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WORD OF THE EDITOR

On the occasion of celebrating an important anniversary of the Serbian Project Management Association (YUPMA), its 25 years, we are proud to launch a Serbian Project Management Journal, a specialized journal that is to present the most recent knowledge in the fields of project management and other specialized management disciplines.

The development of project management in Serbia, since its beginnings in 1970s, to the establishment of the Project Management Association in the 1980s, until today, went through many a difficulty. Regardless of severe problems that this country and the Project Management Association encountered, project management gradually developed and was implemented in this country, and today it is evident that the implementation of project management is a sine qua non in almost all the areas of human life and work.

It is our genuine wish in launching this journal to contribute to the further project management development and implementation in Serbia.

Petar Jovanović

President of Serbian Project Management Association YUPMA



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PROJECT MANAGEMENT IN COMPANIES – ASPECTS AND EXPERIENCES

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Energoprojekt Entel p.l.c., Belgrade, Serbia

Abstract: Companies (organizations in real economic sector) should be the most suitable ambient for project management concept application. Unfortunately, in practice, it is often not a case. As a matter of fact, practical application of project management in these organizations is followed by many obstacles -misleads and prejudices in all project phases, from bidding and contracting, planning and implementation to monitoring, control and reporting. In this paper, some of the most important misleads and prejudices based on experiences in Serbian companies are systematized, and possibilities for overwhelming them are discussed. It is concluded that the only way to do it is to identify these obstacles as problems that have negative consequences to project implementation, and to work persistently and patiently to its elimination. Finally, some practical experiences related to project management in particular organization are presented.

Keywords: Integrated Management System, Management system standards, Project management, Project manager

„Each soldier has a right to competent army commander!“

(statement from times of Gaius Iulius Caesar)

1. INTRODUCTION

Project management is a discipline that represents widely accepted approach in the world, both in business activities and private life. Definitions of a project as „a temporary endeavor undertaken to create a unique product, service and result“ and project management as „application of knowledge, skills, tools and techniques to project activities to meet the project requirements“ (PMI, 2013) are enough general and applicable in people activities, independently if we are talking of activities in companies (real economic sector), public sector or sector of services (education, healthcare, traffic etc).

It is expected organizations in real economic sector to be the most suitable ambient for project management concept application. Unfortunately, in practice, it is often not a case. As a matter of fact, practical application of project management in these organizations is followed by many obstacles - misleads and prejudices in all project phases, from bidding and contracting, planning and implementation

to monitoring, control and reporting. In literature, you can find considerations related to project planning, implementation, monitoring etc. but no any discussions are related to how it looks like in practice. Authors predominantly avoid these questions as something that is too practical and far from „scientific“ level or give some indications that theory and practice are sometimes different, thinking that „it would be resolved somehow“. Unfortunately, there are a lot of materials for this type of considerations. In this paper, some of the most important misleads and prejudices are systematized, based on experiences in Serbian companies and possibilities for overwhelming them are discussed. It is based on author’s opinion that project management considerations could not be completed if the topic is not highlighted from this point of view. Finally, some practical experiences related to project management in particular organization are presented.

2. PROJECT MANAGEMENT IN SERBIAN COMPANIES

Without any scientific investigation and special evidences it is possible to conclude

that project management in Serbian companies is not applied at desirable level. In spite of great efforts in promotion of project management concept made by national project management association (YUPMA), educational institutions (Faculty of Organizational Sciences, PM College, etc) and some companies that represent exclusions from this negative attitude, global picture is far from acceptable. The main evidence for such a conclusion represents actual status of Serbian economy. There are several global reasons for it:

- Project management has an inherent idea of arrangement of business processes with aim of successful functioning of both organization and a project. In practice this idea means „work, order and discipline“, and it is something that many participants do not like for any reason, especially because it eliminates possibilities for arbitrary interpretations of rules.
- Managers at different levels of company's hierarchy are not sufficiently aware of need of project management, let alone of project manager as per particular profession. They are predominantly recruited from faculties of technical orientation that mostly don't have any subjects related to project management (for example, at University of Belgrade, except Faculty of Organizational Science, project management as a subject is studied only in Faculty of Civil Engineering in Belgrade and Technical Faculty in Bor). In such conditions it is clear that these managers pay more attention to technical than organizational aspects of their activities.
- Permanent education of employees during their careers is more individual than systematic approach. People predominantly think that formal education is enough to enable them to

work at their workplaces during all period of employment.

- Requirements for position of „project manager“ in tenders, both in Serbia and abroad, predominantly are oriented to persons with 10-15 years of professional experience in similar projects, without explicit requirement for formal project management education (Project management professionals - PMP, IPMA levels or PRINCE2). In practice it means that projects with value of several millions dollars are entrusted to persons with technical knowledge, but without adequate experience related to organizational aspects and project leading.
- Knowledge and experience sometimes are not dominant criteria for manager's nomination, both at the level of company and project. In transition countries some additional elements are taken into account as more important (political impact, nepotism, etc) and sometimes there is a situation that some very delicate positions are assigned to persons that have no competency for it. Consequence of this approach is known as „problem oriented management“ (Han, 1994) - instead of timely job organization, managers are included only in case of problems (that are natural because of absence of organization) „to help“. In case of failure, others are guilty, of course!

3. MISLEADS AND PREJUDICES RELATED TO PROJECT MANAGEMENT

In this chapter, several the most often misleads and prejudices related to project management are presented per project phases, Table 1 (Raković, 2010; Raković, 2011). The choice includes symbolic number of 13 items, to emphasize harmful impact to projects.

Table 1: *Misleads and prejudices related to project management (Raković, 2010; Raković, 2011)*

Phase	Description
Bidding and Contracting	We know better than customer its needs?!
	It is important to get the job, later we will handle it as we know?!
Planning	This project is too short to be subject of planning?!
	This project is similar to previous one, there is no need to plan it?!
	Let we work, we don't have time for formalities?!
	I will resolve a problem when it arises, not in advance?!
Implementation	This project is late, we will resolve it by overtime work?!
	This project is late, we will include new people?!
	This project is late, but we will compensate it by quality of product?!
Monitoring / Reporting	Working time control is mistreating of employees?!
Close out	Later we will put in order documentation about finished activities?!
Common for all phases	Our knowledge is enough, it is not necessary to learn anything?!
	We don't need project manager, we are experts for this job?!

3.1 Bidding and Contracting

„We know better than customer its needs?!“

Such or similar attitude is something we can hear often. Author remember an extreme case of a lead designer that intentionally ignored clear technical requirement of terms of reference related to parameters for calculation of facilities he has been designed because his opinion was that „customer does not know it“. Such an approach is difficult to imagine even in case of any Balkan craftsman hundred years ago that have no education in marketing or customer relationship management, because he was aware of the fact that depends on his customers. The main idea that companies exist because of customers, not conversely, has built into particular standard (ISO, 2008) related to quality management system. What are basic elements of this approach?

- Respect of needs, requirements and expectations of customers. The customer establishes requirements as per its knowledge, sometimes it has no possibility to recognize its essential needs but it is not reason for underestimating. On the contrary, the main idea is to help customer to express its real needs, to do our best to meet them and to exceed customer expectations, if possible.
- Customer requirements are source and its satisfaction should be main aim of all company activities.

- Understanding and review of current and future customer needs is economic interest of a company because any future misunderstandings and arbitrary interpretations („I didn't declared some requirement explicitly, because I think that it goes without saying!“) should cause project prolongation and higher costs.

„It is the most important to get the job, later we will handle it as we know?!“

Without any doubt, for any company it is very important to ensure appropriate level of employment by signing contracts, because it enables to manage its affairs well. However, it is necessary to be very careful in taking over obligations, because these obligations should be fulfilled and company should have ability to do it. Sometimes it is better to give up the job than to endanger organization's survival with contracts under suspicious conditions (undefined scope of the project, products to be delivered, activities to be covered etc). In practice, employers often make mistakes awarding a tender to company with the lowest bid price without analysis of harmonization of technical elements of participants in bidding, especially in cases when range of prices is large. Large range of bidding prices usually points out that somebody didn't understand requirements well or intentionally gave very low price to get the job and later ask for additional money. Such a situation should be resolved before final decision.

3.2 Planning

„This project is too short to be subject of planning?!“

„This project is similar to previous one, there is no need to plan it?!“

„Let we work, we don't have time for formalities?!“

Common idea of these three attitudes is to find reason not to plan the project. In theory and practice there is no defined relations that connect duration of a project and its significance, complexity or resources engaged. On the contrary, projects with short duration are necessary to be planned more carefully because any deviation is not possible to compensate in short time. On the other hand, „similarity“ of a project with previous one enables you only using of some „lessons learned“ to avoid some problems, as well as easier planning, but not eliminating it. As per project management approach, each project is unique, because it is implemented in different period, with different project manager or project team or in different environment. One Serbian sentence says that „good plan is a half of job performed“ and it reflects some wide recognizable experience, independent of formal project management education. In practice there is a general attitude to disdain any activity that does not represent „particular - technical“ job, treating it as „formality“ with negative context. It is consequence of the fact, mentioned in the previous chapter, that managers in Serbia are predominantly technically educated and oriented. But, practice confirmed that technical knowledge is only necessary, but not sufficient condition for successful implementation of a project - this additional element is an organization, based on appropriate planning.

“I will resolve a problem when it arises, not in advance?!“

This is typical for always mentioned „problem oriented management“. How many times you have heard that „we are the best when it is the most difficult“, because in such conditions our „grudge will go into operation“ and we will „force out it as heroes“? Unfortunately, we are forgetting Serbian sentence that „there is no sense in bearing grudges“. Instead of establishing of processes „problem-oriented“

managers „resolve problems“ taking the role of „rescuer“ to show that nothing is possible to be done without them. In situation when planned project time is near to expire and the job is far from to be finished they make a pressure for overtime work, ask for additional people, threaten and /or promise to participants, explain to employer „objective circumstances“ for delay and higher costs etc. This management style is known as „Improvisation“ (intentionally with capital letter „I“) with longterm and disastrous consequences. After (certain) failure they will find a culprit, and if you mention them project management they will explain that it is not applicable in their project or company because they are „specific“!

3.3 Implementation

„This project is late, we will resolve it by overtime work?!“

In project implementation, for any reasons, it is not possible to work with full capacity from the beginning (sources of information are not available, resources are not provided, delay of other projects has an impact to particular one, experience of engaged people is not adequate etc). This is a reason for some delay of project in comparison with planned time. Overtime work is one of possible solutions. Realistic conditions of planning could not eliminate such situations that arise because of circumstances which are not under our control. But, it is very important to understand that this solution should be short-term, if prolongs it could be counter-productive, because of limited physical and mental capability of employers and negative consequences both for atmosphere within a project team and private life of its members. The purpose of planning in the area of human resources is just to lead down it to acceptable level, to be exception, not a rule.

„This project is late we will add new people?!“

Adding of new people is favorite solution of „problem oriented management“. It is expected that these new people will give contribution to implementation of the project in time. Unfortunately, in practice something just conversaly happens - it causes that

project is even more late. This is known as „Brooks law” (Brooks, 1975), defined for software projects but in practice it is confirmed as applicable for all other projects: „Adding manpower to a late (software) project makes it later”. In the first moment, it is not logical but more detailed analysis shows that it is. Firstly, some engagement of existing project team members is necessary to be oriented to new-engaged ones. It means that damage is doubled - we are late and make additional effort to finish the job and we have additional effort to give a help to new members of the team. Such a situation has negative consequences both to result and to atmosphere within the team. Of course, it does not mean that it is forbidden to include new members into project team, but it is necessary to be done timely and in a planned way.

„This project is late but we will compensate it by quality of product?!”

This attitude sets artificial and false dilemma - quality or time. Compensation of late project by quality of product delivered is impossible. When you sign a contract, you accept to do the job with some level of quality and no any late should be compensated by special increased quality. Budget (resources), time schedule and quality are crucial elements of your contract obligation and no any exchange is possible. The main task of project manager is to establish and maintain this balance, Figure 1 (Raković, 2007). Putting of your employer into position to choose „if - if” is, as a matter of fact, some kind of blackmail, which will have serious consequences in future relationships with him.

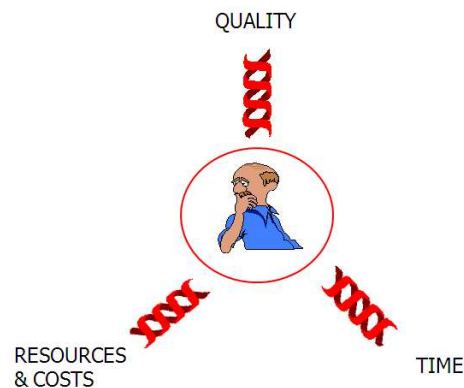


Figure 1: Balance of project manager goals (Raković, 2007)

3.4 Monitoring and Reporting

“Working time control is mistreating of employees?!”

Generally speaking, nobody likes to be controlled. Any kind of control including presence at working areas is usually treated as „mistreating of employees” with idea that „it is more important to have effect of working hours, than to be formally presented at working areas” and that „money spent for access control systems is better to be used for salaries” etc. But, from the point of view of project management, number of qualified people and working time give powerful resource for project implementation declared as „human resource” (Jovanović, 2006). Knowledge of people is not enough for

reaching project goals - number of employees, time devoted to this project and their effort are necessary to enable desired results. At the same time, control of working hours spent at particular projects gives possibility to establish database for future bids as well as future projects planning and enables factual decision making.

3.5 Project close out

“Later we will put in order documentation about finished activities?!”

„Later” is often interpreted as „never”! Organizations often do not keep final revisions of delivered products (if applicable), because project managers „don’t have time to deal with it”. This approach endangers future

activities of organization, because it deprives itself of its accumulated experience. As a matter of fact, close out of a project should be followed by appropriate reports that summarize main results of the project and resources spent to enable using of these results in future project as „lessons learned”, as part of organizational knowledge. Also, description of projects will help in marketing activities of company, as a basis for getting of jobs in the future.

3.6 Common for all phases

“Our knowledge is enough, it is not necessary to learn anything?!”

This attitude is directly connected with always mentioned absence of awareness related to permanent education. Technology grows up rapidly, especially in some areas (telecommunications, computers, software) and knowledge is necessary to be renewed. In business oriented literature, some authors describe it with the sentence that “it is necessary to run if you want to be in place” (Janković, 2012). In modern changeable and unstable business environment, adaptation to changes is main prerequisite for survival at the market. It is possible to apply both to organizations and individuals.

“We don’t need project manager, we are experts for this job?!”

This attitude is maybe the main reason for writing of this paper. In practice, there are a lot of misunderstandings related to real role of project manager. People usually connect his role to expert knowledge in the area the project is related to. But, it is necessary to have in mind that main task of a project manager, together with his team, is to manage the project to enable achieving of project objectives. To do it successfully, he/she should have some knowledge (about project management and technology knowledge from several disciplines), to own some capabilities (organizational, communication) and some features (stability, enthusiasm, ambition, energy, honesty etc.). (Jovanović 2006; Raković 2007). The knowledge is collected in different ways, capabilities are developed and features are embedded into our personality.

Specialty of a project manager is important but is not crucial for its role on project.

3.7 Project manager as a profession

Nowdays, project management attain a level of particular profession, as per conclusions of European Union. As per Westwood and Widaman considerations and PMI investigations, „project manager” fulfills majority of profession characteristics. These characteristics are, as follows (Jovanović, 2009):

- Application of specialized knowledge in solving group of problems
- Preceding education and practical application of knowledge for all future professionals
- Obligation for continual learning and competence improvement as well as education of younger
- Clearly defined membership of a particular group with a view to safeguarding the interests of the profession
- Code of ethics and resolving of disciplinary problems within association
- Contribution of members as professional group to the society as a whole

3.8 How to overwhelm misleads and prejudices related to project management?

From previous considerations it is clear that mentioned misleads and prejudices related to project management are not based on facts. But, it is not enough to overwhelm or at least mitigate negative consequences that these misleads and prejudices have in practice. This passive approach should be replaced by active one. Firstly, it is necessary to identify these attitudes as problems that have negative consequences to project implementation. Then, it is necessary to take some preventive activities - education and development of awareness of people, establishing of system framework that eliminate problems, full cooperation with the company management as „project sponsor“ through adequate project planning as well as consistent implementation of this framework in practice. Finally, it is

necessary to work persistently and patiently to its elimination. These misleads and prejudices have not appeared „over the night“ and it is not possible to be eliminated quickly.

4. CASE STUDY: PROJECT MANAGEMENT IN ENERGOPROJEKT ENTEL

Previous considerations are predominantly oriented to problems that exist in application of project management concept in Serbian companies. However, even in such environment there are companies with successful application of this concept. Some positive experiences will be illustrated on the example of company Energoprojekt Entel p.l.c. from Belgrade, Serbia (hereinafter called: ENTEL).

The main business of ENTEL is Engineering Design and Consultancy Services related to Projects in the fields of Energy, Water, Telecommunication and Environmental protection. Categories of ENTEL's products are design documentation (studies, tenders and technical documents), consultancy services provision and occasionally customer's specific software development.

ENTEL implements its projects both in Serbia and abroad, especially in the region of the Persian Gulf (in Qatar, Dubai, Abu Dhabi and Oman). The company received National Award of Business Excellence „Oscar of Quality“ in 2005. in category of small and medium enterprises, as well as award „The Best of Serbia“ in 2013. in category of consultancy services.

