything going on in an organization concerning quality of dealing with business. In order to gain a desirable result management must obtain all the resources necessary. For products to be done it is needed to handle all the process, making a product or a service. For constant improvement of quality measurement should be taken, the analysis and the improvement process, products or services. A special attention must be paid to measurement the users' satisfaction.(Djordjevic and Cockalo QM, 2007.).

Standards of the ISO 9000 series came into existence as a result of the need to confirm demands, some of deliveries should fulfil, so the customer see him as conviniant for a long – term cooperation. Introducing standards ISO 9000 alone brings to various changes in the organization, starting from the board up to the commonest worker in the organization. These changes have, as their result, a revolt against introduction and implementation the standard. They are great problem to management, too, for it comes to a certain revolt against it with themselves. Employees are better motivated when there is a defining role and responsibility, training, regulative procedure and when they bear in mind how, exactly, they personaly influence the quality and success of the organization.

Therefore, it is necessary to keep evidence on existing problems in quality and solve them as soon as possible and, of course, talk about what improvement can be done in a quality system. All this is done through inner revision and meetings. The most essential is determination of the board when it comes to implementation of standard. If the board is determined the standard is implemented, but if the beforementioned does not stick to regulated system, the employees see that and the system falls.

Domestic firms do not implement the system of management quality enough. According to date of ISO organization for the year 2008 (ISO, 2009). As many as 2000 firms in Serbia are certified, according to quality standard. The reason, mainly, lies in the fact that the managers of firms are not interested in investing and implementation ISO 9000:2000 because they think it not necessary yet or being a useless cost. Namely, domestic managers need a knowledge improvement in the area of managing the firms. Therefore, every individual employed in a firm must constantly make progress, be perfect and improve his knowledge. By improving knowledge business productivity is improved.

Workers and managers themselves, in our country do not wish ISO 9000 standard be implemented and this is only because of various prejudice and their inadequate experience and education concerning the topic.

Managers do not know the quality concept enough and have no experience, knowledge or motif for given standard.

On the contrary, employees in the organization have got a fear of introducing the given standard. Employees think that ISO 9000 standard will endanger their wages; nowdays the height of wages is a basic motif of the young.

4. INTER – COMMUNICATION AND BUSINESS QUALITY IMPROVEMENT OF DOMESTIC FIRMS

According to Drake (2003, p 24) the core of every organization is marketing and inovation. Business organization can exist only in production of a country – spreading and a firm is a specific increasing organ of expansion and change. Inovation relates to getting economic satisfaction. It is not enough for a firm to offer a product or a service. It must offer better products and services. The most productive inovation is a different product or a service that creates a new possibility for satisfying needs, not an advancement.

The main problems we encounter in this area, when market development is meant, are: not adopting the market logic, not understanding integral marketing concept, misunderstanding of marketing, inadequate treat of investing in market development, problems of organizational structure, insufficient speed of adopting new trends in market development methods and technics in management, problems in inter – communication in firms (Djordjevic and Cockalo, 2006.).

Special attention must be paid to implementation of new managing approaches in conceptional and organizational term as well. It is necessary for our firms to give up the way of thinking which is limited by domestic market, domestic understanding how to run business, and domestic business experience according to a formula ”if something functions it should not be changed.”Advancing productivity of business represents the basic parameter of the firm’s success. It considers creating conditions for advancing knowledge productivity and, as a results, the productivity of work. Battle for competitive advantage is mainly the battle for business productivity. Globalization process of the market and international competition demand that firms, if they want to survive and keep their position, must possess three key resources, such as: financial capital, new technology and knowledge. Unfortunately, besides financial capital and new technology, domestic firms lack one resource more and that is knowledge. Education (training) represents an important segment in a process of raising competition and efficiency of Serbian country production.

For production it means inovation and getting new knowledge how business is runned, how to increase productivity managing costs, having ideas and design products. For a state it represents getting to know the best practice of the countries which succeeded in raising competition, where as for the people it reflects through a reform of education and a change of consciousness about the significance of competition. The necessity of organizing domestic producers of goods, represents an important precondition for better communication in domestic work of business. Domestic firms haven’t got enough consciousness developed about the advantages of the firms’ common unification. Inter – communication is most neglected at domestic business work. A good inter – communication is basis of a good relationship in every firm. There is more and more bad inter – communication in domestic companies, those treated badly at place of work, employees’ stress for fear of their job with inadequate level of knowledge and education.

5. CONCLUSION

To found an organization that functions well, it is necessary to have a quality inter – communication. The aim of internal - sommunication is social identification at the side of employees with the firm.

Influence of the inter – communication is seen at:

- A good relationship the board – employees
- A good business image
- Efficient extermal communication
- Loyalty, devotion, motivation of the employees
- Quality business dealing of the firm e. t. c

Advancement of the quality becomes a priority task not only for the management but for the state organs, educational and scientific institutions the system of quality governing is a social technology that goes into a way and organizing business doing of a firm and not a formality that should be done in order to satisfy demands of the international market.

Without people engaged there is no success, because people work to “survive” nowdays. The occurrence of strikes, work – stop, come as a result of unmotivated workers and a bad inter – communication. Managers should address themselves directly to their employees, communicate with them, not only in exceptional situations and only in written forms.

By shouting and in a raised tone superiors think they will solve the problems existing or they will make them to work more for fear although everything is vice versa. Under pressure employees more and more lessen their motivation for work and so contribute the less effect of working. “A nice word opens the iron door”. Therefore everything is achieved if it is done in a nice way, in a calm tone and with agreement. With such an attitude only, a positive result of the organization is achieved; respect and the image in a society, and at the same time the firm’s productivity. The best image for a firm can be obtained with people working for it, but a bad image as well. Everything depends the way the board treats the employees.

A greater engagement at the side of managers, in our country, is needed for the wellfare of their company, because doing that, they encourage their employees and there is no success without them on business plan. That doing they motivate the employees to finishing job on time much more, which influences directly on increasing the firm’s productivity.

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MEDIA RELATIONS AS A SEGMENT OF PR ACTIVITY

Marina Davidovac, B.Sc*,
University of Novi Sad, Technical Faculty "Mihajlo Pupin", Zrenjanin, Serbia
davidovacm@gmail.com

ABSTRACT

The work elaborates on the effect of PR activities and media relations on company or corporation business. Any company can achieve higher business level via PR and media relations by means of advertising and adequate informing of the relevant market groups. The purpose of media management has been described hereafter, stating that enforced media communication capacity between the company and the relevant market groups, results in greater company publicity, which directly affects its market demand. The influence of electronic media on the creation of public opinion has been exemplified here, along with the idea that those are actually the crucial moments in development of methodology of communication and public relations. Planned media communication enables all the main messages that the company emits, to find the shortest and the safest way to the public.

Key words: management, PR, media, planning, publicity.

1. INTRODUCTION

Public relations can be observed as a profession, process, communication with the public and practice (Baskin and others, 2000). PR solve problems occurred due to unfavourable stories, rumours, or events. PR, likewise, aims to create favourable relations with the relevant public groups and propitious corporate image.

There are several key words that can describe PR: respect, perception, trust, cerdibility, mutual understanding, agreement, truthful and wholesome spread of information (Black, 2003). The main aspects of PR are: media relations, relations with the investors, politics, community and clients; communication with the employees; corporate identity; sponsorship (Wragg, 1996).

The first world PR association congress defined PR as art and social science that analyses trends, forecasts their consequences, counsels organizations and applies preplanned programme of activities in accordance with the organization and public interest. Public relations plans are usually created as long term plans, from 3 to 5 years, though are susceptible to changes. Each plan consists of several elements, such as target audience, key message, strategy of animating the target audience, tactic, the choice of materials, advertisements etc., the time required to achieve the plan and of course the money.

The message can reach the target audience in various ways: via electronic media, promo material, brochures, newsletters, annual reports etc, and all aiming to create publicity, i.e. media coverage of important activities. The most important part of PR activities are media, the power of conveying the message and publicity creation. That is why any successful PR manager, always has perfect relations with the press, and functions alone as a journalist sometimes, ready to present the story so that the story itself becomes a news.

Public relations include and comprise publicity, advertising, media relations, marketing, lobbying, creation of communication projects, internal communication, crisis communication, editorial assignments and opinion polls (working hand in hand with market research agencies).

Communication of the company with the relevant public group via media, is highly significant work that comprises cooperation with journalists, newspapers, printed media, radio and TV stations like means of distributing the news and the events. Within those relations, it is of vital importance to secure the relation that is based on true and trustworthy information and material. The relation with media and journalists must be based on mutual cooperation, honest, mutual respect, and contribute to the quality of the communicative effect on the relevant public group.

2.PUBLIC RELATIONS

Public relations is actually multidisciplinary field that has been developed for the last 30 to 40 years. The concept of PR has been present in Serbia since the middle of the 80s. Any thorough research dealing with public relations appears in the last 15 years. This coincides with appearance of the PRs in Serbian companies. With the increased number of foreign marketing agencies, which appear in the late 90s, there has been an increase in PR activities of the companies operating in Serbia. According to (Taylor, 2004), the similar situation, though a bit more favourable, occurs in the other countries in the region, which can be relevant for the sake of comparison (Hungary, Croatia, Bosnia and Herzegovina, Romania).

The aforementioned countries have started developing their PR activities for the last 20 years. The trend has been intensified in Serbia only after the year 2000, i.e. a bit later than in other countries from the region. With the entrance of greater number of foreign countries into Serbian market, PR practice has advanced significantly. (Nikolić M., Terek E., 2011)

It is important to state that PR is the field that is constantly evolving and which is in its essence comprised of practical experience. It would be wrong to believe that PR can be observed as an exact science where certain principles and doctrines are always right and applicable in all cases. It is essential to understand the needs of your organization or institution when it comes to public relations, and thus pragmatically and strategically create system of communication with the media and direct interpersonal interactions.

2.1 Planning public relations

Public relations belong to the domain of management and are of great relevance to strategic and corporate planning. Strategic management differentiates between short-term, medium-term and long-term aims. Strategy actually represents long-term business planning. This direct relation between media and PR as strategic aspect of management, is the most transparent in business plan and its element of marketing plan via planning promotions. It is considered that basic elements of a business plans are: 1. Introduction, 2. Magement and organization, 3. Business surroundings, 4. Marketing plan, 5. Business activities, 6. Finance, 7. Risk, 8. Conclusion. Marketing plan is composed of the following elements: 1. Target marketing, 2. Products and services, 3. Price strategy, 4 Sales and distribution plan, 5.Promotion plan. Promotion plan of a company, when related to specific product, is to contain the following elements:

- The description of the promotion activities, including specific types of media to be used (post office, internet, radio, TV, newspapers, magazines, hoardings), their price and the benefits of that kind of advertising,
- Presentation of the activity with relation to PR (which form of the activity, which media),
- Presentation of the promotional material to be used (catalogues, prospects, brochures, radio and TV commercials, newspaper ads, posters, web sites), the cost of production and creative strategy,
- The description of company's promotional activities with relation to other elements of promotional activities (exhibitions and fairs, personal sales, lotteries, telemarketing, etc.) (Đorđević D., Anđić Ž., 2003)

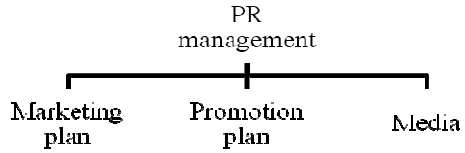

Figure 1: The relation between PR management and media

Based on the priorities set with strategic plan, PR sector activities plan is developed, including:

- Plan of media appearance or presentation related to each of the activities (printed and electronic media, press conferences, TV or radio show visits),
- Plan of relevant activities to be broadcast via media (ceremonies, counselings and round tables, fair and congress visits, meetings with relevant foreign and local officials etc.),
- Plan of commercial and other promotional activities (hoardings, posters, leaflets, brochures, TV and radio commercials) based on which media buying of printed or electronic media is carried out. (Such a plan is known as media plan)

2.2 Seven deadly sins of public relations

Enlisted below are the most frequent lapses of inadequate PR programmes:

1. Function "short-sighted" – inadequate evaluation of the overall contribution of PR to great management.
2. "Screw-unscrew" philosophy – we will consult PR only when we need them.
3. Jumping to conclusions – Who needs the research? Dealing with doubtful information.
4. Local anesthetics – Superficial dealing with the problems and not solving its roots.
5. Believing global public opinion only if it is positive and favourable when it comes to our company.
6. Short-term communicative trick – e.g. Why are you accusing us of non-communicating, well, we did deal with the issue in our last annual report.
7. Shade sham – low profile philosophy. This error is based on misconception that the company can become invisible whenever wanted.

3. MEDIA

Media present communication channel between the organization and its target groups.

3.1 The notion and the relevance of media relations

Media relations represent set of activities as part of public relations, with planned, organised and continuous aim to establish and maintain mutually beneficial relations between one organization and various media representatives (Zubanov V., Roca B., 2009). The fundamental aim of this function is to create positive publicity, as a specific form of communication with the whole the relevant public for a certain organization.

Having planned all media relations, creates situation where all the main messages relevant for the organization can find the shortest and the safest way to the target group of people, which is of great importance for the started campaign, and all with the maximal usage of the given sources. Valuable and well coordinated media relations plan increases the chances of spreading the message and its adequate media coverage.

3.2 Media influence factors

The significant media development we have been witnessing for the past few decades has not only occurred due to technological advances, but also due to appliance of contemporary managing skills. Media industry and its concentration and presence, media competition, hyper-commercialization of media industry are there to support the aforesaid. (Drašković V., 2010)

The influence of management on media and technologies, directly connected with media, is the most evident in latest developments that are fast becoming a part of our everyday life (mobile phones with advanced options, TV, IT etc.)

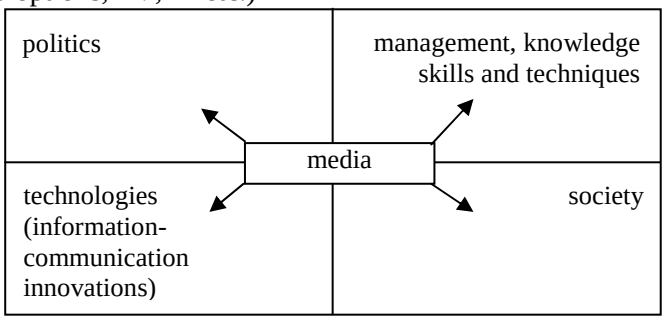

Figure 2: Media influence factors

In the era of globalization, management has multifunctional influence over media:

- in terms of organization – business networking and virtualization,
- in terms of planning – logistical boosting of the value of media products and services, with maximal respect to the changes occurred,
- in terms of managing – key competence insistence,
- in terms of HR – high-level training and specialization, with utter usage of knowledge economy,
- in terms of control – affirmation of controlling,

- in terms of motivation – development of a new type of leadership, which is to manage constant, fast and huge changes and to mobilize new knowledge, creativity and individual values, and finally,
- in terms of communication – relying on being informed about technological innovations and applying the same.

3.3. Managing media relations

Any organization is to adjust its own media relations to suit its needs. Management of an organization can:

A) decide to deal with all media relation activities on its own,
B) form a sector or a service to deal, solely or predominantly, with media relations, or,
C) to opt for outsourcing individual, department or agency that specialises in and primarily deals with media relations.

Still, an organization is to have a person to connect the organization's inter life and demands with external associates, who are to represent everything to the media. The key managers of the organization have to be acquainted with the most important information, skillful and ready to give interviews and perform publicly. It is of vital importance that the information and the messages, that are to be media broadcast, shaped in accordance with and adjusted to the education, culture, and political attitudes of the target groups because otherwise the desired effect may lack.

4. CONCLUSION

Media and management are phenomena omnipresent in our daily life. It would be difficult to imagine our life and our business activities without them. The relation between management and media is highly complementary, mutually conditioned and interwoven.This relation can be observed from various aspects. Yet, it still appears that the most important of those aspects is success, which is mutual aim criterion. It is certain that there aren't successful media without well applied management, nor is there successful management that does not make use of contemporary media.

Successful business of an organization depends directly on media and requires maximal involvement of PR sector, aiming to achieve cooperation, trust, respect and positive image of the organization, which is, in its essence, the relation between PR sector and media.

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PROMOTION AS INSTRUMENT OF MARKETING MIX

David Novak, B.Sc *
University of Novi Sad, Technical faculty "Mihajlo Pupin", Djure Djakovica bb, Zrenjanin 23000, Serbia

ABSTRACT

The term "promotion" means the process of communication between companies and customers in order to create positive attitudes about products and services that lead to their favor in the process of buying in the market. It is a permanent process of communication between the company and existing and potential customers. Promotion is the most defined as a process of mass communication with customers to increase sales of products or services. The promotion covers all the instruments of communication that a message can be transmitted to the target group of consumers. In this paper it is shown to promote the brand of wine "TERRA LAZARICA".

Key words: promotional activities, consumer, industrial advertising

1. INTRODUCTION

Promotional activities as an element of marketing communication processes are continuous exchange of information messages and inform the company with immediate and wider environs. Promotion is the process of communication between the company and the environment (consumers) in order to create positive attitudes about products and services that lead to their favor in the process of buying the market. Communication can be mass and individual, personal and impersonal, according to which the promotional activity involved in the process of communicating with certain recipients. The company wants to communicate with your current and future customers, the people who sell and offer its products and services, with distributors, their employees, friends, relatives, employees, suppliers, vendors, business partners, creditors, socio-political entities, cultural, sports and other workers, with the public at large - so the promotional activities, we mean a combination of different activities which the company interacts with individuals, groups or the public in the form of personal and impersonal messages to coordinate the mutual interests and needs.

2.TERM AND DEFINITION

Rarely for which the term in marketing there are so many different definitions as to promote the notion that the Anglo-Saxon word or Latin origin. This concept could be difficult to directly translate into our language, but it should be understood as a “promotion” improvement, or as a system of communication between producers and consumers. Very often mixed concepts and essence, that is activities in this field. Thus, at one point (60's) appeared in the literature a wide range of concepts in which the naive people was very difficult to distinguish and distance itself an action and terms of others.[4] Promotion practically is defined as a communication system or set of methods, forms and shapes that convey information about products, services and general consumers on the activities of enterprises and the wider environment.

2.1. Identifying target groups

As the first in a series of tasks in the development of promotion is to identify target groups that will focus advertising. The target group is the existing and future potential buyers. Depending on the

time and financial constraints, the target group for the advertising program is the target markets for the products the company, which is identified by market research. The more you know about the profile of the target group (the style of life, their attitudes and evaluations), the more easily develop a program of advertising. So, you need to know that the media target group than seeing, hearing or reading that they could choose the same.