Within last fifteen years ENTEL has been established Integrated Management System (IMS) that includes following management systems, certified by certification body Lloyd Register Quality Assurance (LRQA), Figure 2 (Raković, 2013):

- Quality Management System - QMS, as per ISO 9001
- Environmental Management System - EMS, as per ISO 14001
- Occupational Health and Safety Management System - OHSAS, as per BS 18001
- Energy Management System - EnMS, as per ISO 50001
- Information Security Management System - ISMS, as per ISO 27001

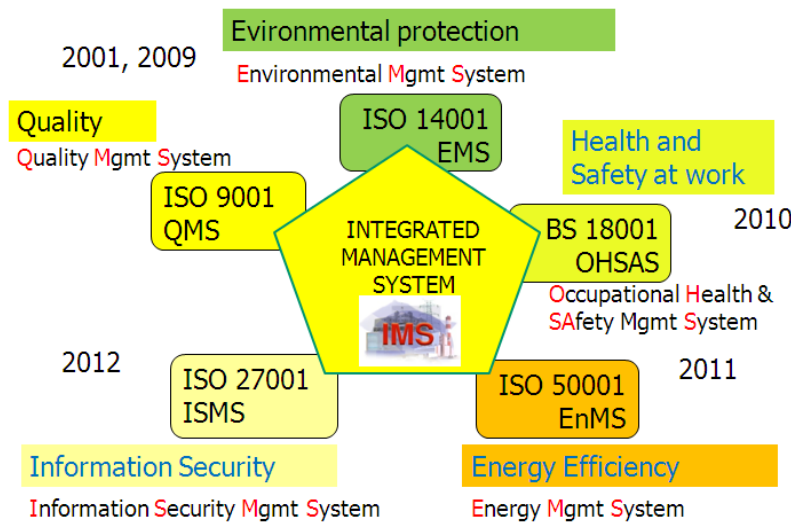


Figure 2: Structure of ENTEL IMS (Raković, 2013)

Basis for business activities of ENTEL represents qualified personnel. About 60% of 190 employees have a faculty degree, including 4 PhD's. About 70 of employees have licenses of Engineers Chamber of

Serbia, that are basis for company license in the area of engineering, design and consultancy services issued by authorized state body. Additionally, 36 of employees

(15%) are internal auditors of at least one of 5 management standards certified within IMS. Main principles of project management application in ENTEL are as follows:

- Project Management Concept has been built into IMS documents (ENTEL, 2013). Particular procedure is devoted to project management (EN-09P-10) defining process from project establishing up to project closing out.
- Project management is based on its own project management system (SUPR) developed within

Energoprojekt in the beginning of 1980s, including experiences from nuclear projects as well as projects implemented abroad in 1960s and 1970s.

- Each contract is implemented as particular organizational unit - project, recruiting people from technology departments. Project management organization in ENTEL is illustrated at Figure 3. Matrix organization is mainly applied, except the largest projects that apply pure project organization.

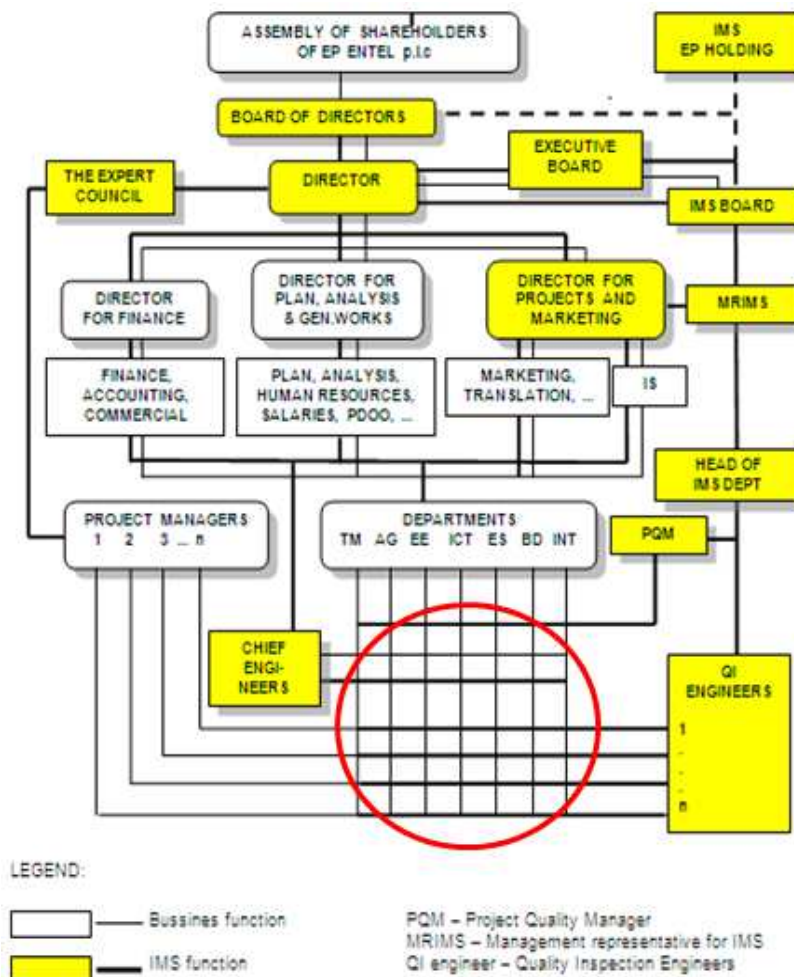


Figure 3: Project management organization in ENTEL (ENTEL, 2013)

- A project is established based on signed contract, letter of intent or any other document with contract power, or particular decision of management or the Board of directors. Particular

document called “Decision on project establishment” (“Project charter”) is issued.

- Central document of the system is Techno-economic Program for project realization (TEP). TEP represents both basic planning document ("baseline") and document for design and development planning of new and/or modification of always developed product. This document is prepared for each project just after the project establishment to determine key elements for its implementation (activities, time schedule, human and material resources needed, quality plan, responsible persons etc). TEP is considered and adopted by the Expert council of ENTEL as verification body.
- After TEP's adoption, project realization starts by engagement of planned resources. During project implementation, planning / reporting documents are prepared. Also, technical review is performed continually by Quality Inspection (QI) engineers per specialties, in coordination with Project Quality manager (PQM). Depending on project complexity, PQM is particular person, or this activity is performed by chief engineer or head of the project-leading department. After preparation, product is verified at the Expert council before its delivery to customer.
- If there are any difficulties during project implementation, it is possible to organize the "directing" Expert council to help both project manager and project team to overwhelm these difficulties and implement project successfully.
- At the end of project activities, particular report, as well as order for project complete is issued. These documents enable summarizing of project results - resources spent as well as experiences that should be used in future projects ("lessons learned")
- General approach of ENTEL is not to engage project managers from outside, but to form them from its own employees. This approach has three steps:
 - Selection of people with features and tendency to be project managers
 - Formal education for project management both externally and internally
 - Development of competency through particular projects, from small to complex ones
 - Of course, this approach is more difficult, it asks time, effort and patience, but gives the best results.

5. CONCLUSION

In this paper, general questions related to project management concept application in Serbian companies (organizations in real economic sector) are discussed. An attempt is made to systematize some of the most important misleads and prejudices based on experiences in Serbian companies and to consider possibilities to overwhelm them. It is concluded that the only way to do it is to identify these obstacles as problems that have negative consequences to project implementation, and to work persistently and patiently to its elimination. Finally, some practical experiences related to project management in particular organization are presented. Experience of ENTEL shows that it is possible to apply project management concept in Serbian companies successfully, based on systematic approach provided by integrated management system as well as by consistent and patient work in practice. It is very important to emphasize that this process is based on continual improvement, as quality management principle. Experiences from finished project should represent as basis for planning and implementation of future ones.

REFERENCES

- Brooks F.P. (1975). *The Mythical Man-Month: Essays on Software Engineering*, Addison-Wesley
- Han, S. (1994). Presentation within Energoprjekt Management School
- ENTEL's IMS Documents. (2013)
- ISO 9001: 2008 *Quality Management Systems – Requirements*

- Janković, J. (2012). *Business quotes once and for all*, www.biznis-akademija.com, (in Serbian)
- Jovanović, P. (2006). *Project Management*, 7th edition, Belgrade, (in Serbian)
- Jovanović, P. (2009). *Modern Management*, Belgrade, (in Serbian)
- PMI (2013). *A Guide to the Project Management Body of Knowledge*, PMBOK Guide, Fifth Edition
- Raković, R. (2007) *Quality in Project Management*, Građevinska knjiga, Belgrade, (in Serbian)
- Raković, R. (2010). Quality Assurance in Project Management - practical experiences, 16th International Conference ISSAT 2010 on Reliability and Quality in Design, 5-7 August 2010, Washington, RQD10-47, 372-376.
- Raković, R. (2011). Project management concept - Misleads and prejudices in practice, XV International Symposium YUPMA 2011, Zlatibor, June 2011, 397-401.
- Raković, R. (2013). Information Security Management System establishing and implementation, XVII International Symposium YUPMA 2013, Zlatibor, June 2013, 217-221.

MANAGEMENT AND VALUATION OF CREDIT RISK FOR INDIVIDUAL LOAN OR BOND

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Abstract: Credit risk gains or losses depend on events, defaults and migrations that influence the value of assets both on the current date and at horizon. The future value at horizon is needed for valuation of all the assets or statistically defined credit losses, expected losses, unexpected losses and distribution of losses for the credit risk VaR. Only the default model reduces distribution of value for each asset to two forms, default, and non-default. For the complete valuation models (value estimates), migrations into other types of risk as compared to the original type of risk, influence the change in asset value, since the type of loan or bond payoff was changed. For an individual loan or bond, an individual credit risk can be defined and measured as the credit VaR. The risk influences migrations between the current date and a certain date at horizon. Consequently, the valuation of a credit risk value is conducted over the entire time interval.

Keywords: credit risk, credit spread (gap), migrations, value of assets, default, distance to default.

1. INTRODUCTION

For adjusting to the credit risk, default probability and credit spreads (or gaps) are applied to various types of risks, for a defined time interval. Distribution of credit states value probability influences value distribution, because the credit gap varies depending on the credit type of VaR and other statistical data that can be driven. Differential credit spreads generate all variations, since they deal with exposure to default and the percentage of loss caused by credit risk for a certain time interval. The *CreditMetrics* uses Value at risk (VaR) as the statistical technique to measure and control the level of credit i.e. financial risk within firm or investment portfolio over a given period. VaR is the maximum loss not exceeded with a given probability defined as the confidence level, over the exact period.

The analysis of credit risk valuation by applying the *CreditMetrics* model shows that credit spreads are the products of a default intensity and the default caused by it. It was

conducted by equating values under more risk neutral probabilities and valuation by applying a risky interest rate within a simplified continuous time framework. Furthermore, it was presented that a credit VaR can be driven from migrations, for a single case, or by revalorization of the loan for all final loan or bond types at horizon by using credit spread that corresponds to each credit type. Credit VaR and credit risk valuation matrix were analyzed and presented through numeric calculations.

Consequently, the concept of value at risk (VaR), answers the question: if the following year is unsuccessful, what will be the amount of losses on individual bonds or loans or a portfolio consisting of unmarketable financial instruments. The achieved results show that the constructed model CM can be applied for modeling migration, by the application of a time interval of asset value distribution, based on driving independent credit VaR for different values of assets. Moreover, the matrix approach (CM), shows discrete finite forms of risks at time horizon that depend on

distance to default. The process of managing credit risk for a loan or a bond consists of defining the volume of the capital value and distance to default that maps the valuation of the default probability.

2. CREDIT SPREAD (GAP) – IMPLIED DEFAULT INTENSITY AND RECOVERY RATE

Credit spreads show the connection to default probabilities and loss given default (Morgan, 1997). The connection comes from two basic alternative methods for valuing a portfolio consisting of nonmarketable financial instruments or an individual risky bond (or loan), including:

- Discounting at the risk-free interest rate of the expected payoff and
- Discounting at the risky interest rate of the contractual payoffs.

Discount factor, in continuous time, applied to a future date t , for calculating value as of today is determined by the following formula:

$$D(t) = \exp(-zt),$$

Where z is the discounted rate or factor. The value of the bond V_b is determined by discounting the promised payoffs at the risky yield to maturity z , as:

$$V_b = \int_0^T FC_t \exp(-zt) dt.$$

In this summation, t is any of the intermediate dates, when a payoff occurs, between now and maturity date T .

Risk-neutral valuations (determined values) are used to manage credit risk for a bond or a loan. Namely, it is necessary to derive default probability and the probability of survival over each time interval and to discount at a risk-free interest rate the flows of the expected payoffs. Risk-neutral intensity of default is $\lambda(t)$, while recovery rate for the analyzed bond or loan is R , expressed in the percentage of the remaining loan. In order to simplify the application, we assume that both variables are constant. All the more, because in practice discrete time intervals can be used and they can be assumed to be constant.

This is a better solution than using integrals for valuating bonds, since the bond is valuated in a small time interval, i.e. in a continuous time environment (Duffie and Singleton, 2003). The small time interval Δt is defined by two-time points, t , and $t+\Delta t$, but in such a way, that Δt tends towards zero. Accordingly, default probability from t to $t+\Delta t$ is $\lambda\Delta t$. Cumulative probability of debtor survival to t as of today is the exponential function $\exp(-\lambda t)$. The expected payoff at any intermediate date t is FC_t , without default, with probability $\exp(-\lambda t)$. The payoff in default conditions is determined by the valuation of the recovery rate R with a probability equal to the probability of default of debtor survival conditions to t . Such probability is equal to the product of survival probability to t multiplied by default probability over the interval t until $t+\Delta t$ or $\exp(-\lambda t)\lambda\Delta t$.

Over the small time interval Δt , bond value at the beginning of the time interval $[t, t+\Delta t]$ discounts payoffs for the default survival and recovery, by using a risk-neutral valuation:

$$V(\text{bond}) = FC_{t+\Delta t} \exp(-z_f \Delta t) [(1 - \lambda \Delta t) + \lambda \Delta t R].$$

Since the argument of the exponential is small, its approximation of the first-order derivative is $\exp(-u) \sim 1 - u$:

$$\exp(-z_f \Delta t) \sim (1 - z_f \Delta t).$$

The value of the bond at the beginning of the interval t is the discounted value of the payoff at the end of the interval or $FC_{t+\Delta t}$. The value using risky yield z is equivalent or equal to risk-free rate plus a credit spread s , so:

$$V(\text{bond}) = \exp[-(z_f + s)] \Delta t = 1 - \Delta t(z_f + s).$$

The value of the bond using risk-neutral valuation discounts its expected cost-effectiveness at the risk-free rate:

$$V(\text{bond}) \sim FC_{t+\Delta t} (1 - z_f \Delta t) [(1 - \lambda \Delta t) + \lambda \Delta t R].$$

If we apply the previous formula, we can determine the payoff since the recovery rate equals the percentage of payoff. If we expand the terms in brackets, we can get the following formula:

$$\begin{aligned} & (1 - z_f \Delta t)[(1 - \lambda \Delta t) + \lambda \Delta t R] \\ & = [(1 - \lambda \Delta t) + \lambda \Delta t R] - z_f \Delta t \\ & \quad + z_f \Delta t^2 - z_f \lambda R \Delta t^2. \end{aligned}$$

Therefore, when we ignore the second-order terms (Δt^2), i.e. when the small interval Δt

tends towards zero, and when we simplify the second expression, we get:

$$\begin{aligned} & [(1 - \lambda \Delta t) + \lambda \Delta t R] - z_f \Delta t \\ & = 1 - \Delta t[(z_f + \lambda(1 - R))]. \end{aligned}$$

Using the second model, we obtain two alternative valuations of the bond value:

- a) risk neutral evaluation: $V(bond) \sim FC_{t+\Delta t} \{1 - \Delta t[(z_f + \lambda(1 - R))]\}$;
- b) assessment of risk of return: $V(bond) \sim FC_{t+\Delta t} \{1 - \Delta t(z_f + s)\}$.

Eliminating the contractual payoff and equalizing the two values, we extract the credit spread s , as:

$$s = \lambda(1 - R) = \lambda LGD.$$

The conclusion is that credit spread is a product of risk-neutral default intensity and the loss given default (LGD). This shows that the credit gap or spread equals the expected loss under risk-neutral probabilities.

3. CREDIT VaR AND VALUATION BASED ON CREDITMETRICS

The losses and gains of credit risk (Stephanon and Carlos Mendoza, 2005), or the loss given risk, that happen during debtor migrations (the second party in the agreement, to the lower class rating, without undergoing default) depend on events, defaults and migrations, between the current date and a future horizon that influence the value of assets.

A future value at horizon includes the required yield rate, so that all possible statistical variables of credit loss, expected loss, unexpected loss, and the loss for distributing credit risk VaR can be valued. The methodology of valuating loss by “matrix valuation” was first introduced by *CreditMetrics* (Morgan, 1995). It is implied that there is a direct number of credit types at horizon, with the adequately rated classes of debtors, for defining the final (market) value of assets. The probabilities of achieving each final type, including default types, are driven from transitory matrices. For each type of credit, different credit gaps or spreads are

applied that enable calculating the value of an individual asset, bond or loan in a future period, regarding the contractual cash flows to maturity.

For distribution, we obtain the expected values in a future period, variable values and VaR, as the percentiles of the value change. The methodology relies on migrations and ranking of debtors, plus credit spread that is added to each rating. This is because credit spreads vary together with ratings and residual maturity. Those are given in a matrix cross-tabulating ratings and maturities. Such revalorization technique is sometimes called “valuation matrix” and usually represents an integral part of several credit portfolio models.

If we observe each following valuation at horizon, there are as many possible credit types as there are migrations, including the default type. When assets are in default, the value of assets represents the loss given default. In conditions where assets migrate into some other credit type, it revalorizes at horizon by the application of credit spread, which is mapped for each credit type or rating. Therefore, there are as many values at horizon, as there are risk categories, including the default risk. The distribution of values enables taking measures of credit risk and credit risk VaR.

CreditMetrics usually uses the technique of migratory matrix. If applied to an individual asset, as illustrated in Figure 1 (Morgan, 1997), it shows that the matrix yields only a small number of final values.

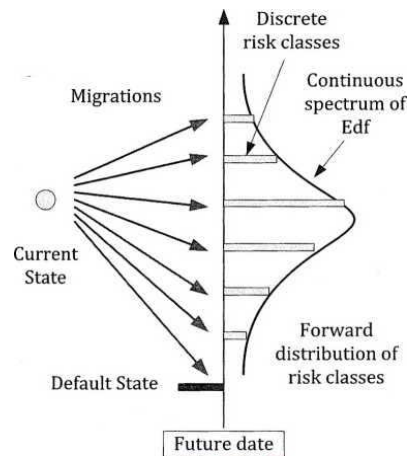


Figure 1: Migratory risk and distribution of future values

However, when applied to the portfolio assets, migrations result in a far greater number of values. If forward credit gaps or spreads are applied, contractual cash flows are discounted at a certain horizon and values are gained at horizon for all credit types.

The models used for valuating assets at a future time horizon are similar to those that enable the valuation of assets for the current date. The current date is zero, and the time horizon for modeling a credit risk is one year (*date 1*).

Valuation in a future interval should use the future interest rates and credit spreads for the horizon as we can see it from the current date viewpoint. If we isolate credit risk, there is no need to consider the changes in interest rates.

Valuating a bond, we discount the future payoffs before the future *date 1*. Discount factors applied to payoffs after the future *date 1* are based on future interest rates. Future risky rates are: $z(0, 1, t)$, with 0 as the initial date, 1 is the horizon for the future valuation and t are the dates of future interest rates before date 1 and to maturity date T . Future credit spreads are driven from the future interest rates between two future dates. Future probabilities at horizon are the result of future valuations to the maturity of assets. Those are marginal default probabilities that can be

applied between two future dates, if there is no previous default.

Migrations are the interval between the current date and the horizon, through the application of, say, published transitory matrices that correspond to that interval. The formula for the future valuations, like *date 1*, is as follows (Morgan, 1995):

$$V(1) = \frac{\sum_{t=1}^T FC_t}{[1 + z(0,1,T)]^t}$$

Discount rate is a future risky yield to maturity T that starts at number one as it looks like from the current date viewpoint and lasts until the maturity of assets.

The maturity of assets T that lasts longer than a year is explicitly presented in the above formula. In practice, for shorter maturities at horizon, final payoff comes in two basic forms, default and non-default, discounted to the current date. Credit risk given gains and losses are driven by comparing future values at horizon to the current value, as will be explained in the following passages.

4. THE APPLICATION OF CREDIT VaR AND THE MATRIX OF CREDIT RISK VALUATION

Let us assume the assets with two year maturity, with nominal bond value of 10.000 currency units (CU) with periodical yield

(nominal interest) of 6.5% and default recovery rate of 50% with payoff within the maturity period. The default yield is 50% of the contractual amount of debt, also including 650 units of the earned interest (at the end of the year) or 5.325 CU. Moreover, suppose there is a curve of the equated yield, which means that the future rates are identical to the present interest rate. The assets are given to the debtor with rating “BBB”, with credit spread of 1%, while non-risky rate is 5% and the current risky market interest rate applied for the valuation of assets is 6%.

Therefore, the assets have a spread higher than 0.5%. In further analysis, we will use the method of valuating a bond on the *date 1*, when residual maturity is one year. Transitory matrix (the matrix of migrations, being the consequence of migrations towards other rating categories within the common framework), starting with *BBB* rating is given

in *Table 1.1*, along with adequate credit spreads.

Present value is the current value of the two cash flows - 650 and 10.650 CU at the adjusted market rate of credit risk of 6%. This is above fair value because of the positive higher spread distribution:

$$650/(1 + 6\%) + 10.650/(1 + 6\%)^2 = 10.092 \text{ NJ.}$$

If we continue the valuation as if it were the end of the first year for all credit types, as the matrix in *Table 1* shows, then for each credit type, for the *date 1* we discount the remaining cash flow to the adjusted market rate of credit risk, assuming that intermediate payoff of 650 was settled, except for the default type where the payoff is 5.325 (we assume it is paid off after the default, at the end of the first year), since we have taken total interest on a yearly basis.

Table 1: Migrations, final credit states and credit spreads

	Transition probabilities	Spread	Risky rate at date <i>1</i>
Rating AAA	10,0 %	0,1 %	5,1 %
Rating BBB	75,0 %	1,0 %	6,0 %
Rating CCC	7,0 %	2,0 %	7,0 %
Rating DD	5,0 %	4,0 %	9,0 %
Rating E	2,0 %	8,0 %	13,0 %
Default	1,0 %		
	100,0 %		

Valuation at the end of the first year, in the case of survival to the *date 1*, is driven by discounting final flow at the end of the second year, 10.650, to the risky yield that corresponds to the final valuation at the year end *1*: $V_1=10.650/(1+z_i)$, where *i* represents rating valuation from AAA to E. Consequently, the value 5.325 CU is used, as represented in *Table 2*.

It is clear that the final value is determined by the conditions when the ranking BBB does not change, (10.047). It is lower than the present (current) value because of the plummeting effect combined with the positive spread (*Table 3*). Value distribution starting with the *date 1* can be achieved by the application of transitory possibilities.

Table 2: *Gains and losses at horizon*

	<i>Transition probabilities</i>	<i>Rate</i>	<i>Value at date 1</i>	<i>Gain (+), loss (-)</i>
Rating AAA	10,0 %	5,1 %	10.133	133
Rating BBB	75,0 %	6,0 %	10.047	47
Rating CCC	7,0 %	7,0 %	9.953	- 47
Rating DD	5,0 %	9,0 %	9.771	- 229
Rating E	2,0 %	13,0 %	9.425	- 575
Default	1,0 %	Recovery	5.325	- 4.675
	100,0 %			

The distribution of gains and losses is graphically described in *Figure 1.2*. Horizontal axis ends at -80 and does not show the greatest loss that equals -4.767 (=10.092-5.325). The distribution is highly curved to the left, so we can get percentiles of losses according to Table 3. For example, credit loss at the trust level of 97% is -229 and -575 in the case of 99% percentiles (Moody's, 1998). In other words, the arrangement of bond values does not follow the normal probability

arrangement. The lower part of the probability arrangement is relatively long (heavy left tail), while the upper part of the probability arrangement is relatively short with the mean value in its environment. This shows asymmetry to the left, which is the indicator of this probability arrangement. Therefore, great negative outcomes are much more likely to happen than great positive outcomes. In our (case) analysis we can talk about great negative yields.

Table 3: *Distribution of gains and losses at horizon*

<i>Rating</i>	<i>Value at date 1</i>	<i>Gain(+), loss (-)</i>	<i>Transition probability</i>	<i>Cumulated probability</i>
Rating AAA	10.133	133	10,0 %	10,0 %
Rating BBB	10.047	47	75,0 %	85,0 %
Rating CCC	9.953	- 47	7,0 %	92,0 %
Rating DD	9.771	- 229	5,0 %	97,0 %
Rating E	9.425	- 575	2,0 %	99,0 %
Default	5.325	- 4.675	1,0 %	100,0 %

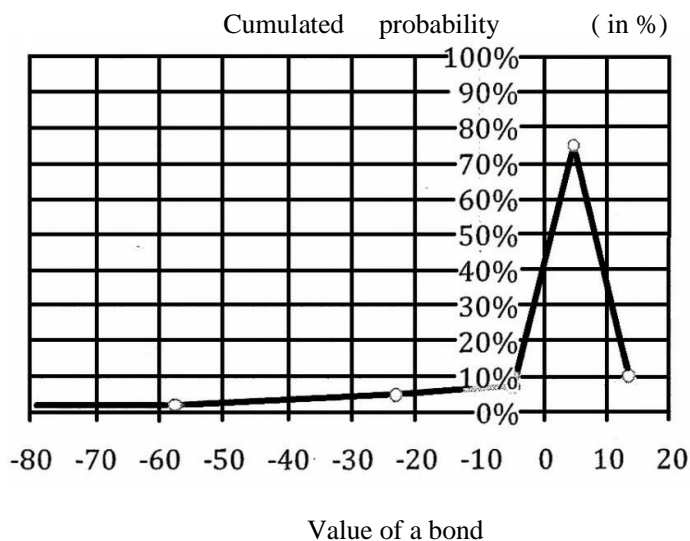


Figure 2: Distribution of gains and losses at horizon

5. MANAGING MIGRATION AND VaR IN THE STRUCTURAL MODEL OF CREDIT RISK

The matrix approach uses discrete final credit types. The default model provides continuous distribution of credit types of risk at the end of the time horizon that depends on the distance to default (DD). Namely, migratory matrices assemble all historical frequencies of transition through different types of risk over an interval of, say, a year, while the final type of migrations includes all types of risk including the default risk. Optional default model is also applied to migrations since the default probabilities are modeled and then mapped through the type of risk. The difference is in the fact that the distribution of migration is rather continuous than discrete. Every final value of capital or assets corresponds between the distance to default and the default probability. The distribution of capital value is a continuous distribution of migrations. For mapping the capital value or

the longest distance to default, for discrete ranking, continuous distribution has to be discretized. The process consists of defining the volume of capital value and the distance to default that maps the valuation of default probability.

If we observe a future period, the distribution of capital value is a lognormal function. Each capital value has its probability, and it correlates to the distance to default and default probability (Crouhy *et al.*, 2002). The mapping can use EDFs to define the volume of capital value, which map to default the frequency driven by valuation. For example, if we consider such, defined frequency of default, we can define a range of capital values including the probability of the expected pondered default frequency (EDFs) in the volume equal to the default frequency. Each final credit rating can be assigned a volume of capital value as presented in Figure 3.

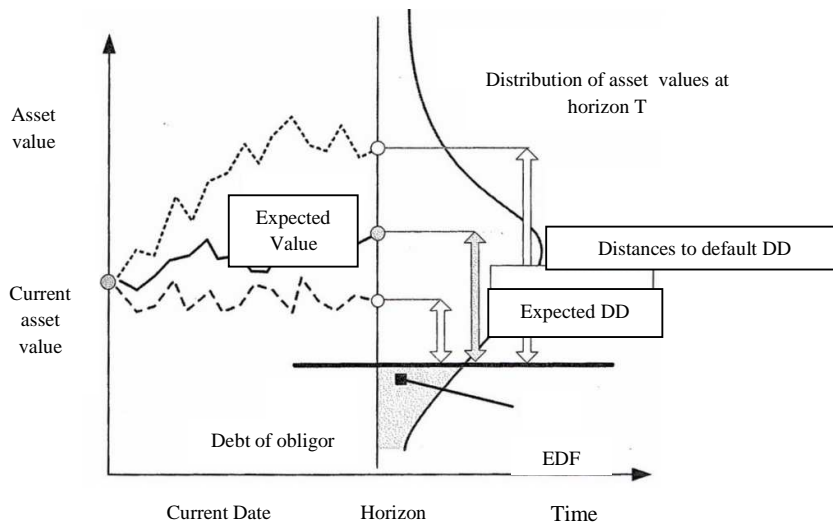


Figure 3: Values of assets and migrations

When modeling migrations according to the capital value, it is important to bear in mind that the probability migration from the initial EDF to the final EDF is lognormal, just as it is in the distribution of the capital value. It is integrated into the simulation model. Historically speaking, migrations are not lognormal, which does not matter if we match the ranges of final capital values to rating through EDF.

The lognormal distribution was used for driving the default probability, given debt obligation at horizon. The same distribution can be applied as mentioned, for driving an independent VaR. VaR is a negative value variation of a certain percentile. It can be defined as a negative difference between $A(\alpha)$ and A_0 at the trust level of α . In order to get such VaR in the structural model, it is enough to replace the debt value with the percentile value, as illustrated in Figure 4 (Bessis, 2012)

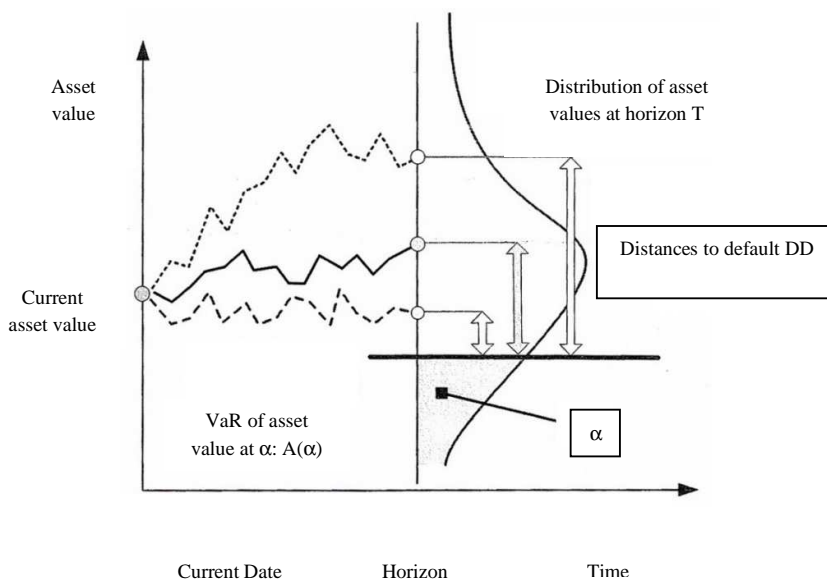


Figure 4: VaR asset values

The structural credit model includes the value V_0 from the final to the initial value. The percentiles that are defined for the ratio $V(\alpha) / V_0$ formula for α percentiles of this ratio is:

$$\frac{V(\alpha)}{V_0} = \exp[\Phi^{-1}(\alpha)\sigma\sqrt{T} + (\mu - 1/2\sigma^2)T].$$

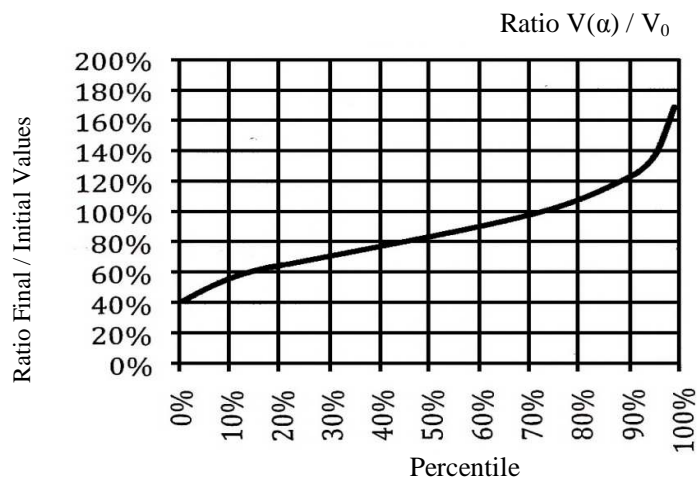


Figure 5: Percentiles of the ratio of final capital values according to the initial capital values (expected yield 10%, variability 30%, and one year time interval)

If we repeat the above example, using the expected yield of 10%, variability of capital yield of 30% and one year time interval T , we can see that 1% of the percentiles of the ratio $V(\alpha) / V_0$ equals 40,7%. Such result is calculated as follows:

Downside of the value deviation that corresponds to 1% of percentiles is a complement to 1 or 59.3%. This value, 59.3% $\times V_0$ is the VaR for 1% of trust level. Graphic description that shows the ratio of values, with the same data as in the above example and the percentiles presented in *Figure 1.5.*, depends on the inputs applied above. Figure 5. represents a resume of migrations. The values of a ratio higher than I correspond to the upper migrations while the values lower than I correspond to the negative deviations. The graphic description depends on all the inputs.

It is important to know that the standardized model that uses a standard normal distribution, VaR for 1% of the trust level

corresponds to decreasing the value of -2.3263σ or 0.7. The value decrease is 70%, which is a much higher value than in lognormal distribution, because the downside tail of the normal distribution is more extended than the truncated at 0 at the left side of the lognormal distribution tail (Figure 5). This shows the negative asymmetry to the left, which is a characteristic of this probability arrangement, showing that great negative outcomes are far more certain than great positive outcomes.

6. CONCLUSION

In the credit process, a risk represents the losses (both expected and unexpected) caused by direct default of debtors (obligators) to settle their contractual obligations for an individual loan or bond, or if they do not honor the agreement. Credit risk comprises: pre-settlement risk, when the counterparty fails to meet the terms of the agreement concerning off-balance sheet products, and settlement risk when counterparty does not

meet the terms of the agreement concerning the transactions in the process of settlement.

The achieved results show that CM model can be used for the migration modeling, by applying the time interval of asset value distribution, on the basis of independent credit VaR for different asset values. Furthermore, the matrix approach (CM) can show the discrete final risk types at horizon that depend on the distance to default. The efficient credit risk management for a loan or a bond includes defining the volume of capital value and the distance to default that maps the valuation of the default probability. The relationships between unexpected losses (the loss valued over the expected trust interval minus the expected loss), risk concentration, credit exposure due to default, correlations and credit portfolio are of fundamental importance to the credit risk management. Credit risk models, credit exposure, frequency distribution types, their variances and standard deviations are the basic tools for valuating and managing credit risk, as well as estimating future migrations, although risk indicators are mutually independent.

REFERENCES

- Bessis, J. (2012). Risk Management in Banking. A John Wiley and Sons.
- Crouhy, M., Galai, D., & Mark, R. (2002). *A comparative analysis of Current Credit Risk Model*, Journal of Banking and Finance, 24
- Duffie, D., & Singleton, K. J. (2003). Credit Risk Pricing Measurement and Management. Princeton University Press. New Jersey
- Moody's, Credit Ratings and Research, (1998). And *European Corporate Defaults and Recovery Rates: 1985-2007* (2008). London,
- Morgan J.P. (1997). CreditMetrics, Technical Document, V₁. Issue 2. New York
- Morgan, J.P. (1995). Risk Metrics Technical Manuel. V₁, Issue 2. New York, J.P. Morgan Bank
- Stephanon, C., & Carlos Mendoza, J. (2005). Credit Risk Measurement Under Basell II; An Overview and Implementation for Developing Countries. World Bank Policy Research Working Paper 3556.

BUSINESS GAME

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Abstract: Business game facilitates the study of business organization. The application of a business game in operational analysis bases on theoretical and practical knowledge about organizational basics of the system, relations and connections of factors in the process of existence and adjustment to operations and actions. The business game is based on internal and interactional synergetic structural, functional, and operative criteria of properties, relations and connections of the organization. This paper presents specific operational models and examples of the business game design of the system.

Keywords: Method, business game scenario, the criteria.

1. INTRODUCTION

The method science - methodology, is the essential theory of a *correct approach* and *systematic research* of science (or a group of sciences) according to its subject and the theoretical- methodological results of previous examination. In the field of organizational sciences, especially in business actions field, business game stands out - a method that can be named "action method", as a unique type of operational model by the criteria of its purpose and role.

By exploring and implementing this complex model-procedure-proceeding, stands out her methodical, modeling and operational flexibility to business actions organizations from enterprise to corporations. Four concretized questions show these specifics. They are about the role and the purpose of the business game, its process, procedure and flow.