2.2. Identifying target groups

When the company specifies the objectives of advertising you need to decide how to allocate funds for implementation of the plan. Defining the exact amount of funds is very difficult because there is no precise way to measure the effect of approximately correct (score) of invested funds.[6]

When determinations funds can apply different methods:[5]

- The percentage of sales - the funds in this way are determined as a percentage of sales (in the previous period or planned sales) per unit. In this way, it is easy to include the cost of advertising in the product price
- Competitive parity - according to this method, assets are determined in proportion to the amount of funds spent in the competition for these purposes by market share
- Anything that can be given for this purpose - as the words say what they themselves can afford for that purpose after the pay off all other obligations, unless of course you keep the funds
- Amounts set tasks and goals - this is the best approach in determining the funds because, conditioned by the amount of funds required for execution goals and objectives that the company has brought in advertising. This means that the company has defined what it wants to achieve and to specified targets

2.3. The role of promotion

Attitudes towards the promotions of the different situation. Some think that promotional activities, particularly advertising and personal selling, create a distorted picture of reality because they supply the consumer only selected information's [3]. I find that the promotional activities are unnecessary and wasteful and that the promotional costs (particularly advertising) high -resulting in high prices. Still others have a positive outlook: that advertising messages often generate useful values such as love, generosity, or that advertising as a powerful economic forces, can rid the country of poverty by means of communicating information.The role of promotion is to communicate with individuals, groups or organizations and to facilitate the exchange of informing and reassuring one or more target groups to accept a product organization. L.A. Gear, for example, won the Michael Jackson that would have broadcast the benefits of their shoes. Rock Against Drugs - RAD (Rock against Drugs), a nonprofit organization, engages rock musician popular, such as Lou Reed, to teenagers and other young people the message of anti-drug. As L.A. Gear and RAD, companies are trying to communicate with the audience about your company and its products, services and ideas, in order to facilitate the exchange.[9]

Viewed from a broader perspective, the promotion can play an important communication role. Some promotional activities, such as publicity and public relations, can be directed at helping the company to justify its existence and maintain positive, healthy relationship between him and the various groups in the marketing environment. Companies to record vinyl records, compact discs and tapes, television stations, media and individuals have given their services free to the world to facilitate the development of activities to raise money Live Aid in the world.

Although the company can focus one type of communication - such as advertising - the many groups of audience, it is often precisely shape the communications for the particular target market. The company often carries several messages simultaneously, each for a different group. For example, McDonalds can be directed to consumers a message to Big Mac, investor funds second message on a stable growth company and the third message to the society in general, relating to public awareness of the company for helping the organization Ronald McDonald houses in

America, who obtains assistance for families of children with cancer. How many companies contribution promotion to maintain positive relations to a large extent depends on the quantity and quality of information that the organization receives? For example, the panic in the UK due to contamination of baby food has led to the producers began to inform consumers about the specially designed safety caps. The problem was that consumers could see when canned food was bad and it is more difficult with food that is sold in glass containers.

2.4. Promotion strategies

While developing a promotional strategy is necessary to start from the marketing of their derived promotions goals and characteristics of some forms of promotion. Then create a mix of alternative strategies of promoting and choose the cheapest strategy. On this basis, it creates a tactical plan for implementation of selected strategies. Starting from the promotional goals is necessary to identify tasks that are necessary to achieve the objectives for each task should be considered role of some forms of promotion and to determine the means to achieve them. Finally, the individual plans of some form of promotion will be aggregated to get a plan promotional mix. Like other tools of marketing promotions to target market products and communicate the concept to eliminate the transactional barriers of time, place, ownership, perceptions, and evaluation. The organization can go to the presentation of the product as superior (single) when used in addition to highlighting the generic goes to highlight the superiority of the product. This strategy is suitable for emerging markets where competition exists. Once the promotion underlines the general benefits that the buyer has the product, without emphasis on its superiority. This happens when the brand is synonymous with the product category. Insisting on brand image, which is based on psychological differentiation of products, is suitable strategies. If an organization is going to create more strategy for its product then it is good that the promotion is a direct comparison with competitors and de they bring in a defensive position.

The strategy of promoting change during life cycle. Before introducing a new product on the market it is necessary to inform the target market about the upcoming appearance of a new product. In the introduction stage the aim is to increase awareness, stimulate trial and acceptance of products. In the growth stage the aim is to ensure full awareness and create brand preference. The decline phase objective is to achieve the revitalization of the product or ensure its withdrawal from the market. There are two alternative promotional strategies: a) a strategy of pushing demand and b) strategies to attract demand. The critical difference is in a role - whether it is active or passive. In a strategy to attract a manufacturer takes the responsibility to create demand for the final product through advertising and personal activities aimed at selling the final user. In the strategy of pushing through personal sales, stimulate the demand at all levels of marketing channels, the broker is responsible for creating demand, and not primarily to meet demand as the strategy of attracting.

Under present conditions of organizations are faced with a range of phenomena covered by the term online (on-line) approach to marketing which is the essence of the introduction of new parameters of marketing behavior and the necessity of establishing interactive relationships between all the key factors important for the marketing behavior of the organization. In this context, the promotional mix is experiencing many changes that make it more complex and strategically important. Online, web or internet marketing is not only to promote but also includes the research activities of marketing and sales (online sales).

3. DIVISION OF PROMOTION

The promotional activities include: advertising, promotion, advancement (promotion) sales, personal selling and promotional activities publicity. U we can include the public relations and limit promotional activities, such as: service, design and packaging.

3.1. Advertising

Economic propaganda (advertising) is the primary promotional activity. As a form of promotion, advertising is the way mass media company with bundles. Because the company finances the transfer of information about themselves and produces out of its range, which is realized through a variety of communication channels / media (newspapers, magazines, radio, TV, etc.) advertising is usually defined as a paid form of (mass) communication with the market.[1]Advertising is a form of promotion of the creative communication process, in conformity with the interests and needs of consumers, producers and society as a whole. It is a way of mass communication that is intended to convey information, develop a tendency to incite to action in favor of products and Services Company.

Advertising is to inform about new products, suggests a new use of the product, inform on changing prices of products and explains how the functioning of the product. Convincing economic propaganda is important for producing companies have strong competition from the products of other manufacturers. Recalling propaganda is involved in the maturity stage of products that consumers continue to think about the product.

3.2. Sales Promotion

Sales promotion is essential when introducing new products for domestic consumption. Activity is directed towards the trade to accept the new product and keep the necessary stock and his important role in actions that will lead to consumer interest. Stimulating consumer is done through free samples, sweepstakes and premiums. The purpose of free samples is to induce consumers to try the product. It is used in low-value products that are consumed in large quantities during the year. The sample must be large enough that the consumer be able to determine the quality of products. Contests (competitions) are a method of sales promotion, which should enable the rapid expansion of the product.[2]

3.3. Personal selling

Personal selling is a form of promotion in which we make direct contact between seller and buyer. The seller may also directly examine the effect of their promotional messages, and that during the communication process - from monitoring (verbal and nonverbal) customer reaction - modifies and adapts to each individual participant.

3.4. Publicity

Publicity is defined as the publication of positive information about the company and its products and services in the media that are not funded by the company.

3.5. Economic Propaganda

Of advertising is paid form of presentation (and promotion) of certain ideas, products and services in the means of public communication, which does not involve personal contact and by implementing identified sponsor. This is typically a series of activities to acoustic, visual, or combined services through public media, potential customers and inform, persuade (or remind assure) the products or services. Economic propaganda, as one of the methods of promotions, to communicate with large circles of potential customers.[7]

4. BRAND PROMOTION - WINE "TERRA LAZARICA"

In promoting their brand, the company uses different means of communication, television and radio, magazines, newspapers, catalogs, brochures, posters, etc.The number of spots aired during the period 01-31.01.2005.god. For wines Lazarica Terra, Terra Lazarica black and white is 176 times the total length of 3567 seconds, and the number of spots aired during the period 01-14.2.2005. 137 times, with a total length 3166 seconds. Were analyzed spots New Year's greetings and SMS lottery game. The greatest realization of all the wines Terra Lazarica was in December and January, which is expressed as a reflection of seasonal sales of wine. Increased sales of these products at the time of fame, New Year and Christmas holidays. At that time, realized the intense promotional campaign by using various forms and means of promotion. In this way the company operates in two ways consumer awareness, consumer perception and its commitment to purchase.[8] The video was broadcast on TV: Pink, BK, B92, RTS, SOS, Belle Amie, Spectra etc. Are given in articles in various magazines for wine promotion Terra Lazarica. Cost of promotion in the media amounted to 213,579.00 din. Besides of advertising were used and various sales promotion activities for brand Terra Lazarica. The total cost of the project for 2004. mounted to 16,626,180.00 din. As support for the promotion of brands were used and sales promotion activities. Promotions are carried out at restaurants all over Serbia, which are classified into three categories:[8]

- I group - the largest, which includes restaurants mass type:
- II group - were selected quality restaurants;
- Group III - the most exclusive restaurants (VIP Facilities)

In restaurants and groups carry promotional activities were selected girls, promo Loader and managers. In the second group promoting the restaurant, had a key role as managers and leaders who are in agreement with the restaurant owners provided information and invitations are guests and friends of the restaurant to hold promotions.

Special attention was paid to the third group of restaurants. Promotional activities in this area were carried out in the presence of enologists Company. Plan activities included between 300 and 350 restaurants.

To create brand awareness are very important communication effects. In addition to communications, were evaluated and commercial effects, which are determined according to the analysis of changes in sales, volume brands Terra Lazarica under the influence of promotional activities. One of the conditions of effective promotion, especially advertising message is that consumers notice and remember. Information provided by respondents about the visibility of messages are very important for the development of the brand. They show that the goal of propaganda, informing consumers about the benefits of the product was realized. Activities of advertising combined with personal selling, sales promotion, public relations and marketing X connections are a precondition for the successful creation of valuable brand Terra Lazarica and its differentiation in relation to competing products.

5. CONCLUSION

Promotion is one of the strongest weapons in marketing and product placement services to market. In modern and contemporary society is unthinkable in the market to function without a well thought out promotion, therefore, no serious player would dare to no promotional activity - promoting the conquering markets. A well-designed promotion is half way to the success of the company and gaining customers. It is important to promote a positive influence on consumer awareness and to demonstrate the product and the company in the best possible light, and drawing attention to their attributes. It is very important for promotion to pay attention to the target group of consumers. Any modern and successful company has to pay attention to the promotional

opportunities because it is the only way to achieve the desired goal of the company - it is the best marketing that product to market. Otherwise we may fail immediately waiting around the corner.