Possible development of a business game in its further efficient and effective application, based on arguments, generally applicable models, will certainly help the reader and business organizations. For its development, electronic and operational action support of managers, coordinators, specialists and other professionals in the business world will be necessary.

2. BUSINESS GAME

Business games are special methodical operational process and procedure that gives legitimacy to the business actions as a scientific discipline and skill. As a process, it is a unique form of a concrete analysis of business activity as a whole. As a procedure, it presents the directional series of activities support (argumentation) in solving a realistic business problem. The business game is a planning way applied in the mode of making a decision of leaders, stockholders, managers, and professionals. It is applied according to the structure identification of the business and realizing tasks of a business subject.

Its *purpose* is a support to the effective and efficient engagement of the business potentials and strength.

Its *role* is a support tool for the owners, leadership and management in making appropriate decisions in the market economy conditions. As an analysis, it is the decision subject's support for the making a conclusion, determination and identification of:

1. Method of use a business power its business strength,
2. Forming a real business vision,
3. Predicting events in the areas of business,

4. Conditions and resources necessary for success,
5. Use their operating strength,
6. Competitive advantages, disadvantages, the focus of activities and priorities;
7. Requirements for synchronization and coordination in order to achieve the desired results and
8. Optimal courses of business development.

3. THE BUSINESS GAME PROCESS

Business games are defined process, with rules and phases, by which provide visualization of the action flow. The process considers the schedule of its strengths, advantages, disadvantages, and competitive power and facilities and probable courses of action and market characteristics. Business games rely on strategy, tactics, business operations and experience. They direct the management attention to every business acting phase in a logical sequence. It is a train of action, reaction, and counteraction. Business games stimulate ideas and provide insight; that cannot be obtained by other methods. They emphasize focal tasks and connect them with business opportunities of business subject. Business games are the most important phase in the business analysis and comparison of their development courses.

Most often, the starting point of business games is the development course, from which began plan developing, determining advantages and disadvantages of each business development course. Business games are testing business courses or improve already fully-fledged business course. During the process, identification of unpredicted critical events, tasks, requests and problems is possible.

4. THE BUSINESS GAME PROCEDURE

Activity holders' **rules** and **jurisdiction** shape the procedure of the business game. By the rules, activity holders can determinate: objectivity, accuracy of analysis; advantages and disadvantages of each course of work; the suitability estimation, feasibility, acceptability, practicability and uniqueness of

the course of business and a way of collecting data and making business conclusions.

Jurisdictions regulate the responsibility for work coordination of activity bearers during business games in their working subjects and the competitors on the market. The course of business games is conducted by using certain techniques and methodological procedures.

5. PERFORMANCE FLOW OF THE BUSINESS GAME

It takes the realization of content:

1. Fund collecting;
2. Making the available operating strengths list;
3. Making the assumptions list;
4. Making the familiar critical events and main points list;
5. Determining the evaluation criteria;
6. Choice of method of business games;
7. Choice of recording method and presenting the game results and
8. Placement of business contents and assessment of the results.

Decision makers are directing the course of business games with *approach*, levels content and activity holders coverage and *methodical decision-making procedures*.

A/ Access

It can be: 1. By phases of work process and 2. By the problems as follows:

a/ *segment* in relation to the organization of strengths and activities of the business organization;

b/ *integral* in connection of the power of the working strengths and the course of activity as a whole unit and

c/ *complex*, such a scenario.

B/ Coverage

According to the *contents*, it can be:

1. elementary (management and leadership, business activity, security, and logistics);
2. special (contents of the actions and market measures) and
3. general (courses - business options).

By the levels of activity holders:

1. specialists,
2. coordinators,

3. assistants,
4. managers and
5. owners.

C/ Methodical procedure

It can be a/sectoral, b/team and c/combined and within them can be group and chained.

D/ A primary issue of strengths in the business game: "who" – by the developmental phases of decision-making, including:

1."WHO" – as a necessary set of strengths: *in relation to business activities* (e.g., business development, time development, qualifying, business, and required **properties** (skills, business units relationship (BU), events, scenarios, variants comparing).

2."WHO" – the strengths structure. For example, for strategic purposes: grouping by divisions, by BU, strengths by the type of operative products, major and minor business power.

3."WHO" – the sort of power. For example, 1. within the division there are: permanent – temporary compositions; 2.within the strengths BU there are: permanent specialists – temporary compositions, 3. within the main business strengths there are: permanent experts – short-term structures and 4. within auxiliary business power there are: durable compositions - temporary compositions.

4."WHO" – variants of engagement of the productive forces: 1. the most probable 2. the hardest.

5."WHO" – performer concretization. For example, 1. in division composition; 2. in the BU composition, 3. in the major business strengths structure, 4. within certain specific BU and compositions.

Concretization includes and: 1. restructuring of the division (and BU), 2. extending-reduction of the division (BU), 3. new BU formation, 4. innovation of the division (BU).

E/ Answer "HOW" to derive the job

Developing *scenarios*. The scenario develops with variations. In addition, lists are made: *abilities, officers, events, criteria and other*.

1. Under the scenario, inclusion of the capabilities can be: 1. personnel, 2. facilities and 3. measures success. These scenarios can be operationalized by using the model (from 1. to 9. that are developed and presented in the previous questions from SYMOPIS - 2010) for assessment and evaluation of quantitative and qualitative properties of elements, parts and organization strengths as a whole unit. (See the work of the author: "Fundamentals of research operations of the organization", SYMOPIS - 2013),

2. The next step is to rank the strengths by capabilities, proposal and undertaking steps to improve success.

Practical example: Someone can make the list of employees. By using previously developed models in mentioned works (especially 2.4., 8. and 9.), it is possible to make qualitative-quantitative list of valued characteristics of employees. With these lists, it is possible to reduce the uncertainty in undertaking steps for the success improvement and to generalize their focus and content.

One of the possible concrete lists of performers in the following columns shows:

THE LIST OF PERFORMERS (LP)

LP A/product (service) X*

a. Div A

Feature of products (services) X1

b. Div B

Feature of products (services) X2

c. Div C

Feature of products (service) X3

Feature of products (service) X4

Feature of products (service) X5

LP B/ (product (service) X*

a. Div C

Component of products (services) X1

b. Div B

Component of products (services) X2

c. Div A

Component of products (service) X3

Component of products (service) X4

Component of products (service) X5

3. The list of events may include: the number of products/np/ (service/se/)(and-or

serie/Sx1-n/) and various efficiencies (efficiency, rationality, productivity, cost-

effectiveness) (e.g., maintaining /1/, forming /2/, the progressive /3/), and scenes placement (from A to n).

Stage A: (Example): Product - service of different significance for the market (measured by coefficient of significance / k_s /: **3, 2, 1**): ...

- 1.1. X1,
- 1.2. X2,
- 1.3. X3,
- 1.4. X4,
- 1.5. X5,
- 1.6. X6 and
- 1.7. X7

Possible priority criterion of efficiency expressed by the product - services quality.

Practical example:

- a. **Decreasing of reclamation:** 5% or more prod / serv - **3**; from 2-4% - **2** ; under 2% - **1**;
- b. **Decreasing costs from product-services:** 4% or more - **3**; from 2-3% - **2** % less than 20 -**1**;
- c. **Shorten the time of production:** 4% and more - **3** ; from 2-3% - **2**; less than 2 % - **1**;

Accessing to the evaluation of significance (degree of impact) of the quality by the overall success of the production - service

Local Market - 3, 2, 1; regional market- 2, 3, 1; international - 1, 2, 3.

Variant:	1	2	3
1.1. serie y1,	3	2	1
1.2. serie y2,	2	3	1
1.3. serie y3,	1	2	3
Choice(ΣY):	6	7*	5

Conclusion: the biggest impact of the market location on success of the business is in variant 2. According to the impact that can be positive or negative, variant 2 or 3. is chosen.

coefficients of significance (e.g., **3 - big, 2 - average, 1 - small**)

6. CONCLUSION ABOUT SUCCESS

It is possible according to the model:

$$\text{Success} = (\Sigma C) \times (k_s) / n \dots (I.)$$

Where:

- (ΣC) - The sum of the product (service),
- (k_s) - significance coefficient (a three-point scale, 1, 2 or 3),
- n - number of summands

A practical example of division market choices – BU by the scene A:

- **variant 1.** $(3 + 2 + 3 + 2 + 1 + 2 + 3) / 7 = 15 : 7 = 2,14$

- **variant 2.** $(3 + 2 + 2 + 1 + 2 + 3 + 3) / 7 = 16 : 7 = 2,22^*$

So, 2. separation is selected due to higher efficiency (2.22).

Scene B: Example: Launch of the product - service (impact of the market location on success 3,2,1):

- 1.1. series y1,
- 1.2. series y2,
- 1.3. series y3,

Scene C: Example: Competition of the products on the market (the impact of competition. 3-large; 2-acceptable; 1-durable)

- 1.1. z1,
- 1.2. z2,
- 1.3. z3,
- 1.4. z4,
- 1.5. z5,
- 1.6. z6,
- 1.7. z7

- **variant 1.** $(3 + 2 + 3 + 2 + 1 + 2 + 3) / 7 = 15 : 7 = 2,14$
- **variant 2.** $(3 + 2 + 2 + 1 + 2 + 3 + 3) / 7 = 16 : 7 = 2,22$
- **variant 3.** $(2 + 2 + 3 + 1 + 3 + 1 + 1) / 7 = 13 : 7 = 1,88^*$

Thus, the most favorable competition is in the market no.3. (For example, international by the given structure offers of products - services).

4. List of criteria

It can be, not only *situational and organizational*, but also *functional evaluation of the game*.

1. <i>Quantitative</i>	2. <i>Qualitative</i>
convenient:	2.50-3.00
partially:	1.50-2.49
unfavorable:	by 1.50

4.1. Situational. Can be *by variants*, in the context of the scenario.

Example: Variants express the probability from 0.00 to 1.00.

4.2. Organizational. It can be: 1. *quantitative* and 2 *qualitative*.

Example: expression of the relations - connection:

4.3. Functional. Can refer to: *ability, performers, events*.

Example: Relation between quantity and quality

convenient:	2.50-3.00
partially:	1.50-2.49
unfavorable:	by 1,50

4.4. Evaluation of the game.

F/ CONCLUDING - EVALUATION:

Example: the ability of performers in the events expressed with probability: **0.00 to 1.00**.

(**For example:** the technique of weighting according to the laws of probability). **1. Compared to SCENARIO:**

	VARIANT 1.		VARIANT 2.	VARIANT n
2.	Performer quantity	and	Performer quality		
convenient:	2.50-3.00	or	0.84 to 1.00		
partially:	1.50-2.49	or	0.52 to 0.83		
unfavorable:	to 1.50		less than 0.52		

3. Performer ability

For **VARIANT 1.** For **VARIANT 2.** **VARIANT n**

- By elements /e/
- By performers /Perf/
- By the whole event /Ev/

4. Selection of the events: the most likely

	In VARIANT 1.		IN VARIANT 2.		IN VARIANT 3.
Scene A:	2.14 or 0.71		2.22 or 0.74	/	
Scene B:	6 or 0.667	or 0.78	5 or 0.56		
Scene C:	2.14 or 0.722,22	or 0.74	1.88 or 0.62		

Orientation: **0.70** **0.75** **0.59**

**ADVENTAGES -
- DISADVANTAGES**

Final step: SOLVING THE PROBLEM

Choosing the variant 1., 2. or 3., about which decides manager.

7. CONCLUSION

Modeling is one important characteristic of the business games. The method of a business game is not only systematic and science-based approach to the study of operational problems, but also practical action approach to business activity.

Business game in management with modeling and simulation can successfully replace an experiment. Its basis is modeling of management and development of its courses, which gives it action specificity as the unique logical approach to decision-making and resolving a number of issues and problems.

Logical inductive-deductive reasoning in the business game and its principles in making decisions are fundamental parts of the operating method. In order to adequately present the complex of business phenomena in business activity, we approach the management models research. The model is thoughtful picture of the business circumstances which in structure and function matches with the process of material, resource, and other trends in business. Action models can and should develop like the business games basis.

The effectiveness and appropriateness of the business game are useful in business circles. It is in correlation with the model, which is based not only on the approach and principles, but also on its operationalization in the course of action, founded on arguments, real relations and connections of human, management, material, energy, information and acting flows of the business activities.

REFERENCES

- Đorđević, V. (2006). Doctoral dissertation "Assessment of own forces in the decision-making process for surgery". VA, Belgrade
- Đorđević, V. (2010). Works collection, SYMOPIS - 2010, Zlatibor, Serbia
- Đorđević, V. (2009). Materials from the Symposium: ICDQM -2009
- Đorđević, V. (2009). Materials from the Symposium: SYMOPIS – 2009
- Đorđević, V. (2009) Materials from the Symposium: OTEH – 2009
- Kostić, Ž. K. (1990). Fundamentals of enterprise organization, SA, Belgrade
- Kukoleča, S. (1980). Fundamentals of the theory of organizational systems, PFV, Belgrade
- Petrić, J. (1989). Operations Research, NK, Belgrade

METHODOLOGY FOR LIFELONG LEARNING IN THE FIELD OF EMPLOYMENT

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Abstract: Analysis of the situation in the field of lifelong learning demonstrates the need to increase the level of participation in various forms of professional development of the adults. In constant search for an adequate measure in improving competences in relation to market requirements and market opportunities, it is necessary to strike a balance between individual needs, needs for an individual career development, needs of the organization/institution and needs of society. Examples of projects that were implemented with the aim to assess the situation and recommendations in the field of lifelong learning, pointing to a large offer in-house training for employees, the possibility of conducting external training, continuing education, training trainers and particular modules that are developed within organizational units engaged in lifelong learning. The proposed standards work and models, the treatment of improving competences of the individual, in the context of the organization, the software that monitors the improvement of human resources are an extremely useful experience and methodological framework that can be applied and adapted to the conditions of lifelong learning in Serbia.

Keywords: career development, distance learning, human resources, lifelong learning, knowledge management

1. INTRODUCTION

We live in a world of action, accelerated changes in the century that has been declared a century of knowledge. To become and remain a part of modern trends in society, it is necessary to master the process of continuous learning and acquisition of knowledge and skills. In addition to the competencies acquired in formal education, it is necessary to work on non-formal and informal education in order to answer to all the challenges that modern society puts in front of us. Therefore, non-formal education throughout the life can be seen as an important part of personal development and progress.

Work on the acquisition of competencies / skills and knowledge, attitudes, career development, retraining, further education, obtaining licenses, professional exams are essential components of lifelong learning. Organisation of trainings with the purpose of obtaining different certificates, as well as in order to improve human resources is an

important area quickly and skillfully directed towards the rapid changes in the labor market. Realization of trainings is a result of strategic planning, as well as of individual measures for the development of human resources. Training selection process is implemented by series of steps, including determining the need for specific training, assessing individual measures for the development of human resources through strategic decision-making about those trainings that are of importance to the institution itself and its further development. The effort to maintain and improve the standards of modern business, point to the need for comparing the labor methodologies applied in our organizations / institutions and training implementation methodology in the European framework.

2. WHY LIFELONG LEARNING?

Taking into account the fact that operations are conducted in a dynamic environment, the need for continuous learning that will take place throughout life is an essential factor in

modern business. In this regard, organizations engaged in lifelong learning are constantly in need to offer ongoing educational programs that monitor market trends, innovations in the work of general, specific competencies of employees who perform different jobs. Organizational units engaged in education for employees within the companies / institutions design different modules and monitor current offer of trainings for employees. It is increasingly, spoken of "companies that learn" who possess "knowledge bases" that makes a resource, that is then the result of an individual's activities to improve their own competences, but also the result of organizations treating that knowledge as a value. Thus, lifelong learning is defined as all learning activities undertaken throughout life, with the aim of improving competencies - knowledge, skills, in terms of personal, civic and social sense and /or in connection with employment perspectives (European Commission/Education and training, 2012). Lifelong learning involves formal, non-formal and informal education. It incorporates the active engagement in civil society, personal compliance and social inclusion, as well as aspects related to employment. The principles that support lifelong learning and affect its successful implementation emphasize the focus on the learner, the importance of equal opportunities for all.

The National System for Lifelong Learning model in Serbia (Babić, 2011) seeing the lifelong learning development as the coverage of formal, non-formal and informal education, quality management, recognition of prior learning, career guidance and counseling, financing and partnerships offers a comprehensive approach. Consideration of training the employees makes one of the segments of lifelong learning and in relation to that the harmonization with EU standards and methodology in the field of employment would also make one of the essential links. The fact that institutions have the material resources suitable for "in house" training refers to the relatively simple feasibility of training in institutional terms. Organizational units engaged in lifelong learning within institutions, deal with the design of modules that are important for the type of work the organization does. The organization of the training of trainers and multipliers of

knowledge enables the formation of teams that are able to transfer different types of knowledge and skills at the disposal of other employees (who do not have the status of trainer).

The existence of the computer networks, the necessary platform indicates the possibility of the introduction of distance learning with the appropriate LMS (Learning Management System) as part of lifelong learning intended for employees. The current situation in the ICT refers to the ability of storing knowledge of companies, forming the electronic libraries, knowledge bases related to the field of work in which the company operates ... Finally, the development of human resources in line with lifelong learning would provide competent employees as a key resource of the project life-long learning and business.

3. DEFINITION - LIFELONG LEARNING

The term Lifelong Learning was used in 1971 in Denmark as part of the Bologna process. It is linked to the use of the term "life-long learners" introduced by Leslie Watkins and among the first used by professor Clint Taylor (CSULA) (wiki / Lifelong learning, 2014). The starting point of lifelong learning is that a person cannot get equipped with the overall knowledge and skills in one or several educational cycles, therefore, learning is necessary to be viewed as a continuous learning and development process that takes place throughout life. The definition of the European Commission in 2001 suggests that lifelong learning means "all learning activities undertaken throughout life, with the aim of improving competencies - knowledge, skills in a personal, civic, social and / or employment-related perspective." Author Jarvis offers a definition that refers to Lifelong learning as "a combination of processes throughout the life, enabling a person overall in terms of body (genetic, physical and biological), mind (knowledge, skills, attitudes, values, emotions, beliefs and senses), experiences, social situations, perceive the content that transforms them cognitively, emotionally or practically (or through any combination) and integrate into the individual personal development result and the continuous change of the person (or

their gained experience STIC) (Edited By London M. 2012). London and Smither (1999) refer to the concept of lifelong learning as a form of formal and informal activities that people maintain over time in favor of their career development. While the author Edwards (1997) refers to a variety of terms, relating to societies based on learning and changes taking place in the theory and practice of adult education that are necessary for creation of a society based on learning. Its focus is the policy of the Government in relation to knowledge development, economic growth, technology and learning. Learning in this sense is essential to be treated with better understanding of outcomes and acquired capabilities of the learner. It is desirable to take affirmative approach towards access and participation in various forms of professional development, to support openness, distant learning and assessment of outcomes and accreditation (Edited by London M., 2012)."