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CORPORATE BRANDING

Maja Siljanovski, BSc*
David Novak, BSc
University of Novi Sad, Technical faculty "Mihajlo Pupin", Djure Djakovica bb, Zrenjanin 23000, Serbia

ABSTRACT

Research of this paper is the selection and analysis of marketing strategies of successful companies that have managed to be in today's diverse and saturated the market to sustain and set aside as a corporate brand, in terms of building and maintaining corporate identity and image. This paper deals with the area of managing corporate brand, as a function of strategic importance for organizations that choose to nurture the concept of corporate branding. The paper starts by considering the impact of key target groups of corporate brand, without whose involvement it is impossible to implement the underlying concept. It continues by defining and analyzing strategies that corporate brand can choose to achieve corporate objectives, with the potential deal with the positioning and differentiation strategy for corporate branding, as well as possible competitive strategy.

Key words: brand, corporate brand, stakeholders, employees

1. INTRODUCTION

Power brand is a good indicator of the strength and financial value of the company itself, which is why many companies are stated value of our brand on the income statement. Corporate brand is one of the most intangible, yet strategic assets of the company. In today's more than competitive business environment, companies with strong brand exceeded more than half way to success, and efficient management of corporate brand, companies gain an advantage, winning the market and differentiate yourself from your competitors in a way that helps them to integrate a wide range of activities. However, any brand that does not succeed forever, since the environment is constantly exposed to changes. Corporate brands are not by-products, not are their recognition builds on its own or by chance. They are the result of a multitude of relationships and experiences that companies create - with employees, shareholders, suppliers, investors, media, community and consumers. Acquire a reputation that corporate brands, so. "goodwill", as reported in the balance sheets of companies, the intangible capital or business assets, whose prudent management of the company can earn several times. Strong corporate brands are created and meet the expectations of their target public.

2. GENERAL ON CORPORATE BRAND

2.1. The definition of corporate brand

The definition of the concept of corporate branding by author James R. Gregory, follows: Corporate branding is a process that includes: [2]

1. Careful and comprehensive assessment of the company, its customers and competition,
2. Creating a differentiated brand
3. Clearly communicate brand messages to all target audiences of the company,
4. Brand management in time and space;
5. Measure results in a consistent and comprehensive way.

2.2. The difference between corporate branding and product branding

The concept of corporate branding is easiest to explain by the differences between corporate brands and brand products. Take the example of Nike brand and the brand Marlboro. The famous logo of Nike, the so-called Swoosh and the golden crown on the pack of cigarettes Marlboro is graphic symbols that are associated with famous name brands, and that evoke different emotions, ideas and memories. Both symbols have become an important part of today's society, partly as a result of all the activities of marketing, communications and sales. However, these similarities mask important differences. Nike is a corporate brand that symbolically integrate all company activities, which the power of its corporate brand not only provide sports gear to consumers, but also affects the manner of performance sports and shaped the identities of athletes. Marlboro, even though a global brand icon of immense value, is just one of the great empires of products Philip Morris. [7] Corporate branding is far broader concept of branding products. There are differences in objectives and level of branding tasks, resources, brand identity, target public and a position of responsibility:

1. Attention brands of products focused primarily on consumers, while corporate brands aimed at all interested target audiences - not only consumers but also investors, suppliers, distributors, partners, governments, local, national and international communities, as well as employees in the company. In short, branding the company asks for the inclusion of anyone who is important for the company.
2. Marketing campaigns are short-brand products and usually they are devising marketing managers, and corporate brands have a permanent and long-term ambitions, beliefs and values that are set by top management.
3. Unlike brand products, which lives and dies with its product, corporate brand following the company throughout its lifetime? It should not focus only on the future, but must take account of how the eyes of the considered target groups, through all of his existence.

3. VALUE OF CORPORATE BRAND

3.1. Measuring brand value

Brand value can be viewed from different perspectives: on the basis of an approach based on consumers and their idea of the brand, but also may reflect a value price, market share and profitability. "Intangible" brand value significantly increases the market price of the company. The products of these companies are buying more often and prefer a higher price than competitors, which means that this company based on brand image achieved significantly higher profits. Powerful corporate brand is therefore how to achieve sustainable competitive advantage, secure way to loyal customers and the right way to achieve high reputation and the reputation of the company. Finally, corporate brand contributes to good agreement, motivation and pride of employees and thus increasing brand value. Kotler says two approaches to measuring brand value, which are complementary and can be connected: [5]

1. Indirect, which are potential sources estimate the value of brand identification and monitoring of the structure of knowledge of consumers about the brand;
2. Direct, which estimates the real impact of brand knowledge on consumer reaction in different aspects of marketing?

For successful measurement of brand Kotler recommends the following steps: [5]

- Revisions to the brand - check the brand that is focusing the customer to evaluate the vitality of the brand, reveal their sources of values and suggest ways to improve and promote its values. In the review of the brand, we distinguish between:
    1. Records (current and comprehensive profile of the brand placement and branding, where it is proposed and detailed profiling of competing brands) and
    2. Brand research (identification of sources of brand value over the thoughts and feelings of consumers in relation to the brand).
- Monitoring the brand - the so-called performance. Study monitoring and quantitative measurements that provide information about the impact of brand and marketing programs.

Brand Evaluation - evaluating the overall financial value of brand.

3.2. Brand valuation theories and their limits

Bearing in mind the many problems in the methods of assessment resources, marketers have tried to identify measurable factors that contribute to the evaluation of the brand as a financial and economic category ("brand equity"). For example, the model of David Aaker, the so-called Brand Equity Model, suggests five different ways to influence consumers' brand strength, and thus the value that the brand will have on the market: [1]

1. Market behavior - the behavior is the result of market-position the brand in the eyes of consumers, which is usually measured in economic research and traditional measurements like market share, pricing and distribution;
2. Awareness - measures the extent to which populations of consumers claim to know that the brand is;
3. Association and differentiation - including the perceived value for cost price, brand personality, that is the extent to which brand caused interest and excitement, and brand associations such as confidence in the organization and admiration;
4. Quality - Brand rational dimension which is supported by the emotional response to brand innovation;
5. Loyalty - the consumer will pay the premium price is offered as an objective indicator of emotional brand value, which is fundamental to customer loyalty, and is limited to the most rational perceptions of the performance of products or services.

The question is the focus of economists and financiers in terms of brands? Not at all surprising that their focus is almost always the financial value of brands and models that they prefer to have been adopted from the model estimates of capital. For example, a consultancy firm based in London, top company for brand valuation, which annually publishes its estimate of the 100 most valuable global brands. Her assessment of the present value of earnings or cash flows that are expected to generate brand in the future. Table 3 shows the value of leading brands International list for 2009. Year. From this list we can determine that, when well-managed corporate brand, a brand can reach a significant value. Models such as brand valuation International model, estimated value of contributions brand market capitalization or cash flows. In the capitalization approach, the difference between the tangible capital of the company and the value of its shares are calculated, and then assign a "intangible capital" of the company, which among others includes its corporate brand with brands of products, knowledge of the owner, can provide innovation and human capital.

Table 1 - Ten most valuable brands in 2009. Year (Values are expressed in millions of U.S.dollars) [9]

1. *Coca-Cola*	68.734 ($m*)
2. *IBM*	60.211 ($m*)
3. *Microsoft*	56.647 ($m*)
4. *GE*	47.777 ($m*)
5. *Nokia*	34.864 ($m*)
6. *McDonald's*	32.275 ($m*)
7. *Google*	31.980 ($m*)
8. *Toyota*	31.330 ($m*)
9. *Intel*	30.636 ($m*)
10. *Disney*	10. *Disney*

(Source: www.interbrand.com)

The problem of the estimation of capital that economists can not reliably isolate the effects of intangible sources of value. For this reason they can not assess any probable value of investing in any of the intangible asset. In addition to these problematic issues, economists and financiers tend to ignore the emotional and symbolic effects of the brand. For example, highly valued the brand Coca-Cola can affect the estimated average cost of capital due to the impact that its strong brand is the perception of risk. Other examples include BMW, Apple and Google, corporate brands that make these companies to recruit talented employees and motivate employees. Such effects concern the extremely subjective category, such as the emotional appeal of the workplace or motivational implications of the brand.

3.3. "Intangible" value of corporate brand

Corporate brands such as Nike are the way the company apart from the competition, but also attracted investors, potential employees and consumers to work or cooperate with the company and encourage a sense of belonging to the company. Differentiation and a sense of belonging are the benefits of corporate branding, which constitute the basic sources of brand value. Many companies even rely on performing strategic functions by positioning its corporate brand, or discovering or creating points of differentiation from the competition. Corporate brands are designed to attract customers and act on other external public, reminding people why that belongs to or why they should join the communion of interests that are centered on the brand. For example, while the emotional tone of the brand Apple rejecting some people; it attracts those who feel that sharing the brand different from all, and that creates a sense of belonging and unity of those who have similar beliefs. The combination of different associations that support the common sense is in fact a result of corporate branding. Consider the example of the company BMW. This corporate brand attracts employees, consumers and other segments of the external public in his extended family, but also differentiate the brand BMW from the competition, which "only" produces cars. In the U.S., BMW's were listed as one of the most desirable employers in 2005. Year, which means it has a strong brand of the employer. This is helped by a statement on the side job on the website of BMW, devoid of any intrusive boastfulness [4]: "If worship mobility in all its forms and wish to be ahead of everyone, then the BMW is the place for you." The theme of mobility that permeates the entire web site, linking the activities of employment with the famous brand slogan of "The Ultimate Driving Machine." This integration creates a unity between the attitudes of new employees bring to the company and the image of BMW in the eyes of other target groups. If we do not give people the opportunity to express and symbolize the cultural and personal values, brands would not have any economic value. Despite all this, the symbolic value of brands is often underestimated, which can make a comprehensive picture of corporate branding.

4. MANAGEMENT CORPORATE BRAND VALUE

Brand value management involves consideration of long-term marketing decisions to implement an effective brand management. Specifically, the brand over time passing through different stages and different is perceived by consumers. The fact that a brand had enormous popularity and market share of over 50 years ago, for example the brand, Levi Strauss, does not mean that it might have today. Accordingly, it is necessary to undertake activities of management of brand value, which may include the following phenomena: [3]

1. Strengthening the brand - are constantly investing to improve products, service and marketing, and work to strengthen the brand value, and relevance to innovation through the entire marketing program. Examples of companies that had at some point to work on strengthening the brand and successfully restored the declining market share and profit are the Kellogg's and Volvo.
2. Revitalization of the brand - reversing the fate of weak brands in the disappearance by means of returning lost brand value or finding new sources of value. Examples of companies that have managed to return to the scene after a financial hardship or weaken the brand values are Dr. Sholl's and Harley Davidson.

Crisis Brand - overcoming the crisis brand is much more likely if the company has a strong corporate image and brand value built. In crisis management, it is essential that the reaction is efficient and honest. Examples of successful companies are overcoming the crisis, Johnson & Johnson in the event of a problem with the drug Tylenol and Shell in the event of spillage of large quantities of oil into the river 1989th year.

5. COMMUNICATION CORPORATE BRAND

Corporate communication is a connection between identity and image of the company, or the process of translating corporate identity corporate image. That the company their identity, or as yourself want to see (the answer to the question: Who are we?), translated in corporate image and how others see them (the answer to the question: What others think about me?), it must effectively communicate with its internal and external public. Without effective communication can not understand the value of any company's strategy. In balancing the communication of corporate identity is hard to find the right balance between too much and too little communication with the public and marketing partners. If the

company loses the balance between being as she sees herself and how others see it so happens that her identity to become dysfunctional and that its corporate brand to be damaged. The target public company image formed on the basis of communication that companies formed during the analysis of group identity.

6. IMPACTS OF THE CORPORATE BRAND

6.1. The influence of employees on the corporate brand

Nowadays, marketing experts have much to work on fulfilling the promises the brand. They need to move from an internal analysis of the company to realized that steps be taken to make employees and other stakeholders understand the basic concepts of branding, the ways in which the brand can encourage or threaten, and the ability to identify and pitying the corporate brand. Therefore, internal branding includes activities that inform and motivate employees. Set behind the company's brand means that HR practices and policies reflect the company's brand meaning. All that the company is working in relation to employees and all of them expected to be in the spirit of its brand. Every HR policy, guideline, or practice must be considered and must be asked: How can we better express our identity as a company (who we are, what we present, our history, values, purpose and ambition)? After that we can expect that the employees support the brand. If employees do not have any benefits from the brand, why would they serve the brand? When the organizational culture of one overlaps with the vision and image, employees will continue to spread the brand's mission of adapting the way they do business, to transfer the brand to other segments of public companies. HR can be modeled and affects behavior by listening to employees and responding to their needs and in this way will help make it a key feature of corporate culture. If a company respects their employees so that the entire weight of the corporate brand stores behind them, the more likely they will show honor its corporate brand?
Companies must engage in order to establish a continuous and quality dialogue with its employees. Some companies use programs B2E (Business to Employee) over corporate intranets and other possible ways. Disney Company is very successful in internal branding and has the full support of her brand of employees, so that even held seminars at its Institute of Disney employees from other companies presenting so Disney style. The staff at Johnson & Johnson is expected to each sentence chalk companies constantly have in mind, including the Employees must be free to give comments and suggestions. "Such a creed and culture in the company Johnson & Johnson motivate and encourage employees to provide feedback in terms policy and decisions of the company" [8]. Consequently, all employees feel they have really to sympathize with chalk companies and thus to play an active role in the company. The idea of allowing employees to question management's decisions may at first seem strange. However, just by being the eyes of all the employees focused on corporate behavior, J & J is able to more easily satisfy in compliance with corporate values. Moreover, the employees of this company, care are a matter of corporate brand integrity, privilege, and meeting the essential part of corporate culture. Johnson & Johnson manages its corporate identity by listening and responding to suggestions of employees, thus helping to build the organizational culture that supports corporate brand. Status of employees as internal relations that is expected to deliver brand value gives them a special role in corporate branding. Organizational culture, which helps to revive the role of employees, making major contributions to brand value. There is a problem faced by most brand managers: in order to effectively manage the brand, organizational culture would have to adapt to brand or vice versa. In any case, the subordination of the brand to employees is an important first step.

5.2. The influence of stakeholders (marketing partners) to the corporate brand

Companies have long been aware of their dependence on the society in which they operate - from access to markets, labor, raw materials, and technical expertise - but have only recently begun to realize that the problems really interest groups and their problems, and actively listening to and meeting public influence on the occurrence of fresh ideas for product innovation, enthusiasm and promotion of the company's reputation.Dial ogues with stakeholders are a popular activity in many companies by providing information of the selected figures on everything from ideas to products, the image and reputation. Previous attempts to establish a direct dialogue with stakeholders focused exclusively on customers. During the 90's of Dell Computer began with the use of intranet sites and so-called consumers. Platinum counseling to its largest customers drew ideas about products and other feedback.

At that time, founder and CEO Michael Dell have explained: "Our Platinum regional consultation meetings with our major customers in the Asia-Pacific, Japan, USA and Europe.... At these meetings, our technology experts to share their vision of the development of our technology and product development plans set for the next two years ". Also, in working groups and workshops our teams of engineers are focused on specific areas of products and discuss how to solve problems that do not have to be related to the commercial relationship with Dell... We at these meetings do not just send our experts to technology, but also engineers, people who normally do not talk to customers, since they are too busy developing products. Our managers from all business units involved in advising, spending time with customers and listening to their ratings and perceptions of our company. Dell said what the company learned during discussions with customers [6]:" Several years ago engineers responsible for our desktops have been working on the theory that customers want specific performance of these products - the faster, the better. However, what customers really want is constant product that does not change... So our engineers thought one thing and another customer. It has taken a direct dialogue at the Platinum consultations, so that this gap in communication was identified.... When you think back on these conferences, the things that were in those times seemed irrelevant, three or four years later became the basis for billions of dollars of revenue, for example. Lap-guns with longer battery life or to install specific software in our factories. Over the years the business most companies learn not to ignore their customers. But when it comes to building a strong corporate brand, stakeholder involvement means more than the delivery of good customer service and creating focus groups to gather feedback. Companies with the most reputable branding practices are constantly looking for ways to include their brands in the lives of its customers and other key stakeholder, and sometimes involve stakeholders directly in their management processes and branding. The key to effective dialogue with stakeholders is to discover the types of communication that you would like stakeholders of the company. What is it about your corporate brand by offering valuable resources that stakeholders can use to achieve your goals?

7. CONCLUSION

Despite the fact that the process of corporate branding in a broader sense is a very demanding endeavor, consistent application of the underlying concept can be a source of multiple benefits of global-oriented, ambitious and large companies, whose operating units to each other geographically, given that its application allows a unique and consistent Broadcasting positive brand image across all segments and business units of the company. Finally, a successful corporate brand, responsible and caring both to their employees, and to consumers and other target audiences, but also to society and overall environment. At the same time, as such, corporate brand enjoys the respect and loyalty, and thus to establish an emotional connection to them, which is the key value of the most popular brands today. These are strong arguments that speak in favor of the orientation and application of the concept of corporate branding.

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ACHIEVING COMPETENCE OF DOMESTIC BUSINESS ORGANISATIONS THROUGH INTERNATIONAL STANDARD IMPLEMENTATION

Savina Đurin, BSc*
Technical faculty „Mihajlo Pupin“, Đure Đakovića bb, Zrenjanin
savina@tfzr.uns.ac.rs
Višnja Istrat, BSc
Technical faculty „Mihajlo Pupin“, Đure Đakovića bb, Zrenjanin
visnja@tfzr.uns.ac.rs
Edit Terek, BSc
Technical faculty „Mihajlo Pupin“, Đure Đakovića bb, Zrenjanin
edit@tfzr.uns.ac.rs

ABSTRACT

The paper analyzes the importance of implementing international standards in Serbian companies to achieve competitivness at domestic and international markets. To maintain and improve their competitive position the organization must be flexible, innovative and reactive to changes that are now numerous and dynamic. The only way for company to improve its situation at international market is implementing and continuous improvement of product/service quality in order to satisfy the consumers. Domestic companies are not yet aware of that. The way that leads to achieving business excellence is in the right use of knowledge.

Keywords: international standards, business excellence, Serbian economy

1. INTRODUCTION

Modern business environment, featuring incredibly fast technological development and globalisation of business, faces the companies wishing to achieve certain level of competitiveness with the increasing requirements and enormous efforts. These are reflected in lowered outlays, diferentiation of products, providing high-quality products/services and their continuous inovation, flexibility and company inovativeness, environmental care, etc. The fundamental goal of modern business is achieving world-class quality of products and services. This all can be shortly described as striving for business excellence.

The last decade of the 20^{th} century has proved that the period of global competition has started. It is characterised by implementation of world market standards and international orientation of companies. Hence, the companies wishing to run successfully in the long run, thereat advancing (which is undoubtedly an imperative of modern business), need to act globally.

Presented state has been present at global level for a long time now, but when considering domestic business organisations, it is (in vast majority of cases) impossible to think of even the basic premises of business excellence, let alone the excellence itself. The reason, first and foremost, lies in our small participation in global trends and following the modern business tendencies at global level. One of the essentials is accepting the standards and their implementation in each and every aspect of business.