4. ANALYSIS OF THE LIFELONG LEARNING CONDITIONS IN SERBIA

Examination of the state in the field of lifelong learning has been done within the project (The Adult Education Survey) in all countries of EFTA and candidate countries for EU membership. For the territory of the Republic of Serbia on Adult Education Survey conducted by the Republic Statistical Office under the project IPA2009 *Multi-beneficiary Statistical Cooperation Program*.

The survey was conducted on a sample of 4,534 private households or individuals living in those households. It is about adults 25-64 years old who participated in formal and informal education, in 2011, the member states of EU-27., and non-member countries, such as Norway, Switzerland and the Republic of Serbia (RZS, 2013). Intersection status of education in 2011 in specified countries can be seen in the following figure.

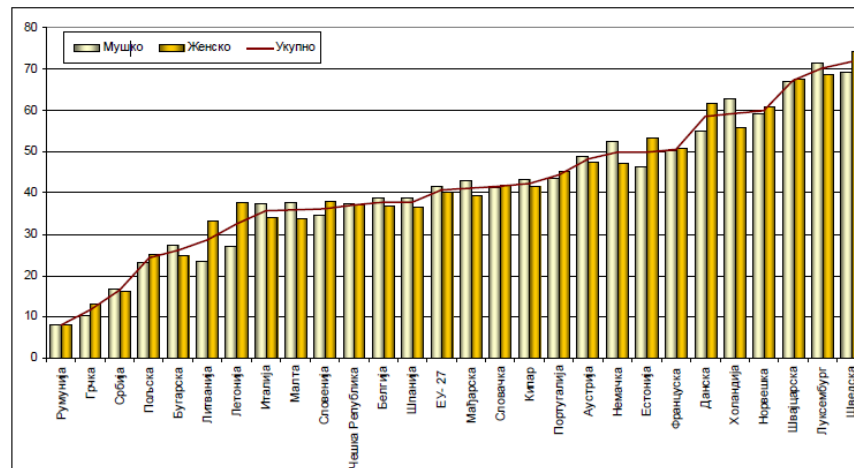


Figure 1: The participation of adults in the areas of education

It is obvious that a total of 16.5% of adults in the Republic of Serbia participated in education (2011). The EU average participation was 40.8% (RZS, 2013).

Training conducted by the National Employment Service for employees vary in content, due to the multidisciplinary nature of operations carried out in the institution. Special attention is paid to the training of trainers and the role of modern technology in

the business. Following an evaluation of the training is done, and the training, participants are registered in the database of trainees. This data is considered an important part in improving the competence of human resources (NSZ 2014) and is seen as the work of an institution to raise their own capacities. National Employment Service has a unique information system (JIS), which supports the work and organizational units dealing with education for employees. In terms of the

project, the system has both human, and material resources which can be applied to high standards of work similar to European standards. Also, it is considered appropriate environment that will enable the implementation of the acquired knowledge and skills after project implementation.

"Companies or managers increasingly rely on a knowledge rather than on capital. Knowledge, in fact, represents the intellectual capital, which is now for most companies more important than financial capital. In this sense, knowledge is a significant competitive advantage, core competency of enterprises in the future, the most important for the efficient functioning and development of any company. The strategic objectives of companies today cannot be defined or achieved without knowledge, respectively knowledge management (Jovanović, 2009)."

In accordance with EU initiatives in the field of lifelong learning and the basic postulates of the Bologna Declaration, which Serbia acceded to, the acceptance of starting points will reflect on the political, structural and social level:

- "Political, through commitment to lifelong learning integrated into National system of education 2013.
- Structurally, through new legislation, financial and institutional framework adapted to verify and evaluate efforts in the field of lifelong learning
- Social level, by promoting the practice of lifelong learning as a necessary and useful both for individuals and for society" (Babić, Makojević, Erić, 2010)

Respecting the general strategy of lifelong education, in the share of organization and implementation of trainings the National Employment Service remains in an effort to contribute.

5. METHODOLOGY OF LIFELONG LEARNING IN THE FIELD OF EMPLOYMENT

During the preparation of the project goals, sub-goals and outcomes were formulated and are presented in the display below.

Table 1: Logical Framework Project Management (TAIEX, 2013)

Goal	Sub-goals	Outcome
Review of the methodology and work standards of the EU in the field of lifelong learning and the development of human resources and opportunities to improve the methodology and standards of the Group for the development of human resources of the National Employment Service.	Theoretical, methodological framework in the field of human resources, particularly in the area of lifelong learning.	Participants were introduced to the methodology and labor standards in the EU in the field of human resource.
	Standards and procedures of work in the EU in the field of human resources.	
	Employees and lifelong learning - from identification of needs, planning to performance.	
	Evaluation of trainings, their evaluation in relation to the work that the employee performs.	
	Manifestations of evaluation of lifelong learning at individual and corporate level.	
The methodology of work in the field of HR in the EU and the methods recommended for implementation.	General, didactic approach to training in the area of employment.	Knowledge of methods for which participants were trained during the project, they can reproduce and pass on to their colleagues acquired knowledge and skills in the form of presentations, training or training of trainers.
	Presentation of the method of work in the field of lifelong learning that is applied to the EU in the field of	

	employment.	
	Examples of good practice.	
	Suggestions of possible implementations presented method.	
Demonstration software used to develop human resources and improve tracking of employee competencies in the context of lifelong learning.	Using different software that support the development of the individual, teamwork and organization that socially responsible business.	Using Web resources and / or electronic libraries, knowledge bases, as part of the exchange in the field of lifelong learning. Participants were trained to use the software that is used in the EU for field training in the context of human resources.
	Introducing one software package that is used for human resource development and monitoring of improving staff competencies in the context of lifelong learning.	
	Examples of good practice in working with the recommended software package	
	References to electronic libraries, databases stringing or certain Web resources that are specialized for lifelong learning, human resources in the areas of employment (have instruments available for use in the HR).	

Table 2: Gantt chart of project activities TAIEX 2013.

Task	January		February		March		April		May		June		September		October	
	01-15.	16-31.	01-15.	16-28.	01-15.	16-31.	01-15.	16-30.	01-15.	16-31.	01-15.	16-30.	01-15.	16-30.	01-15.	16-31.
1 Project Planning																
2 Preparation of project content																
3 Preparing applications																
4 Proposal of realization																
5 Deal on Agenda																
6 Realization																
7 Evaluation																

Work on the preparation and implementation of the project (TAIEX, 2013). As shown in the Gantt view that (Jovanović, 2010).

General for Employment, Social Affairs and Equal Opportunities – European Commission).

During the realization of the project TAIEX Public Employment Services Staff Training Internal Market 53114, it was necessary to meet the standards and methodology of training for employees in the target domains of employment. The realization of the project was attended by employees of the National Employment Service in the area of professional development, international cooperation and the field of judicial affairs. The European Employment Strategy to 2020 in DG EMPL is presented (Directorate-

The topic of general interest, especially in the field of law and regulations on mobility - Free Movement of Workers (DG Employment, Social Affairs and Inclusion) is also presented. Activities in the area of employment is organized into three regions and are performed by three organizations FOREM - Wallonia (FOREM 2013), ACTIRIS - Brussels (ACTIRIS 2013), VDAB - Flandreau (VDAB 2013). Below is an outline region in Belgium.

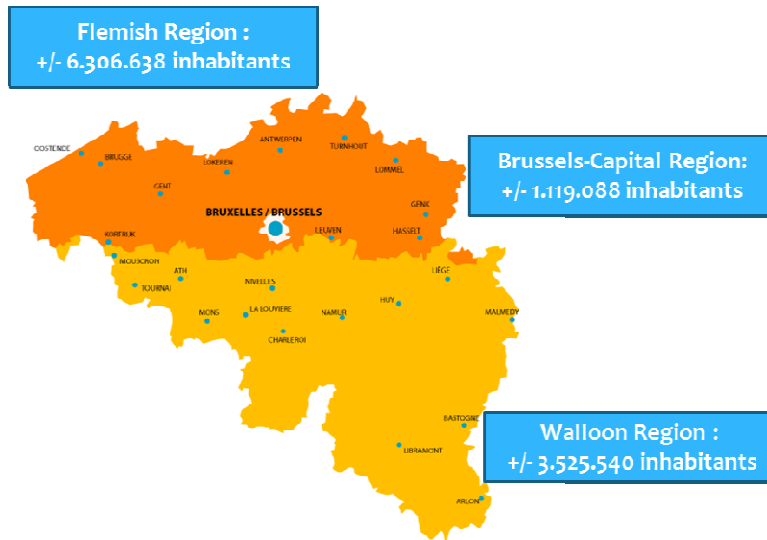


Figure 2: Belgium - three regions (FOREM 2013)

Table 3: Manner of application of professional development (FOREM 2013)

Content - the basics	Pedagogical basics
Individual training D-FOR-03 (free or paid)	The methodology of training of trainers
Training groups are the result of specific ad hoc needs that are initiated from the labor market (production line)	15 training modules that are continuously maintained, communication, solving conflicting situations, an interview with the candidate...
	Training outside the catalog

Trainers are prepared in FOREM in order to hold trainings in organizations. Trainings for the employed and the unemployed are conducted. Trainings are conducted by standardized procedures.

Analysis of needs for professional development is carried out every two years. Individual competence development plan is formed. Preparation of trainers takes place as a process of improving the competencies that represent „the path from an expert to a trainer.“ The path of a trainer development takes the total duration of 20 days. By the fact that he became a trainer, the employee will be able to periodically perform a trainer job in his field. Each candidate has their own e-portfolio. The assessment of qualification modalities and competences is in line with the European level of qualifications. The standard ‘core business’ is applied and is essential for the organization.

A set of competencies of trainers in the institution is defined:

1. Applied within the existing institutional framework
2. Developing a training program based on the framework
3. Designing module/session for education
4. Implementing the training/session
5. Manages the training /educational sequence (interpersonal and communication aspects)
6. Estimating the outcomes
7. Assesses and adjusts training/educational actions
8. Manages continuity of the training realized

Licensed trainers are considered to bring the opportunity for identification of their specific differences at work in relation to the experts who are not trainers, recognizing the developmental path of training that made a specific difference from the experts (in terms of improving competence), recognition of competences for the field of work in which they operate in as trainers and raise the level

of the service quality in the organization, and therefore in society.

Further development is planned in relation to:

- Diagnostic tools
- Coaching Process
- E-portfolio
- Observations based on an analysis of testing and licensing of trainers
- Roads trainers for other occupations
- "Recycled training pathways" for older coaches
- Continued offer for trainers...

The institution develops various types of modules:

- Training modules that can be purchased "on our shelves" (modules that institution sells to other firms that would implement the same training module developed and tested in the institution)
- Modules that are developed as internal
- Modules developed as internal 3D
- PEB modules (performance, companies dealing with energy, insulation...)

If training is purchased from an external contractor, list of tasks is made... There is a survey for identification – “Which module is for me?” - linked to competence and sub competences. Used Carte de competences de l'instruction in Finland. FOREM also uses Distance Learning that has been proved to be particularly adequate, when there is a need to train a large number of people in a relatively short period with a well-designed module. All educated in the education system of the institutions, receive certificates of training completion.

The Ken Wilber's philosophy of the integral approach is used in their work, which is shown below. In this above-listed manner, individual issues are dealt with as well as behaviors that can be objectively recorded and on a group level, the influence of culture and interpersonal relationships and life conditions are treated.

The following display indicates the principles and characteristics of AQAL Ken Wilber explained by the author as “all quadrants and all lines” (Wilber, 1999).

Upper-Left (UL) “I” Interior Individual International e.g. Freud	Upper-Right (UR) “It” Exterior Individual Behavioral e.g. Skinner .	Individually
Lower-Left (LL) “We” Interior Collective Cultural E.G. Gadamer	Lower-Right (LR) “Its” Exterior Collective Social e.g. Marx	Group

Figure 3: "Quadrants"- Ken Wilber (Wilber, 1999)

The Ken Wilber's theory (Wilber, 1999) is formed on the principles based on the analysis and categorization of items according to the term *holon*. The word *holon* has the Greek root and refers to something that is both a whole and a part at the same time. The idea comes from Arthur Koestler (1967).. He felt that each entity can be viewed as an autonomous unit for itself, but at the same

time, as a part of a larger whole. In this sense, a unit by itself has its characteristics, and, on the other hand, the entirety also has its own characteristics. The relationship of the individual and society precisely indicates the type of relationship that cannot be equated with the ratio of "cell-organism", but individuals can be members of society, but not the parts of social holons as well. Lines are

defined as the capacities of growth and development that are independent and developed in levels or stages. Lines have levels and levels occur within the lines. They can be explored the interdependently and separately as well. The relative independence of the lines indicates that they can be developed to different levels. Although we usually focus on human development line in UL square, the lines are present in all quadrants and serve as a growth area of tetra evolution.

The upper - left UL quadrant indicates individuality, subjectivity ... This group of lines can be divided into three groups: cognitive lines, the ones relating to the personality (self-related lines) and lines of talents or skills. Examples of upper - left UL quadrant are: cognitive, self-identity, interpersonal, moral, emotional, esthetic, kinesthetic, spiritual, etc. Lines in UL: Lines in the UL quadrant include the development of individual skills, capacity, and intelligence. Each line can be explained by simple issues we face and confront during our lives. The relative independence of the lines does not exclude some important, necessary, but not sufficient relations. Respectively, a certain degree of physiological development is implied, necessary, but not sufficient for cognitive development, personal development (self-development), development of interpersonal relationships, moral development.

The lines are present in each quadrant and they emerged as separate domains or capacities.

The upper - right UR, example includes: physiological development, nervous system, endocrine system, behavioral development, complex tasks.

The lower-left LL examples are worldview, intimate relationship with the people, the development of "we", the linguistic semantics, cultural values.

The Lower right LR examples include: a techno-economic production models, physical system types, means of transport, economic exchange systems, geopolitical system, linguistic structures.

Each line can be understood using simplified issues about our lives that we face. Ken Wilber (Wilber, 1999) presents a set of questions and suggests researchers, authors who have dealt with those listed issues.

What am I aware of? Cognitive line refers to the ability of registering the phenomena and capturing the perspectives. The researchers who have studied these issues are Jean Piaget, Kurt Fischer, Robert Kegan, Michael Commons and Francis Richards,...

Who am I? Own identity is the line that explains our ego development and self-concept. Researchers in this area are Loevenger Jane, Susan Cook-Greuter, Michael Washburn, Jenny Wade.

What kind of interaction do I have with others? The line of interpersonal relationships, social roles and comprehension. Researchers in this field: Robert Selman, Robert Perry,...

What should I do? Describes the moral order and the operation of moral judgment and condemnation from the pre-conventional, egocentric to post-conventional Cosmo-centric level. Researchers in this area Kohlburg Lawrence, Carol Gilligan, Cheryl Armon,...

How do I feel? Emotional or affective line concerning awareness, management and control of emotions. Researchers: Daniel Goleman, Peter Salovey, John Mayer,...

What is appealing to me? Aesthetic order describes five different patterns of opinions in relation to what people have been presented with and what they can see as art. Researchers: Abigail Housen and others.

What is it that leads to the ultimate concerns? The development of spirituality or religion lines and religious beliefs across the lifespan. Researcher: James Fowler and others.

What do I consider important? The value line describes taking place of what individuals consider important. Researchers: Clare Graves, Don Beck, Chris Cowan...

What do I need? The line of needs refers to the conception change of the individual in relation to the desires, their needs and the needs of others throughout their lives. Researcher: Abraham Maslow (Wilber, 1999). After considering the AQAL Ken Wilber principles it is necessary to consider a strategy

of competence development in which the individual develops career wise and uses their knowledge and skills in their organization of employment, respectively in the community.

The competence development strategy is viewed as a pyramid, shown by the display.

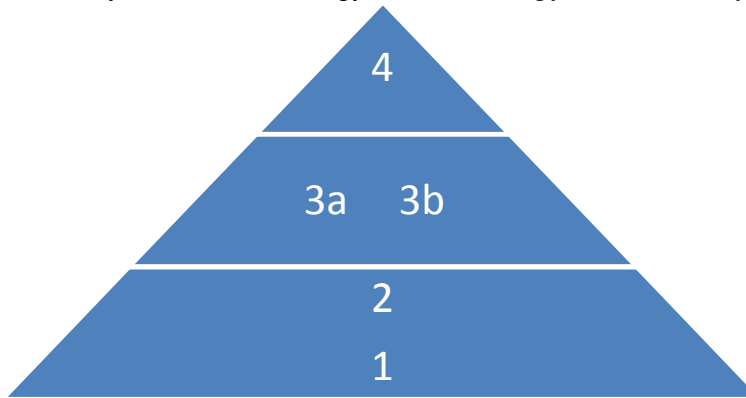


Figure 4: Pyramid competence development (FOREM 2013)

Level 1 the lowest level - integration with the culture and values (mission of public performance, internal and external)

Level 2 establishing professionalism in terms of preparing content

Level 3 is divided into two segments to which individuals develop:

Level 3a continuous improvement of competences (within existing areas)

Level 3b improvement of competence in relation to career development (facilities that are subject to specific career development - change jobs, expertise, management).

Level 4 the highest level – Personalization

their potential and achieves the self-actualization. He is realized in the very field for which he possesses a strong desire, a need for achievement. In the part related to activity II Methodology of work in the field of human resources in the EU and the method recommended for the implementation of the method is presented which is shown within FOREM Human Resource Services. Workshop was conducted intended to solve the problem based on an example with the help of a group. One participant defined the problem, and then the group analyzed the possible facts that influenced the blocking of problem solving and possible reasons. After that the possibilities for solving the problem were suggested.