At this point the discussion of Serbian economy through the aspects of standardisation and our organisations' efforts to achieve competitiveness in the shortest possible time will take place.

2. INTERNATIONAL STANDARDS

Introduced by international organisations (among which International Organisation for Standardisation stands out), these standards are available for review and use throughout the world, applied directly or modified in order to adjust to local conditions. The result here is creation of equivalent national standards, which are basically the same to the international ones regarding the technical aspect, with the external appearance, use of symbols, measurement units etc. as the only difference. These are created so as to comply to the specific locality. As it has already been stated, there is a large number of organisations which establish and introduce standards. These are, to name a few:

- American Petroleum Institute (API);
- American Society for Testing and Materials (ASTM);
- British Standards Institution (BSI);
- European Computer Manufacturers Association (ECMA);
- International Electrotechnical Commission (IEC);
- International Organisation for Standardization (ISO);
- International System of Units (SI Units);
- International Telecommunication Union (ITU);
- Organisation for the Advancement of Structured Information Standards (OASIS);
- Social Accountability International (SAI);
- Universal Postal Union (UPU) etc.

Standardisation is a term implying defining and prescription of constant demands which have to be met by a product, service, process or management system. It contributes to achieving optimisation of business resource management.

Table 1: Standardised management systems (Djordjevic,Andjic, 2004)

Name	Label	User
QMS (Quality Management System)	ISO 9001:2008	**Customers**
EMS (Environmental Management System)	ISO 14001:2004	**Community**
OH&SMS (Occupational Health and Safety MS)	OH&SAS 18001:1999	**Employees**
CSRMS (Corporate Social Responsibility MS)	SA 8000	**Society**

3. A REVIEW OF STANDARDISATION IN SERBIA

An insight into Serbian companies' participation in field of standardisation can be primarily gained through inspecting the work of Institute for Standardisation of Serbia. This Institute represents and protects our country's interests in numerous international organisations for standardisation, as follows:

- International Organisation for Standardisation (ISO), with the regular member status since 1950;
- International Electrotechnical Commission (IEC), with the regular member status since 1953;
- Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components (IECEE), within which there is the recognition of test results scheme (IECEE/C Scheme). The Institute has had the regular member status since 1965.
- European Committee for Standardisation (CEN), with the corresponding member status in period 1998-2004, the status of partner organisation for standardisation in period 1st January 2005-31st December 2007 and the status of associated member since 1st October 2005.

At this point it is important to note that the Institute's regular membership in the latter two organisations from this list is one of the requirements for Serbia joining the European Union. Apart from the listed ones, the Institute cooperates with the Commission for Codex Alimentarius, constituted of joint Food and Agriculture Organisation (FAO) and World Health Organisation (WHO).

When it comes to independent certification organisations, in Serbia there are a lot, both domestic and foreign. The latter ones comprise DAS Serbia, TÜV Rheinland Intercert, Quality Austria Center and similar, while among domestic organisations the one standing out is FQCE – Fund for Quality Culture and Excellence, a member of EFQM – European Fund for Quality Management.

Therefore, at our country's territory there is a strive to create a path towards business excellence. With a considerably short life, compared to its European roots (EFQM, founded 1988 ↔ FQCE, founded 2002) and the economic and social history of our country given, it is to be expected that the future will see the business excellence in its true light.

ISO organisation, although neither issuing certificates nor controlling its independent certification bodies in their work, has been surveying its standard application annualy for 18 years now, primarily using these bodies as sources of information. For this edition of survey only ones accredited by national members of the International Accreditation Forum (IAF) have been used as data sources.

The survey's results (The ISO Survey, 2008) show a trend of ISO 9001:2008 standard implementation from late 2004 until late 2008 (The last calendar year for which the data can be freely obtained), for the whole world. This work's point of interest is Serbia, compared with the other countries in the region. The data is presented in the following table:

Table 2: Results of ISO survey 2008 for Balkan region

Country	December 2004	December 2005	December 2006	December 2007	December 2008
Albania	6	11	28	23	43
Bosnia i Herzegovina	209	350	242	652	811
Bulgaria	1.685	2.220	3.097	4.663	5.323
Croatia	966	1.273	1.676	2.073	2.302
Greece	2.572	3.255	4.753	5.132	6.747
Hungary	10.207	15.464	15.008	10.473	10.187
Montenegro	-	-	33	136	160
Romania	5.183	6.097	9.426	9.633	10.737
Serbia	-	-	1.551	1.987	2.091
Serbia and Montenegro (together)	696	1.209	-	-	-
Makedonija	133	154	217	255	271
Turkey	5.009	10.929	12.350	12.802	13.217

For comparison, the data will be given for a geografically close, but economically incomparably more advanced country to Serbia – Austria. This country can act as a model for detailed benchmarking analysis, in order to collect necessary data and means of ISO standard implementation and improvement of entire Serbian economy.

Table 3: Results of ISO survey 2008 for Austria and Serbia

Country	December 2004	Dec. 2005	Dec. 2006	Dec. 2007	Dec. 2008
Austria	3.259	3.368	3.806	4.203	4.272
Serbia	-	-	1.551	1.987	2.091

Comment. As it can be seen from the data given, Serbia is in the middle of the scale, relatively competitive in comparison with the countries like Croatia and Bulgaria, while the EU countries (Hungary and Greece), although in the same region, are fairly more competitive than our country.

4. BUSINESS EXCELLENCE AND SERBIAN ECONOMY

According to (Djordjevic et al., 2010) the goals of business excellence can be achieved in shorter time by opting for consecutive introduction of Integrated Management System's modules, based on respect for the already mentioned international standard's requirements. Each of them comprises a postulate of

corporate social responsibility – an imperative of modern business. However, where is Serbian economy in this regard?

Due to social scene and circumstances prevailing in Balkan region, Serbian economy has suffered inadequate business activity, not grounded on market principles. As a result, it has faced serious difficulties regarding productivity of work. The consequence of it all were the unrealistically high prices of certain products, paid by domestic consumers, while the same products were exported at reduced prices in order to enable any export at all.

This image has changed with beginning of the process of transition. The processes of privatisation, liberalisation, restructuring, institutionalisation and stabilisation were initiated. The most important results of the proces of transition in the economic sphere were establishment of the market mechanism and changes of property right (from predominantly state to predominantly private).(Djordjevic et al., 2010)

However, despite this, Serbia still needs to go a long way to achieve competitive position. The current state is highly unfavourable, since adequate business efforts have not been made in time. According to the World Economic Forum's Global Index of Competitiveness, Serbia takes the 93rd place among the 133 countries for which the index is being followed. The reasons are obsolete technology, low quality, unattractive packaging and high prices on top. The backlog by sectors of the economy is recorded in dwo-digit numbers – as a general indicator, the technological amentia of Serbia (compared to EU) is 29.5 years.

How to improve this situation? It is well-known that gaining competitive advantage is hard, while losing it is easy. Since the quick technological progress has made technology widely available at relatively acceptable conditions and monopoly of knowledge reduced, anyone organisationally and financially ready can freely enter the market. Thus, there is hardly an excuse for our economic backlog. The solution should be seeked in restructuring of business functions and accepting the new management paradigm with everything it comprises. Along with others, there are also Integrated Management Systems and standards elaborated in this paper.

5. INFLUENCE OF STANDARDISATION ON BUSINESS EXCELLENCE IN SERBIAN ECONOMY

Contemporary market as a postulate of success imposes the optimal price-quality relation, based on continuous improving of business productiveness, on all the market participants. The primary development goal is quality embodied in achieving business excellence and world-class quality of products and services. The bearers of quality improvements are the company employees themselves, along with top management in the first instance. Therefore, each and every employed individual should contribute to quality.

Thereat, business quality has 3 dimensions:

- Market, comprising meeting clients' demands, achieving their satisfaction, competitiveness and sound market position;
- Business, comprising lowered costs, increased productivity and profile growth;
- Social, comprising employees' health protection, clients' interes protection, environment protection and saving natural resources.

Domestic organisations' response to modern market requirements

Basic problems present in this area, regarding market development, are:

- Slow adopting of marketing logic;
- Misunderstanding of integral marketing concept;
- Misconception of marketing;
- Inadequate treatment of investment in market development;
- Organisational structure problems;
- Slow acceptance of new trends, methods and management techniques.

When it comes to market success of domestic companies, the main problem can be seeked for in bad business productiveness and products' inadequate price-quality ratio. The consequence notable in last several decades was already mentioned cost increase and forming of uncompetitive prices on market.

Unfortunately, small and medium domestic enterprises implement quality management system still insufficiently, affecting their competence both on domestic and international market. This can all be addressed to managers' poor information and indiference to investing in standardised management systems, alleging that 'They are still unnecessary'. Given the extremely strong and harsh competition, the realisation of their misleadingness can sometimes be late. As a matter of fact, it is the entrepreneurs who need to promote international standards, along with the country and its institutions. Without their initiative – as it is the common case in Serbia – all additional efforts are futile.

How to fight against world leaders?

The three key resources that companies need to posses if they are meant to create and maintain their leader position are: financial resources, new technology and knowledge (which has to be used in an appropriate way). In domestic enterprises each of these resources is at very low level. Financial resources are always lacking, technology is three decades older than in the EU and there are ocasional and poor investments in knowledge. This is the main problem for company managers. They need to upgrade and improve their knowledge in their specialised scientific fields. Beside this, each individual employer at company should continuously improve its business competences through different kinds of training. Only in this way the productive company can be created because through improving the knowledge, the productivity of business is also improving. Without knowledge, which is nowadays the most important resource, all other resources can't be productively used.

The fact is that domestic market is, like any other market, in conditions of global economy disposable to penetration of world market leaders. Under this condition, in order to strategically define clear market position at domestic and international markets it is necessary to make comparison with other rival companies.

Short-term solution to inadequate competitiveness of domestic enterprises lies in the use of reengineering. Long-term solution is the implementation of the concept of quality management system and creating integrated management systems. *From the aspect of quality, management quality system leads and runs the company. The series of international standards is primary oriented to satisfy the clients' needs as an elementary precondition of continuous improving the quality of business, in order to increase the competitiveness.*

The main challenge for domestic companies is adjusting to market conditions, demands of clients and other interest groups. To face this challenge, it is necessary to organise business processes optimally and integrate the management system. Only then the performances will improve and companies will achieve the business excellence and world-quality class of products and services. Nevertheless, realised and well-maintained integrated management system is the basic condition of company survival at market and the most serious way of achieving competitive strength of domestic enterprises at international market. The use of them shortens the time needed to achieve the elements of business excellence, which enables the companies from countries with poor economy that respect the demands of international standards to successfully survive at market. Continuous improvement of managerial knowledge and expert teams in domestic companies are the most important way of improving the competitiveness based on the implementation of integrated management systems.

5. CONCLUSION

It is obvious that there are still many things that should be done in the field of standard implementation in our country, and consequently in the field of achieving business excellence. Among numerous companies of different size, types, history and success, there are a lot of them at

the good direction to achieve business excellence. Most of them are in contact with foreign companies or are parts of them, so they have deeper and easier insight of good practice abroad.

As it was mentioned before, the history of efforts to achieve business excellence is more than decade shorter than the same effort abroad. Therefore it is realistic to expect that the next period will see broader implementation and application of standards which will lead to improved business. Nevertheless, it is indisputable that managers will be ready to apply the standards - if they see it as an investment because, as Philip Kotler says, achieving business excellence is like having a gun in the fight where everyone else has knives.

Excellence is not a theory; it is connected with real achievements of an organisation in different areas – what it does, how it works, results that are achieved and trust that the results will be achieved in the future. Proofs relevant to make sure that this confidence are not limited only to financial results showing the older achievements, but also comprise the results of other stakeholders that serve as guidelines to future financial achievements. It includes an evident excellence to create customer's satisfaction and loyalty, motivation and competences of the employers and the whole community. In order to create confidence that the results are sustainable, there has to be a clear evidence that organisation works, how it works, that it is well-grounded, systematic and continuously assessed and improved.

Globalisation and market segmentation urge companies to quickly react to changes and to pay more attention to strengthening their competitive position by continual improving of their product/service quality in order to make customers satisfied. Domestic companies are still unaware of this. The way that leads to business quality improvement should be searched in suitable use of knowledge.

Managers at domestic companies should improve their knowledge in the field of management, i.e. to acquire the knowledge needed to increase the productivity of the work and already available knowledge. Implementation of integrated management systems in domestic enterprises should create conditions for real competition and survival against the foreign competition. According to this, the key word is – improving the knowledge of domestic managers.

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ENVIRONMENTAL PROTECTION AND MARKET COMPETITIVENESS OF A COMPANIES

Jovana Pećanac*
pecanacjovana@hotmail.com
Jovanka Rkman
jovanka.rkman@gmail.com
Dragan Ćoćkalo
Assistant Professor
cole@tfzr.uns.ac.rs
University of Novi Sad, Technical faculty „Mihajlo Pupin" Zrenjanin, Đure Đakovića bb, 23000 Zrenjanin, Republic of Serbia

ABTRACT:

Environmental concerns are one of the largest and most important issues for the future of humanity and, accordingly, among other things, make the appropriate standards. Environmental protection involves a set of different procedures and measures to prevent environmental impact in order to preserve the biological balance. Companies wishing to be market competitive and that in any way can affect the environment, should conform to the ISO 14000 series of standards. It is necessary to determine the market demand that can meet the criteria with respect to environmental protection, and based on the fact that the price of production does not generate waste, or one in which the raw materials and energy are in full use. It is important not only because of environmental pollution and saving resources for companies that will contribute to increased profits. The authors analyze the facts on why it is important to take care of the environment in which to live, and considering that the effect of application of ISO 14000 series of standards on the competitiveness of the companies. Countries that have been or are in transition, alias Serbia should be analyzed.

Key words: competitiveness, environment, environmental protection, management, standards.

1. INTRODUCTION

The last decade of the last century has testified the beginning of a period of global competition, which identifies the standards of the world market penetration and international orientation of companies. Companies that seek to advance the long-term success and work, have to be global (Djordjevic & Cockalo, 2007, p.8).

Modern business means flexibility and rapid response to highly variable environmental conditions. In order to quickly bring the correct decision, information about the current state of affairs should be verified. The research competition is a strategic business initiative, aimed at all that affects the ability to apply, it is an instrument of comprehensive knowledge of competition and competitive environment of business. All-round knowledge of the competition is a fundamental and necessary condition for effective strategic planning. Since strategic decisions are taken regularly, it requires a constant flow of strategic information.

The worsening of ecological situation in different countries and regions is the result of negligence of a healthy environment. Along with the increase of energy consumption, industrial development, accompanied by the growth of air pollution emissions of gases that form acid this problem is becoming increasingly global character. To complex ecological situation there was because it was long considered that the basic natural components, which people used in their production activities, practically inexhaustible. In order to explain the complexity necessary to introduce environmental management as a separate discipline to manage environmental resources.

Due process of globalization and regional markets, companies have much more timely to think about strengthening their competitiveness. Large international companies are struggling to meet the standards for the protection of the environment, how to cope in the market for competitive advantage.

2. ENVIRONMENTAL PROBLEMS

Intensification of the global environmental situation which include warming, reducing the ozone layer, desertification is a result of worsening environmental situation in different countries and regions, where the most intense environmental pollution. Under the pollution include chemicals that meet the inappropriate place, at the appropriate time and in inadequate quantities. Comparative analysis of the situation on Earth at the beginning of the twentieth century have not consolation. The most polluted atmosphere and hydrosphere, and even the state of cosmic space in the quantity of the planet raises serious concerns.

Anthropogenic chemicals in the environment due to different routes. Wastewater is put into surface and groundwater and ponds, solid waste is stored in special landfills or is buried and placed in abandoned mines, in agriculture using fertilizers and pesticides. Today it is used about 70 thousand different substances, which is listed each year supplemented with 500-1000 new name. Were synthesized by chemical substances that are not found in nature and that living organisms are not able to break down (xenobiotics). These include, for example, plastics. It is estimated that swims in the ocean 35 million plastic bottles, polyethylene bags, a large number of lost and discarded fishing nets, nylon and so on. The biggest polluters of the environment are considered to be heavy metals. The high level of pollution of hydrosphere metals was registered mainly in coastal regions and enclosed seas. Significant threat of pollution of dioxin are released engines. (Pavlovic, 2004)

Humanity is only the beginning of the XXI century, faced with the problem of their own survival, not because of the danger of a third world war, but because of the irrational pursuit of profit that has caused irreparable damage to nature. Every year from the bosom of the Earth taken out 100 billion tons of ores, mineral fuels, construction materials, among other 4 billion tons of oil and 2 billion tons of coal. On the field is put 92 million tons of artificial fertilizers and 2 million tons of pesticides and herbicides. The atmosphere is removed over 200 million tons of carbon dioxide, 50 million tons of hydrocarbons, 150 million tons of sulfur dioxide, 50 million tons of nitrogen oxide, 250 million tons of dust. In rivers, lakes, seas and oceans is expelled 32 billion cubic meters of waste water to 10 million tons of oil. Every year 6-7 million hectares of land becomes unusable for obduracy. All this requires a change in the behavior of mankind, because the numerous changes in the environment.

To complex ecological situation occurred and why, which has long considered that the basic natural components, which people used in their production activities is practically inexhaustible (Djordjevic & Cockalo, 2007, p.28). Nature is equated with the universe: percent of its resources are infinite.

3. RESPONSIBILITY FOR THE ENVIRONMENTAL AND COMPETITIVENESS

The ecological consciousness of the individual and the powerful work of state institutions in the field of environmental protection was influenced by many environmental problems. The aforementioned problems are a result of the industrial revolution, which caused the irrational consumption of natural resources and environmental pollution. Since the seventies of the twentieth century the issue of environmental protection given the global importance.

Environmental protection involves a set of different procedures and measures to prevent environmental impact in order to preserve the biological balance. Environmental Defense is a multidisciplinary and should be a continuing duty of all members of society. Its multidisciplinary approach stems from the fact that health, environment and social conditions are complex areas and issues that are in constant interaction. Therefore, any disturbed state of the environment leads to environmental disorders and social relations, which are interconnected and interdependent. (Pavlovic, 2004)

The protection of the environment is not just about protecting the lives and health but also the preservation of plant vegetation and wildlife. Universal Declaration of Human Rights with a new 31st Article reads: "Every human being has the right to maintain the ecological balance in their environment, which it shares with all other living beings, animals and plants, whose survival as a guarantee of their own survival, should be secured." (Ninkovic, 2005, p. 21)

In developed market economy operate three organization institutional level that address the problem of development and improvement of environment, as well as solving specific problems related to environmental protection. These are the individuals as consumers, companies and public administration.

Individuals, as consumers act on the basis of environmental consumerism. International companies apply different strategies in doing business in the function of reducing environmental pollution. Therefore want to ensure a strong market position, achieved in fulfilling the demands of consumers and meeting the demands of the state. While state regulations, i.e. state environmental regulations become increasingly important segment that determines the process of anticipating the modern world. Te most important it is production in which there is no waste, or where the raw materials and energy to fully exploit (Djordjevic & Cockalo, 2007, p.33).