The presented model is in accordance with the Abraham Maslow hierarchy of needs that refers to the self-realization as the need of the highest order, in which an individual realizes

Below is an outline of the possible forms of problem solving.

Table 4: Matrix of problem solving (FOREM 2013)

Problem	What blocked the problem solving
Possible reasons	Opportunities

The method is recommended for further use in running a workshop. Given that in the field of employment a large number of advisors are

employed - employment consultant, advisor for further education and training, guidance counselor and career guidance advisor,

financial compensation advisor etc. special attention is paid to the training of counselors, because the largest number of employed persons is at those positions. Detailed description of the training for a polyvalent employment counselor is described in the ACTIRIS (ACTIRIS 2013) public institution that cooperates with employers and job seekers. During the training of counselors for employment the individual work, pair work, group work, training in the workplace, e-learning and small theaters are used. In the training catalogue there are about 230 trainings offered (Regulations, conflicts, first aid, communication, language, IT, ...), a total of 125 internal trainers and around 80 partners who conduct external training. A polyvalent employment counselor is one of the most important positions and he passes basic training in terms of the introduction of the business - directorate display, partners, co-operation, the general picture of the organization, public service... A tour of the department in which the counselor is supposed to work is organized, councilor function is discussed, as well as the tasks, goals, counseling, methods, tools and instruments that he will use on the job, he is introduced to a series of modules on the regulations - adopted through E-learning, an exercise is implemented where from the

offered four candidates one of them is selected.

Below is an information system showed that is used in VDAB - IBIS, Flanders (VDAB 2013). IBIS - Information system is unique, related to work with clients and employees. It is used as a place where you can find job offers, register the activities undertaken, the procedures. IBIS is used during trainings as a feedback for students to trainers. It is possible to register the necessary competencies for specific jobs and mutually compare the jobs in terms of required competencies. In this institution in charge of Flanders, in recent years they considered necessary to work more on marketing. In this respect, they rely on the marketing mix (Kotler, Keller, 2006) (Lečić, 2009) as a basic element of any marketing strategy. The role of human resources has been changed and now it is seen as part of a strategic partnership. In fact, before, the largest part of work consisted of the administration, then the utility service and the lowest Human Capital Management, while the significance of administration today has been decreased in favor of the service provider and the importance Human Capital Management.

The presentation of human resource as a business partner from VDAB is shown.

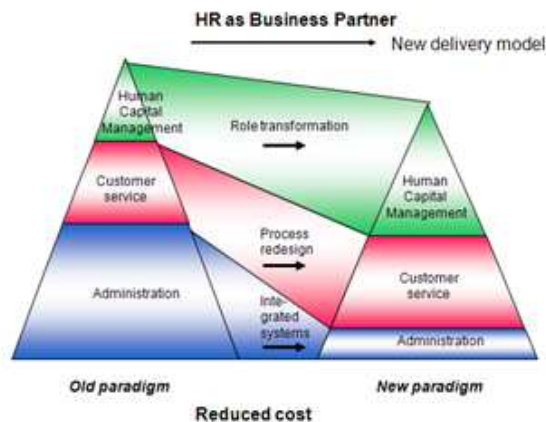


Figure 5: HR as Business Partner - VDAB – Flanders (VDAB – Flandrija 2013)

It has effective and efficient employees for the administration; Presents a modern service that offers HR systems and tools for self-service.

Professional trainers to associates, team leaders and managers are in direct contact with all the “soft” aspects of human resources;

Establishes a climate for learning; Fosters a healthy social climate harmonizing it with the various stakeholders in the labor market.

The basic strategic elements of Human Resources Management are considered as follows.

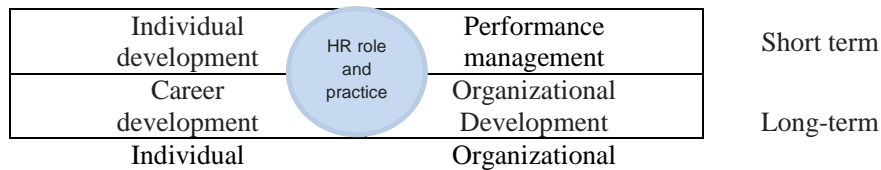


Figure 6: Basic elements of strategic HRM (VDAB 2013).

The role of human resource management in the concept of lifelong learning is to direct, monitor, encourage personal and professional development of individuals that is consistent with the goals and changes in the company.

Methodology of lifelong learning in the field of employment - evaluation of results be done through the following topics:

- Life-long education, preparation of trainings of trainers
- Induction and enhancement of polyvalent advisors' competences
- Presentation and workshop on best practices - Human Resources Department
- Demonstration software IBIS and VDAB - HR software tools
- And other discussions that were relevant to the work in human resources / training center in the field of employment.

Participation in the project has enabled the sharing and promotion of specific knowledge, skills and attitudes. Consultations have taken place in the form of trainings, workshops, discussions, meetings, electronically,... Experts, participants who exhibited material presented the functional models validated in the process of working in the field of employment. Planned outcomes are realized.

6. CONCLUSION

The continuous work on lifelong learning is a call for the creation of a learning culture, social organization and knowledge-based economy and improving competencies. Acquisition of knowledge and exchange of experience with European experts on the

subject of labor standards and methodologies in the area of lifelong learning for the field of employment is of importance for the human resources management in this field and career development of employees. Consideration of the employees' training offer available through the training catalog refers to the great and important work on the design of the various modules that are precisely profiled to the labor market. In parallel with the module development, the trainer's preparation takes place, through defined "path of development trainer" and their licensing. This way, they get equipped with specific knowledge and skills that, in addition to expert knowledge in certain areas, make them competent multipliers of knowledge. Great support in the work makes pedagogical-didactic support.

Special attention is paid to the program that is intended for the employment counselor whose job includes knowledge of legal regulations, labor markets, advisory work ... Employment counselors' position is considered a multi-disciplinary/multi-purpose. The experiences gained indicate careful planning and directing of each activity towards solutions that correspond to the individual in relation to his education, interests, career path, and in accordance with institutional performance and solutions. Work is carried out by, the use of a modern technology. A large number of participants attended the training via distance learning system.

The key technological development and changing of the Serbian economy in terms of technology can only be expected through technology transfer. This assumes stabilization of the political situation and appropriate economic policies, which would provide better access to the Serbian economy and market to foreign companies and foreign

capital. The second condition is adequately trained and flexible human resources, able to cope with the latest technology, new products and production methods, and work organization.

REFERENCES

- Republički zavod za statistiku, (2013). *Ankete o obrazovanju odraslih 2011*, Međunarodni pregled podataka napravljen na osnovu rezultata Ankete o obrazovanju odraslih, po metodologiji Evrostata, sprovedena 2011. god u zemljama članicama EU, Norveškoj, Švajcarskoj i Srbiji. Za Finsku, Irsku i Veliku Britaniju nema podataka za 2011.
- Babić, V., (2011). *Celoživotno učenje u Republici Srbiji*, Tempus project DELFIS, Development of Lifelong Learning Framework in Serbia, International Conference
- Babić, V., Makojević, N., Erić, J. (2010). *Doživotno učenje – izazov za pojedinca i društvo*, Univerzitet u Kragujevcu
- Univerzitet u Kragujevcu (2010). *Evropski okvir kvalifikacija za doživotno učenje: Nacionalni okvir kvalifikacija za sistem, visokog obrazovanja Srbije*
- Jovanović, P. (2010). *Kako postati dobar projektni menadžer*, Visoka škola za projektni menadžment, Beograd
- Jovanović, P. (2009). *Menadžment*, Udruženje za upravljanje projektima Srbije – YUPMA, 330
- Kotler, P., Keller, K. (2006). *Marketing menadžment*, Data Status
- Lečić, R. (2009). *Marketing menadžment*, Visoka škola za projektni menadžment
- Univerzitet u Kragujevcu (2010), *Povelja Evropskih univerziteta o doživotnom učenju*, European University Association asbl, InterPrint
- TAIEX (2013), *TAIEX Public Employment Services Staff Training Internal Market* 53114
- <http://www.actiris.be/>
- http://ec.europa.eu/education/policies/lll/lll_en.html
- <http://www.leforem.be/>
- www.nsz.gov.rs
- <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195390483.001.0001/oxfordhb-9780195390483-e-001>
- <http://www.vdab.be/english/>
- http://en.wikipedia.org/wiki/Ken_Wilber#States
- http://en.wikipedia.org/wiki/Lifelong_learning

MANAGEMENT OF ENERGY EFFICIENCY PROJECTS IN ORGANIZATIONS

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Abstract: Energy efficiency projects need to be presented through business cases, for evaluation of the project proposal prior to management decision. When energy saving project is been feasible with acceptable economic effects, accepted project is put into a business plan. Characteristics of projects for energy efficiency and mentioned methodology are described in the first part of the paper. The article also reveals results of the study on implementation of energy efficiency technologies in Serbia.

Keywords: energy efficiency, energy management, energy performance, energy savings projects, project management

1. FOREWARD

The relationship between project management and sustainable development is rapidly gaining interest from both practitioners and academics (Silvius et.al, 2014).

In order to achieve the goal of lower operating costs through energy savings, organizations carry out projects for energy costs savings. Private companies with high energy usage and public companies in Serbia, recently became obliged to implement energy management system, with the task to report energy usage and prepare action plans for energy efficiency in their organizations.

2. POTENTIALS OF ENERGY EFFICIENCY PROJECTS

Energy efficiency field could be divided into sectors where these technologies are applied. These sectors are: buildings, utility, industry, household sector, sectors of trade and services, public sector and transport.

Within the national action plan, Serbia has set the goal to decrease consumption of final energy for 9% up to 2018. Market potential of projects for energy efficiency in Serbia are estimated on 1,1% of Serbian GDP. Comparable figures of potentials in energy savings in neighboring Croatia states that potentials for energy savings at public buildings are estimated on 40% of current

consumption, while this savings amounts to 70 million euros annually only for public buildings (Krajcar, 2013). Beside positive effects on the economy, energy efficiency projects lead to improvement of energy security, mitigation of climate changes and creation of new jobs in the country (Mathiessen et. al., 2014).

The organizations look for outcomes of energy efficiency projects that provide energy savings and costs savings, short payback periods, energy security and reduced operating costs. When it comes to the realization of proposed solution, clients wish security of invest, achievement of the expected results of the project, reliability of solution and mostly the technologies which are already tried and tested, because clients wish not to experience the technical problems during the operation or hidden costs during investment or operation.

3. ENERGY MANAGEMENT PROJECTS IN ORGANIZATIONS

Energy efficiency projects need to be presented through business cases. When project is been feasible with acceptable economic effects, which is accepted through business case, the project is put into a business plan. Afterward, project organization is been defined, and project is been managed through the project management process. This framework for project management in

organizations fit the description of the concept of project management, as described in standard ISO21500 Guidance on project management. Figure 1 presents the concept of project management. The organization identifies opportunities that are evaluated and selected. From the set of possible measures for energy savings, management needs to decide which measures to apply on the basis of defined criteria. These criteria could involve: the maximum amount of investment,

the largest financial savings, the percentage of energy saving, the shortest payback period, favorable financing conditions, complexity of the project, project risks, or other criteria. For the evaluation of projects based on several criteria, where some of the criteria are of a qualitative nature (e.g. the complexity of the project and risks), it is possible to use the multi-criteria methods of decision making (Vukovic, 2014).

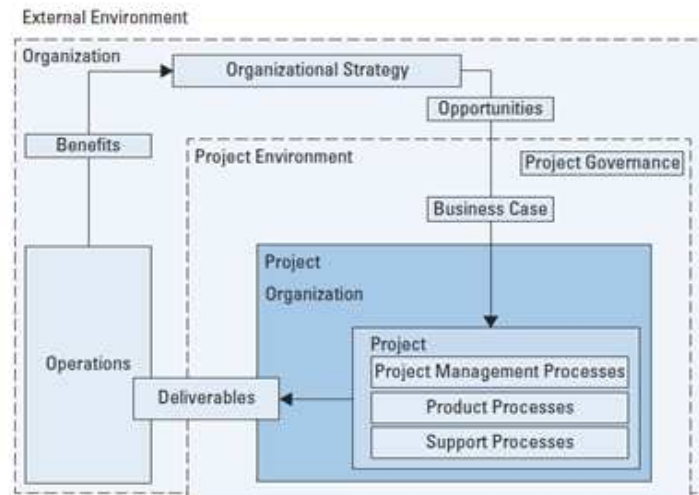


Figure 1: Framework for Project Management in ISO 21500 (Zandhuis, Stelligwerf, 2012)

To determine outputs of the energy efficiency project that require investing, business case is made, prior to decision making. Later on, implementation of measures is done through the project management process. Monitoring shall be applied 6 to 9 months after implementation of measures, in order to analyze achieved energy savings and costs savings.

4. ESTIMATING ENERGY SAVINGS

Usually, potential energy savings are identified through energy audits. As an outcome of the energy audit, management of an organization is introduced with both no-cost and low-cost measures, as well as with the measures that require investments. Strategies for making costs savings relating to energy include different strategies. These strategies could be realized through the kind of measures as presented in Figure 2. Identification of potential savings which require investments, are subject to feasibility

study. Through the feasibility study, both technical feasibility and economic viability are examined. In order to identify the measures to increase energy efficiency within an facility, it is recommended and offer required (ISO 50001, 2011) to conduct an energy audit of the company, in order to determine the actual state of energy, determine where is possible to make energy savings and propose measures to improve energy efficiency.

There are two types of energy audits that are usually carried out within the organization:

1) *The preliminary energy audit* - includes brief insight into the energy balance of the building or facility in order to determine the potential for increasing energy efficiency. Usually, this visits take one to few days, where visual inspection of a facility is performed and review of previous measurements. On the basis of the preliminary energy audit, a decision to carry out a detailed energy audit is made.

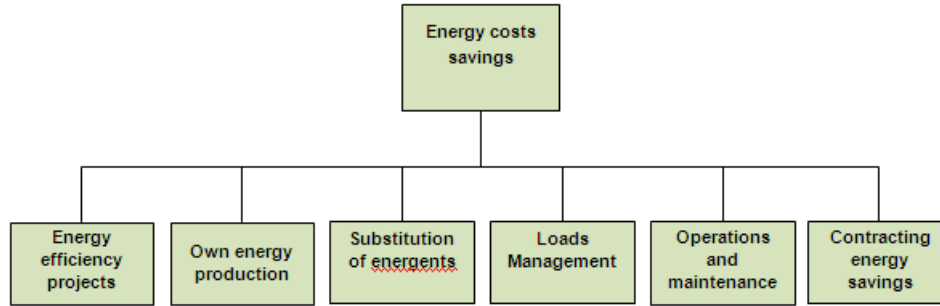


Figure 2: Strategies for energy savings (Vukovic, 2014)

2) *Detailed energy audit* - includes an energy analysis of buildings and analysis of systems within the facility. Compared to the preliminary energy audit detail audit includes measurements and more data collection in order to better assess the energy characteristics and behavior of the systems in the house. Measurements that are been carried out are power analysis, flow measurements, combustion of gasses from boilers, Thermo vision measurements and other measurements. Result of the detail energy audit is a report that among other data on energy use proposes measures for energy saving, with estimation of savings, required investments and payback period of investments.

Handbook for conduct of energy audits in Croatia suggests that the report on detail energy audit should present the following indicators for evaluation of projects of savings (Bukarica et al., 2008):

- Evaluation of investment costs of implementing measures

- Assessment the complexity of measures
- Assessment of energy and economic benefits i.e., savings in energy and money
- The life time of the new equipment
- Calculation of the simple payback period for the analyzed measures
- Net present value (NPV) and internal rate of return (IRR)
- Calculation of reduction in CO2 emissions due to energy savings.

After examining the energy consumption and existing energy losses, it is possible to make an action plan for energy savings. That Action Plan measures should show energy savings, anticipated monetary savings, necessary investments and expected payback period of investment. This action plan is defined for time frame usually for one to three business years and needs to be approved by the company top management.

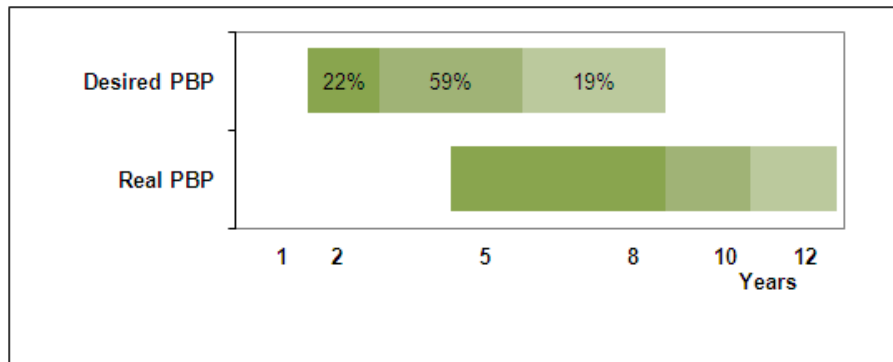


Figure 3: Desired and real PBP of energy saving projects in Serbia (Vukovic, 2014)

5. INDICATORS OF ENERGY EFFICIENCY IN PROJECTS

The simple analysis of potential savings shall indicate annual costs savings, percentage of energy saving and simple payback period (SBP). For the projects requiring, bank financing internal rate of return (IRR) and net present value (NPV) of the project need to be presented.

The period observed for these dynamic indicators is usually 15 years. For the projects requiring credits for financing an SBP up to 5 years, $IRR > 10\%$, energy saving of min. 20% are usually requested from banks.

In addition to economic criteria, when projects have public financing, such projects through cost-benefit analysis take into account sustainable development of society (Jovanovic, 2000), so the criteria which are added to economic indicators are reduction of greenhouse gas emissions (in tones of CO₂), the contribution to employment in the community.

Objectively measurable indicator of energy savings should be presented through the units such as kWh or kJ. One of the most important criteria when businesses are concerned the economic effects of the project. The economic effects are included through the reduction of energy costs, payback period for energy efficiency project.