Achieving the goals of organization means to achieve excellence sociable aspect of quality, quality and business aspects market aspect of quality. The social aspect of quality encompasses quality of life, the business aspect of quality business relationships, and market aspects of quality encompasses quality products and services. The social aspect of quality is important, because it assumes that products and processes companies need to provide:

- The protection of human health,
- The protection of environmental health,
- The protection of customers through the Responsibility for the product,
- Saving natural resources,
- Formation satisfaction in general, with respect for moral and ethnic, social and professional norms.

Standards of environmental management are the result of the development of environmental awareness at the global level. Of organization for international standards (ISO-International Standards Organization) in the late eighties, has announced the international quality standards that have developed standards and ISO 14001.

Model system of environmental management (EMS) according to international standard ISO 14001 include:

- Environmental policy,
- Planning,
- The introduction and implementation of standards,
- Checking and corrective measures,
- The management review,
- Continuous improvement of environmental quality (Djordjevic & Cockalo, 2007, .31).

International standards for environmental protection are voluntary. ISO 14001 standards are self-binding and apply it with serious companies in the world, because he seeks only what is related to the company (Djordjevic & Cockalo, 2007., p.32). Standard ISO 14000 have broad significance, because it deals with environmental management, including protection, restoration and improvement of the environment. ISO 14000 standard is an upgrade to ISO 9000 which deals only with existing quality management segment.

Implementation of standards is applied to the environmental aspects of organization that can control and which may affect. ISO 14000 standard may apply each of organization that wishes to:

- Introduce, maintain and improve the system of environmental management;
- Ensure that its system of environmental management is coordinated with its established policy of environmental protection;

- Demonstrate to others that coordinate;
- Find the certification / registration of its system of environmental management from an external of organization;
- The set itself declares compliance with this international standard (Seifert et al., 2006, p.64).

Management system of environmental protection must be constantly improved. It is also necessary to constantly check the system to determine its effectiveness. If in the course of verifying a particular conflict, it is necessary that the system provide methods and means for detecting a sample conflict, their correction and prevention of unwanted re-appear.

Table show the increase in the use of standards for environmental protection during four consecutive years, and the number of countries that apply the standards. Conclusions is that the number of newly rising standards in high level and that more and more companies decide to introduce ISO 14000 standard, as this improve our business and affect their international competitiveness.

Table1: Application of ISO 14001 per year for 4 years (ISO, 2009)

ISO	December 2005.	December 2006.	December 2007.	December 2008.
Number of standards applicable	111.162	128.211	154.572	188.815
The increase of	21.225	17.049	26.361	34.243
Number of countries that apply the standard	138	140	148	155

Countries that lead in applying the standards developed world countries. The diagram in Figure 1, it shows.

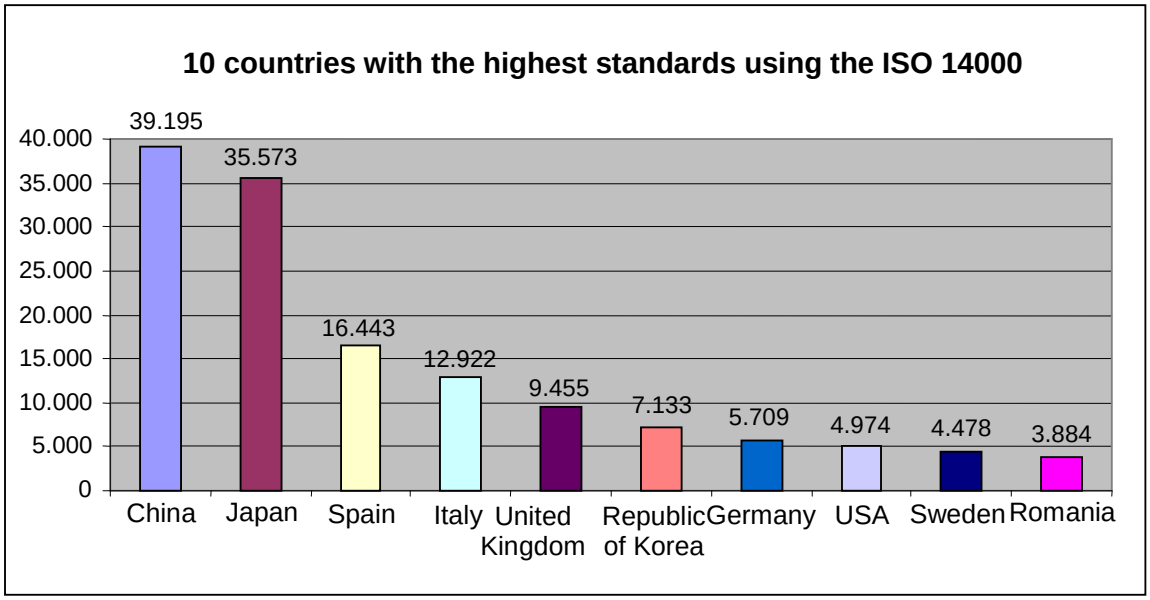

Figure 1: The 10 countries with the largest application of ISO 14000 (ISO, 2009)

Competitiveness of enterprises is a sustainable growth in productivity, which is driven quality strategy and quality way of doing business, that affect both macroeconomic and microeconomic factors of environment. Level of competition that determines productivity, measure of the ability to produce goods and services using existing human, natural, financial and other resource. Productivity depends on the value of products and services.

4. APPLICATION OF ISO 14000 AND COMPETITIVENESS OF SERBIAN ECONOMY

For companies in Serbia standard ISO 14000 signifies a powerful tool in improving the quality and competitiveness of products or services and gaining international market. Application of standards helps to reduce costs, improve competitiveness, facilitate access to national and international markets. Especially the ISO 14000 standard contributes to better market position, because it affects the preservation of the environment, natural resources through the use of suitable raw materials, recycling and other. Also contributes to the acceptance of consumers, improved communication between potential customers and employees, but also with other companies and banks.

The competitiveness of Serbian economy is extremely low. Low level of Serbian economy competitiveness states a number of indicators (Djordjevic et al., 2011). According to the World Economic Forum (WEF, 2010) Serbia, to the level of global competition, is only at the 96th place of 137 ranked countries. Ranking of countries according to competitiveness of the Western Balkans in 2009. year, according to a report on global competitiveness index, World Economic Forum is given in Table 2.

Table 2: Ranking West Balkan countries according to competitiveness in 2010. (WEF, 2010)

COUNTRY	PLACE
Slovenia	45
Montenegro	48
Croatia	77
Macedonia	79
Serbia	96
BandH	102

Most business organizations who come from countries in transition, which is dominated by domestic capital have a significant financial actions, especially when it comes to investing in new equipment and new technologies. The global economic crisis has only further derailed the process investigate working in subjects from countries in transition.

Slowness in adopting international standards is becoming a big milestone for competitiveness of Serbian companies. Many owners and/or directors of local companies have already met the requirements of its foreign partners that they must provide certificates for their products, a certificate ISO 9000 and ISO 14000 become even necessary prerequisite for any business arrangements. The organizational development of the business entity from the Western Balkan countries best illustrated by the data on the implementation of management systems. Table 3 shows the number of certified companies in the Western Balkans and its environment for a year of 2008. As can be seen from Table Romania and Hungary are the countries with the largest number of certified companies in the countries in the region. Romania with the number of certified companies is the most dominant country in relation to others, and this is especially evident in the application of ISO 14001:2004.

Table 3: Number of certified firms for 2008 (ISO, 2009)

COUNTRY	ISO 9001:2000	ISO 14001:2004	ISO 22000:2005
Albania	43	0	0
BosniaandHerzegovina	811	60	0
Bulgaria	5,323	321	23
Croatia	2,302	343	10
Hungary	10,187	1,834	135
Montenegro	160	17	0
Romania	10,737	3,884	44
Serbia	2,091	176	0
Slovenia	1,945	672	16
Macedonia	271	26	4

5. CONCLUSIONS

In the early decades of the XXI century the possibility of doubling the number of people on earthis high. It is a positive movement, until one considers the fact that the area where people can live and earn is smaller and smaller. For the disappearance of fertile land is largerly our guilt, of "owners"of the planet Earth. It is therefore important to impact on people's awareness of environmental protection on a daily basis. At best, it will be affective as an aggressive campaign that will be strong by looking at the strategies that will pay off in a long term. These impacts will be strongest and best reflected in the very environment and society as a whole. The enterprises need to regularly examine the market to know the needs of consumers who have to adjust to the requirements of environmental protection. This will to some extent contribute to our view for our environment to remain unchanged.

Environmental management according to ISO 14000 is organized managing human activities to reduce negative impacts on the environment. The primary purpose of ISO 14000 standard is to promote effective environmental management in enterprises in the concept of sustainable development. Sustainable development is a general direction, a tendency that in addition to poverty reduction and balanced development and prosperity of mankind achieve spending without neglecting the needs of current generations, but while preserving the natural resources of our planet for future generations (Jelaca, 2010).

By applying ISO 14000 series of standards companies present the succesfulness of the job. The idea of objective standards is to be ahead of competitors, striving for a brighter future and better business performance. In developed countries, companies that do business with the application of this standard are very successful, while in Serbia the standard is still voluntary and should be used as a key factor to increase competitiveness.

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Contact Information
Journal of Engineering Management and Competitiveness (JEMC), University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, 23000 Zrenjanin, Djure Djakovica bb, Republic of Serbia, +38123550515, Fax: +38123550520,
E-mail: jemc@tfzr.uns.ac.rs, jemc@yahoo.com

Editor:
Zvonko Sajfert, Ph.D, Professor, University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia
e mail: z.sajfert@sbb.rs

Assistant Editor:
Dragan Ćoćkalo, Ph.D, Assistant Professor, University of Novi Sad, Technical faculty "Mihajlo Pupin", Zrenjanin, Republic of Serbia
cole@tfzr.uns.ac.rs