Besides energy saving realized through proposed solution, payback of investment depends on life cycle of system, system size, number of operating hours on annual level, operating costs, maintenance costs, ambient temperature, other systems within the facility etc (Shapiro et. al, 2012).

6. CHARACTERISTICS OF PROJECTS FOR ENERGY EFFICIENCY

Researchers in the field of energy efficiency emphasized characteristics of projects on energy efficiency. Implementation of energy efficiency projects is characterized by the following features (Gvozdenac, 2012):

- Priority is given to measures with greater potentials in energy efficiency

- The proposed measures should be simple to implement, and significant energy savings shall be provided
- Financing from banks is accepted only for tested and proofed technology
- Priority is given to projects with lower investment and shorter repayment period;
- Projects should be implemented technically correct and logical order so they do not disturb each other.
- Through the research of the author of this paper, the author came to conclusions that project in energy efficiency are characterized by:
- The main purpose of the project is energy savings of facilities (existing or under construction)
- Attractiveness of investment is largely reflected in the realized annual savings and payback period
- For the preparation of the investment relatively short period is required (from one to several months)
- Relatively short implementation period (2 to 6 months)
- Provider of solution should be able to perceive, do part of the design and carry out works
- Great share of investments is contained in the materials and equipment, and a smaller portion is in the works
- Simple administrative procedures for permitting from local authorities
- Most of the projects are upgrade of existing facilities, rather than building new once
- Payback period is from few years to 12 years
- Benefits of the project are realized after project closure
- Project evaluation is carried out after a certain period of use (up to one year).

7. STUDY ON ENERGY EFFICIENCY STATUS IN SERBIA

During the Ph.D. research of the first author, the survey was organized in order to research project management practices for energy efficiency in Serbia. A total of 60

organizations, 19 from industry and 41 companies outside the industry participated. Involved in the study were small, medium and large companies, primarily in the sectors of industry, hotels, engineering companies and IT companies.

The sample of companies included active entities, operating with liquidity, as the healthy part of the economy. Within the study on energy efficiency in Serbia, respondents had the option to choose the acceptable payback period of investment (PBP) from their view. Most of the respondents chose the investment payback period of between 3 and five years (59%). This payback period is achievable for some of the technologies, like replacement of bulbs with LED, while most of

the EE investments have a payback period of investment over five years. Such a payback period of investment is affordable for around 20% of respondents. PBP longer than eight years is seen as not acceptable for the respondents within the study.

Based on the literature processed for development of methodology of project management, set of elements is proposed for the project management methodology of energy efficiency projects. Respondents had the opportunity to rate the importance of certain elements of the methodology. Figure 4 shows the relative importance of each element in the project management methodology, with an average score based on the feedback of the respondents.

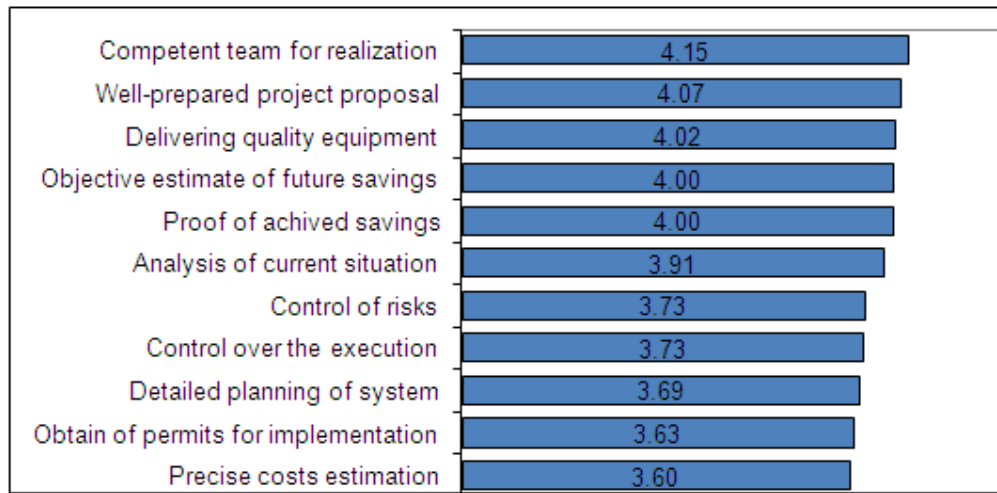


Figure 4: Importance of elements within the methodology for projects management (Vukovic, 2014)

From the perspective of project beneficiaries, the most important elements in the project management methodology were:

- Competence of team for the project,
- Well-prepared project proposal,
- Objective assessment of future savings at the beginning of the project,
- Quality of delivered equipment,
- Proof of achieved savings.

From the above diagram it can be seen that greater attention should be paid to the planning and preparation of the project (grade point average above 4), instead to the control of implementation (grade point in average

below 4). However, all elements are evaluated with over 60% of responses as very important.

8. THE KEY SUCCESS FACTORS OF ENERGY EFFICIENCY PROJECTS

As previously mentioned, on the one hand, it is important to meet the expectations of the contracting authority of the project, in terms of savings, return on investment, system reliability, environmental impacts. On the other hand, the project management organization has to make earning from the project, in order to sustain own business and enable its further development.

With this regard, the next section points out the key success factors of project management for energy efficiency. These factors include:

1) The existence of domestic demand on market for a particular technology of energy efficiency is a key factor, not only to achieve economies of scale, but also to use own experience from completed projects for further development of competences and provided solutions. Demand for energy-efficient technologies is significantly influenced by measures of domestic regulatory bodies, which include measures to provide financial incentives and raise the standards in projects implementation.

2) Possession of competence in the field of EE technology, especially for technologies in the industry. Knowledge of technology is of crucial impact on a solution that is offered and the future results of the project. In this sense, the possession of domestic competence to absorb innovative technologies for energy efficiency is one of the key parameters (Eichhammer, Walz, 2011). Knowledge in the field of application of EE technologies has to be sufficient and possessed separately in the design stage and project execution.



Figure 5: The key elements for successful management of projects for energy efficiency (Vukovic, 2014)

3) The possession of knowledge and skills of project management, which includes project management methodology, from project planning through risk management and control of changes, to control of costs and time. To this knowledge, the methods of evaluation of projects should be added into

presentation of a project proposal in order to be adopted. In addition to these key factors, we point out several factors that are analyzed through research:

4) Careful planning of the project, through a detailed definition of the proposed solutions, which includes not only scope of deliveries, but also the impact on other existing systems (for example, taking into account existing projects, installations and systems within the facility, the state of resources that will be upgraded (whether in terms of roof, walls, or parts of operating systems). Design of the solution in local environment must be given greater attention: design costs are insufficiently valorized from clients, so the time required for the design is not sufficiently budgeted and is not payable, thus making that to the design the necessary attention is not given. Dedicating enough time at this stage, the development of WBS of system is essential to the future results of the project, especially in achieving solution reliability and the expected energy performance.

5) Accessibility to financing conditions and financial institutions is a prerequisite for the successful financing of energy efficiency projects. There are different models of financing these projects for households and industry. Even the projects in the field of energy efficiency contribute to the goals of society, government support in co-financing of such projects has so far been very modest and limited to the specific projects, although in the law possibilities of participation of the state was estimated for realization of such projects. Availability of financing remains an obstacle that hinders the implementation of projects under the current conditions.

6) The objectiveness of evaluation of expected outcomes of the investment, calculated taking into account not only the technical brochures of manufacturers, but also by made detail calculations and comparisons with similar systems, should provide an objective and reliable picture to the investor, on the expected impact of the project, before making investment decisions. In times of crisis and lack of money in the budgets of organizations, shorter payback periods are almost indispensable. Indicator of payback period for investment is used as the most important

criteria for projects of energy efficiency. Too optimistic forecasts prior to the realization of the project could lead to disappointment investors and thus negative references. Beside payback period, cumulative savings over the life time of solution should be added in consideration. The most objective way to calculate these indicators come could come from the feasibility study, required for more complex and valuable projects. This study will show the cost of the components of the

system, works, maintenance and operating costs of the system. When it comes to the projects of a small amount, making an independent feasibility study is usually not economically viable, and assessment of the effects of investment provides the supplier. Applying the methods of project evaluation and sensitivity analysis is useful for such investment, but on the basis of the research, the majority of these methods are not governed by solution providers and not used.

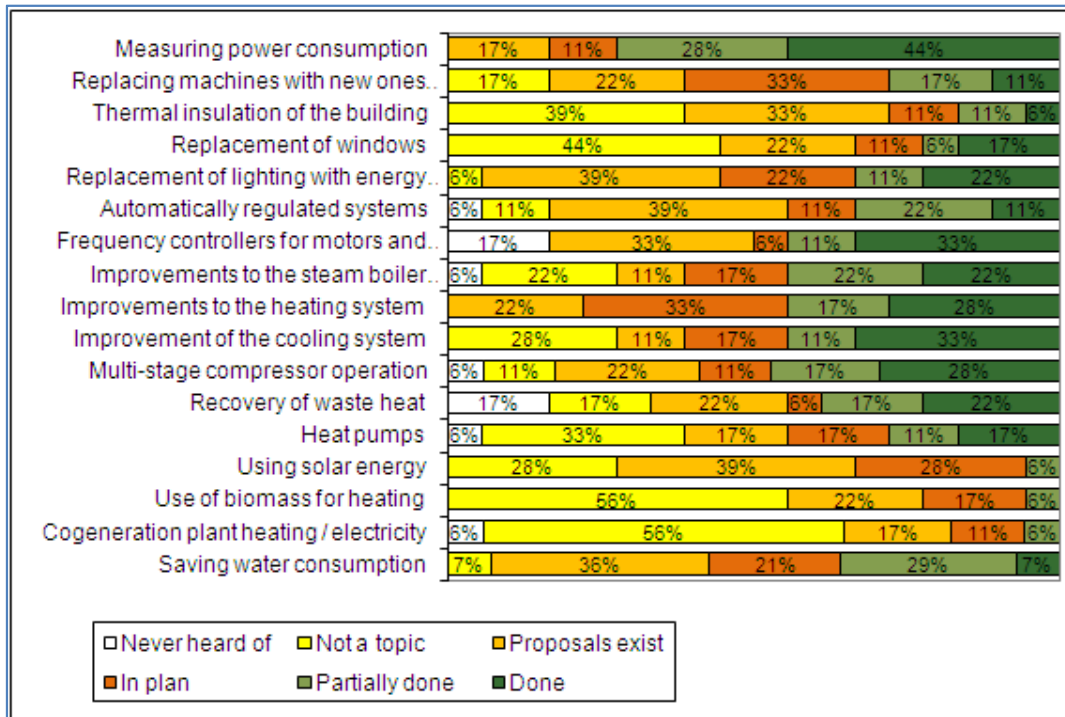


Figure 6: Degree of implementation of EE projects in industry of Serbia (Vukovic, 2014)

9. DEGREE OF IMPLEMENTATION OF EE PROJECTS IN INDUSTRY

On the Figure 7, the degree of implementation of energy efficiency projects is presented within the industry in Serbia. Within the answers, 19 respondents from industry cited the status of realization of measures. The results show that the implementation of energy efficiency projects in industry has started, but the potentials in this area are still not used, and even some companies are not

conscious of potentials. Study shows that the degree of implementation of energy efficiency technologies in an industry is greater than in companies outside the industry. The reason for this is the higher share of energy costs in the industry, where the use of energy efficiency technologies contribute to costs reduction and cleaner production, competitiveness of enterprises. The same applies to the hospitality industry and tourism sector.

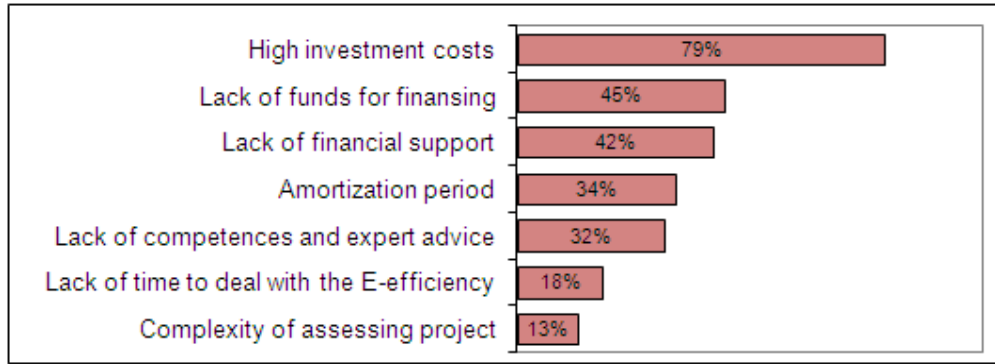


Figure 7: Main obstacles for realization of energy efficiency projects (Vukovic, 2014)

10. MAIN OBSTACLES FOR ENERGY EFFICIENCY PROJECTS

Participants in the study were asked to point out three major obstacles to the implementation of energy efficiency in their companies. The most common response was the high investment cost (80%), followed by lack of funds for financing (45%), followed by lack of financial support (43%) and debt amortization period (34%).

The most significant barrier to emphasize is the problem of financing the projects. It is caused by the financial offer on the market, but also stimulating state policy for such projects. In the long period of amortization affect the price of energy, especially electricity, as well as the value of projects. In the long term, it is expected that the prices of systems will be slowly declined, while energy prices will slightly increase, which will result in a more favorable payback period. However, financing conditions may still pose an obstacle to the realization of EE projects.

As seen from the diagram, the lack of expertise also represents one of the most significant barriers, because 32% of respondents see as one of the most important three obstacles.

Three factors that have the least impact on preventing the implementation of energy efficiency projects are internal nature and can be reduced even further advancement of knowledge and communication solutions in the field of energy efficiency.

11. CONCLUSION

Lowering of operating costs in the business is imperative in today's competitive conditions. Projects for achieving energy savings are, therefore important for almost all organizations, especially for one with the share of energy costs higher of 10%.

The paper describes results of the research in PM of energy efficiency projects. The study shows that preferred payback period is not accepted if longer than eight years, making this acceptable for just some of the technologies within the energy efficiency. The paper emphasizes the importance of usage of PM methodology for energy efficiency projects, main elements of the methodology and main obstacles for applying these projects.

REFERENCES

- Bukarica, V, Dović, D, Borković, Ž. (2008). *Priručnik za energetske savjetnike*, Program Ujedinjenih naroda za razvoj (UNDP) u Hrvatskoj, Zagreb
- Eichhammer, W., Walz, R. (2011). *Industrial Energy Efficiency and Competitiveness*, UNIDO working paper 05/2011
- Government of Serbia, Second Action Plan for Energy Efficiency of Republic Serbia, Official Gazette of Serbia 98/2013
- Gvozdenac, D. (2012). *Ekonomija energetske efikasnosti*, USAID

- ISO 50001:2011 Energy management systems - Requirements with guidance for use, ISO 2011
- Krajcar, S., Bukarica, V., Debrecin, N. (2013). *Poticanje energetske učinkovitosti iskustva iz Hrvatske, stanje u EU i budući izazovi*, Prezentacija sa obuke za energetske auditore, MEEIS, Beograd
- Jovanović, P. (2000). *Investiciono odlučivanje*, Junior, Beograd
- Mathiesen, B., Lund, H., Connolly, D., Østergaard, P., Möller, B. (2013). *The design of Smart Energy Systems for 100% renewable energy and transport solutions*. 8th Conference On Sustainable Development Of Energy, Water And Environment Systems, Sweden
- Vukovic, M. (2014). Ph.D. Thesis, Development of Methodology for Project Management of Innovative Energy Efficiency Projects, *Faculty for management, finance and economy*, Belgrade
- Shapiro, C., Puttagunta, S., Owens, D. (2012). *Measure Guideline: Heat Pump Water Heaters in New and Existing Homes*, Consortium for Advanced Residential Buildings (CARB), U.S. Department of Energy
- Silvius, G., Schipper, R., Nedeski, S. (2014). *Sustainability in Project Management: Reality Bites*, Project Perspectives - The annual publication of International Project Management Association, IPMA 2014
- Zandhuis, A., Stellignwerf, R. ISO 21500 Guidance to Project Management, Van Haren Publishing, NL 2013

STRATEGIC IMPLEMENTATION OF CASE STUDY COURSES AND COMPETITIONS FOR STUDENTS

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Abstract: Managing projects between faculties and universities is nowadays an essential branch in higher education institutes. If this cooperation is international it has even more value and effects for students as they can overcome cultural barriers, learn foreign languages and meet people from an entirely different environment. The following paper shows how a project between Faculty of Organizational Sciences at the University of Maribor from Slovenia and Faculty of Organizational Sciences at the University of Belgrade from Serbia was managed and developed. The project was established as a product of cooperation between the two faculties, especially between their professors and students. As a result, strategic implementation of case study courses and competitions included the students from both institutions. This project aimed to be an effective way for the students to improve their knowledge, experience, practice and presentation skills by facing the problems from real life and discussing them with company representatives from Slovenia and Serbia.

Keywords: Strategic Management, Project Management, Teaching Tool, Case Study Method, Education, University

1. INTRODUCTION

Strategic management can be defined as the art and science of formulating, implementing and evaluating cross-functional decisions that enables an organization to achieve its objectives (David, 2011). It consists of the analysis, decisions and activities which an organization performs in order to generate and keep the competitive advantage (Dess, Lumpkin & Eisner, 2007). The importance of strategic management is recognized despite the industry, geographical location, decentralization, portfolio diversification, life-cycle stage or size of the organization (Pearce & Robinson, 2011), and it has significant role in achieving goals of any organization (Robbins & Coulter, 2005). Consequently, the role of strategic management in educational institutions is very important, as well as any other organization. Heads and principals can generally be regarded as senior managers, heads of departments or subject leaders, together with heads of year, are middle managers, while classroom teachers with no

other role should not be thought of as managers, but executors (Coleman, 2000). Given the uncertainty of the future, college and university officers cannot allow their organizations to drift and expert management is now an imperative (Keller, 1983). This requires having the appropriate tools for type of knowledge that is being mapped (Klein, 2009). Each campus applies the same principles, developing its own method of planning to match its institution's particular needs and characteristics (Rowley, Lujan & Dolence, 2001). In this article it will be described how professors, associates and students from Faculty of Organizational Sciences at the University of Maribor in Slovenia proactively, in cooperation with their colleagues from Faculty of Organizational Sciences at the University of Belgrade in Serbia, implemented case study courses and competitions for students in accordance with strategy for education development in Slovenia.

2. STRATEGIC MANAGEMENT IN EDUCATION

Education takes place as a process in educational institutions which can be either in formal or institutionalized forms, or in informal forms. If there are courses in educational institutions, they are presented by adequate technical and pedagogical training qualified teachers. Through education, it is necessary to achieve specific goals. Depending on the content of the objectives of education, goals may be classified as follows (Florjančič & Ferjan, 2000):

- Cognitive goals;
- The objectives of the educational field;
- Targets areas of psychomotor skills.

The advantage of learning in educational institutions, in the presence of a professor is that the professor is an expert in a particular area of expertise and also in the field of pedagogy, didactics and andragogy. Teaching and educational processes are most effective only if carried out according to scientific principles, which must be taken into account at all stages of the educational process. The main principles that should be considered both in the education of adolescents and adults are (Florjančič & Ferjan, 2000):

- (1) The principle of appropriateness; means that they must be the content and methods of education adapted to the capabilities and needs of participants in the educational process.
- (2) The principle of clearness; means that learners need to explain or present facts, concepts, skills required and other educational material on their own understandable way. This is possible with the appropriate choice of teaching methods and teaching supports:
 - From easier to more difficult;
 - From close to the outermost;
 - From the simple to the complex;
 - From the simple to the composite.
- (3) The principle of linking theory with practice; means that the learning material is sufficiently useful in real life. This principle means that;
 - Education should be more vital;

- Education should equip participants so that the later work is enough "educational".

- (4) The principle of sustainability knowledge; means that we have to teach to select such learning content to learner's knowledge permanently conquered. Compliance with this requires that the planning stage of learning content considers the fact that many skills have a short existence. We should choose such learning content that at least some of the time will not be outdated and that the fundamental-basic and practical knowledge are not yet expired.
- (5) Principle of the economic viability; is the principle of respect to educational and pedagogic sciences. It must be taken into account with both, in planning at macro-levels then at the level of individual educational institutions. It's about what criterion will prevail during the process of planning educational objectives of the educational process, didactic or pedagogical or economic. During the process of making it is possible to define for one or the other. This issue examines the economics of education. Therefore, and due to different material possibilities country as a whole, enterprises, public institutions and individuals devote to learning the various sums of money.

The central part of the services in education represents their implementation. And the performance of the price, quality and timeliness of the service depends on user satisfaction (Devetak & Vukovič, 2002). Ways to assess the quality of services are more. Model of the service quality 4Q is often used in practice, and it defines the most important quality criteria (Potočnik, 2000):

- Quality of design,
- Quality of execution services
- Quality performance at a given time,
- Quality of relationships.

Many previous studies have shown how important it is to understand what is expected from the educational process, since the findings help the organization (college) to reach the first step in ensuring quality of service and customer satisfaction (Zeithaml, Parasuraman & Berry, 1990; Cronin & Taylor, 1992). Higher education institutions

have adopted the marketing concept and idea of where the student is presented as a consumer or client who is involved in the buying of higher education programs and services (Kotler, 1996). Students today are so focused on finding adequate educational institutions that will provide them with a unique, memorable and personal learning experience (Ravindran & Kalpana, 2012). The satisfaction of students must always be respected by educational institutions, mainly due to intense competition, higher customer expectations and ranking of institutions of education between market services (Kwek, Lau & Tan, 2010). Letcher and Neves (2010) say that student satisfaction helps to build self-confidence and self-esteem, which benefits students in developing useful and practical skills and knowledge acquisition.

Quality is the lifeline for educational institutions. They have to maintain quality of education. College and university education is a quality-oriented service with students, parents, and legislators as customers demanding quality (Seymour, 1992). Crowds of people bring so much to their feelings, efforts and financial resources to send their children to educational institutions because they hope it will give children a good education. When we guarantee the quality and the students become well-rounded adults, the people, the government and society are satisfied. Educational institutions have a variety of ways and means to enhance education, promote the quality and strive to achieve new results (Ji, 2009, p. 9). Snaj (2007, p. 108–109) cites a number of different definitions of quality, but they all have in common that they emphasize quality as a complex. Multidimensional concept is a character or nature, which belongs to something, such as a distinctive feature, characteristic or attribute. Quality can also be understood as a mean to gain competitive advantage on the market.

Courses are the most visible part of the teaching concept. However, conceptions of teaching define a set of actions, such as lectures, leading discussions or demonstrating effective forms of practice. Actions are only superficially presented as the design of teaching. Under the act they include composite intentions and beliefs that are

hidden throughout the views of key importance for understanding the conception of teaching (Pratt, 1997, p. 25). Quality teaching depends on the teacher's competence, professionalism and personality. It is, therefore, important that their work is constantly evaluated and monitored. Where teaching is good, students gradually acquire the knowledge, skills and understanding. The objectives of the lesson are clearly defined. Lesson should provide the student an opportunity to learn different skills and interests, as well as possibility for full participation. On the other hand, teaching methods ought to suit the lesson, they can be modified in order to derive the lessons in appropriate way to achieve the expectations of all involved parties and set high but achievable goals. Regular feedback (deliberate evaluation and talks to them about the completion of works) help the students to progress. Relationships are positive and increase their motivation. The objectives of the curriculum are fully taken into account and school work is supplemented with homework (Bevc, Fošnarič & Sentočnik., 2002, p. 23).

3. STRATEGY FOR EDUCATION DEVELOPMENT IN SLOVENIA

Considering previously described context and role of education and importance of strategic management in education, Slovenian Parliament defined strategy of education for period until year 2020, according to EU strategy in this area. Two strategic documents, National program for Higher Education 2011 – 2020 and Research and Innovation Strategy of Slovenia 2011 – 2020 have been created separately but are harmonized as the contents of both are related and intertwined (Pivec & Schlamberger, n.d.). According to Ministry of Economy, Republic of Slovenia (2013, p.12), in Slovenia will be built the advantages as:

- High education structure of young people.
- A high proportion of women in the labor market and the high proportion of women with completed tertiary education.
- A small proportion of dropouts among young people (with the exception of early school leavers in the universities).

early school leavers in the universities).

- Accumulated knowledge and experience of older people.
- The potential for education, training and awareness for sustainable development and green economy.
- High public expenditure on education.
- High participation in formal education at all levels and well-developed network of educational organizations.
- Knowledge of foreign languages and adapt to the culture of other nations (cultural diversity impact) with a wealth of international connections.
- Computer literacy.
- The abundance and quality of scientific publications, successful international research.
- Many scientific and creative talents.
- Clusters of excellence in academic and industrial research.
- Informal volunteering to gain experience and competence.
- Intergenerational transfer of knowledge and experience in managing and developing complex technologies.

4. CASE STUDY METHOD AS TEACHING TOOL

Colleges and Universities worldwide are constantly using strategic planning process to develop and implement more constructive and effective learning methods (Rowley, Lujan & Dolence, 2001). One of the teaching tools that became often used in business schools is case study method. The case method can be described as a differentiated teaching approach which consists of presenting the case study with practical problem to the students and placing them in the role of a decision maker who is facing a problem (Hammond, 1976). The goal of applying the case study method in the educational and business process allows individuals and teams to have an overview of a problem and to suggest concrete solutions drawn from practical experience (Damnjanović, 2011). Since it is used in classroom, case study method enables previously described advantages of learning in educational institutions, in the presence of a professor, whose role is to be tutor, guide, coach or

facilitator (Erskine, Leenders, & Mauffette-Leenders, 2003), instead of common role of lecturer. One of his most important tasks is to encourage the conversation and confrontation of different views and opinions among students for the purpose of enjoying the convenience of participatory learning from group discussion. Besides learning individually, students are additionally improving their skills through interaction with their colleagues in small and large groups (Mauffette-Leenders, Erskine & Leenders, 2001). Cases make learning relevant and meaningful to the student through active participation in analyzing, discussing and solving real problems in a specific field of inquiry (Flynn & Klein, 2001). They use a planned sequence of cases drawn from real business context with responsibility for analysis and conclusions about issues within the case resting with the students (Heath, 2006). This way learning focus is moved from memorization of numerous facts to practical application of theories, concepts and techniques to real problems. In comparison to other forms of learning sessions, the case method could be differentiated according to the level of feedback and imposed structure along the learning experience (Simmons, 1974).

On universities students are commonly divided to schools and groups according to their preferences and selected study fields, and level of interaction among members from different groups predicted by the formal learning system is usually very low, which disables knowledge sharing. Such organization can be compared to functional model of organizational structure, which is frequently characterized by formation of organizational silos, where knowledge and information can often be trapped and secluded from other parts of organization (Todorović, Čudanov, & Komazec, 2014). Universities are a classic example of fragmented learning (Klein, 2009). Case study competitions are opened for students from different groups, schools, universities and countries, which eliminate the effect of silos and allow the exchange of knowledge, experience and culture among participants. Since the contestants are from different study fields, the cases that are solved on competitions usually refer to strategic management, rather than to

some specific and narrow business area. They are more comprehensive and generally include a description of related management, marketing, finance/accounting, production/operations, R&D, computer information systems, and natural environment issues (David, 2011). However, they should be prepared with appropriate depth of understanding of what a particular organization is (Mintzberg, 1990).

5. IMPLEMENTATION OF CASE STUDY COURSES AND COMPETITIONS FOR STUDENTS IN SLOVENIA

The case study method is methodology which is implemented in classroom and case study competitions where students solve business problems in different fields (Damnjanović, 2011). For this reason, project of strategic implementation of case study courses and competitions for students of Faculty of Organizational Sciences at the University of Maribor from Slovenia (FOV) is based on organizing these two types of event, one in winter and one in summer semester, designed to cover the whole study year. The first event is called "School of solving case studies" and is held on FOV, in Kranj, every year in December. The second and final event is called "International case study competition" and is also held annually, every March in Portorož, during the International Conference on Organizational Science Development which is organized by FOV.

Both events are implemented in cooperation with Faculty of Organizational Sciences at the University of Belgrade from Serbia (FON), where case study method has been used as educational tool for more than a decade. During "School of solving case studies" professors from FON are visiting lecturers for FOV students and on "International case study competition" students from FON are participating together with their colleagues from FOV.

The first "School of solving case studies" was held in December 2011, while "International case study competition" was initially organized in March 2012, as part of 31st International Conference on Organizational Science Development. Besides short

description and goals, a description of the concept for both events will consist of following items:

- Agenda
- Location
- Participants
- Benefits

It is very important to measure the success after the project is completed and to evaluate the compatibility of its results with defined strategy (Obradović, Petrović & Mihić, 2013), since formulation and implementation of the strategy are separate steps (Mintzberg, 1990). During the project implementation stage there are a lot of predicted and unpredicted issues that could have direct or indirect influence on a project success (Toljaga-Nikolić, Todorović & Bjelica, 2014). One of the major issues for knowledge management in a project environment is the poor project success analysis and the lack of proper documentation on the results of the previous projects (Todorović, Petrović, Mihić, Obradović & Bushuyev, 2014). For this reason, the questionnaire for participants was introduced as a feedback. Another proposed evaluation method was the comparative analysis of results achieved by regular FOV students and those who participated the project, according to the framework of goals related to the development of education officially defined by Ministry of Economy, Republic of Slovenia (2013).

5.1. SCHOOL FOR SOLVING CASE STUDIES

Students of FOV involved in this project obtain a broader insight into the skills of organizational systems and work together to find new solutions demanded by the modern challenges of domestic and foreign environment. Applying for this project means that the students listen to case study courses and have the opportunity where creativity faces different groups of students of the Faculty of Organizational Sciences. The concept of this strategic implementation represents a methodological and pedagogical challenge-oriented, aimed at integrating the various theoretical concepts and situations from real business environment. For this reason, the case study methodology allows

participants the training with detailed insight into practical business-oriented problem of studied organizations/companies, while through diverse discussion as a method of active learning it encourages the adoption and development of critical and necessary skills.

5.1.1. Agenda

The event takes place in December. At the beginning, the applicants are present theoretical framework and a short introduction of case study method and the idea of a business-oriented problem. Further lessons

aim to develop their practical skills. After that the participants are introduced to the sponsoring company, and they are given the case study with real life problem which they should analyze and propose the solution. The last day is reserved for competition simulation and presentation of concrete solutions, which are evaluated by the jury, consisting of lecturers from FOV, visiting lecturers from FON and company representatives, in order to determine the winning team. Detailed agenda is presented in Table 1.

Table 1: Agenda of “School of solving case studies”

Day 1	Leadership & Teamwork
09:00 – 10:15	Course introduction <i>lesson 1:Leadership</i>
10:15 – 10:30	-break-
10:30 – 12.00	<i>workshop 1:Team building</i>
12:00 – 12:15	- break-
12:15 – 13:15	<i>workshop 1: Results & Feedback</i>
13:15 – 14:15	-lunch break-
14:15 – 15:15	<i>lesson 2:Teamwork</i>
15:15 – 15:30	-break-
15:30 – 16:30	<i>workshop 2:Communication skills</i> Introduction to Presentation skills workshop
Day 2	Presentation skills & Case method
09:00 – 10:45	<i>workshop 3: Presentation skills</i>
10:45 – 11:00	-break-
11:00 – 12.00	<i>lesson 3:Presentation skills</i>
12:00 – 12:15	- break-
12:15 – 13:15	<i>lesson 4:Case method</i>
13:15 – 14:15	-lunch break-
14:15 – 15:15	<i>workshop 4:Solving cases</i>
15:15 – 15:30	-break-
15:30 – 16:30	Introduction of competition simulation Presentation of case study and the sponsoring company (for the next 24 hours students are solving case study)
Day 3	Solving case
10:00 – 11.00	Training session for members of the jury
11:00 – 11:15	- break-
11:15 – 13:15	Consulting session (team by team)
13:15 – 14:15	-lunch break-
16:30 – 17:00	Solutions handing (until next morning teams are practicing their presentations)
Day 4	Competition simulation
09:00 – 11:00	Presentations – part 1
11:00 – 11:15	-break-
11:15 – 13.15	Presentations – part 2
13:15 – 14:15	- lunch break-
14:15 – 15:30	Announcing winners Closing ceremony

Source: Authors' illustration

5.1.2. Location

“School of solving case studies” is happening at FOV. Lessons and workshops are held in classrooms and the competition simulation is organized in amphitheater.

5.1.3. Participants

The school held in December is organized for up to 30 undergraduate students from FOV, despite the study year. They are divided into six teams that will participate the competition simulation. Each team must consist of at least four and maximum five students.

5.1.4. Benefits

All participants gain knowledge and experience through lessons, workshops and group discussions. Members of two most successful groups of students selected by the evaluation committee win a three day free participation at the International Conference on Organizational Science Development which is held in Portorož, and the chance to represent FOV at “International case study competition” In addition, each member of the most successful groups receive prizes from sponsoring company.

5.2. INTERNATIONAL CASE STUDY COMPETITION

FOV students who were members of best two groups in “School of solving case studies” held in December take part in the International Conference on Organizational Science Development which is organized annually by FOV. Here they have the opportunity to share knowledge and experience not only with each other, but also with students of other faculties from University of Maribor and students of FON, who come from another country as invited guests. FOV All expenses, such as accommodation in apartments, meals in restaurants and conference participation fee for these students, are covered by FOV.

5.2.1. Agenda

The final competition takes place during the International Conference on Organizational Science Development in March. All teams are introduced to the sponsoring company and to the case study containing concrete problem, after which they have more than a day to prepare the solutions that they will present to the jury consisting of professors from FOV, conference participants from other countries and representatives of sponsoring company. After winner annunciation the party is organized for all participants. Complete agenda of the event is presented in Table 2.

Table 2: Agenda of “International case study competition”

Day 1	Introduction
Morning	Arrival Company introduction
Afternoon	Case study presentation Solving case
Day 2	Solving case
Morning	Solving case Consulting sessions with company representatives
Afternoon	Solving case Solutions handing
Day 3	Competition
Morning	Training session for members of the jury Presentations of solutions
Afternoon	Announcing winners Party

Source: Authors' illustration

5.2.2. Location

Students are solving case study in their apartments and presentation of solutions is held at the five star Bernardin Hotel and Conference Center in Portorož, where the conference takes place. The competition is included in official agenda of the International Conference on Organizational Science Development.

5.2.3. Participants

At the final case study competition up to eight groups of students can participate. Each individual group may consist of at least four and maximum five students. Two teams are from FOV, two from FON and the other four teams are picked come from other faculties from University of Maribor or some other Slovenian university.

5.2.4. Benefits

All the solutions are evaluated by the international jury and the members of winning team receive the prizes from sponsoring company and from sponsors of the conference.

6. CONCLUSION

Implementation of case study courses and competitions for students in described approach is in accordance with the strategy for education development in Slovenia. Students are in a position to accumulate the knowledge and experience of older people, lecturers and jury members. Cooperation with students from Serbia can improve the knowledge of foreign languages and help students adapt to the culture of other nations with a wealth of international connections. This effect can be increased with participation of students from more countries at "International case study competition" in Portorož. Furthermore, implementation of case study method in daily teaching approaches at educational institutions in Slovenia can gain numerous benefits, as described in this paper, and help the students develop their creative talents. On the other hand, during "School of solving case studies" cooperation between lecturers from different countries can lead to successful international

academic research, while joint participation of professors and company managers in jury may be followed by industrial research. Finally, students who are involved in event organization are applying for informal volunteering to gain experience and competence.

Event evaluation sheet consisted of several aspects that students had to rate on scale from 1 to 5, where 1 represents the least positive impression and 5 the most satisfying. The results showed that students of FOV were very pleased to be part of case study project, with average rate 4,85 out of 5. They believe, with average rate 4,75 out of 5, that participation at "School of solving case studies" helped in improving their knowledge and skills, and with average rate 4,80 out of 5 they would like to attend more similar events in the future. Presented average rates were derived from the results of three year period, from 2011 to 2013, gained by 79 students of FOV who filled in the evaluation sheet.

Directions for further development consider organization of "School of solving case studies" first on other faculties at the University of Maribor, and later on other universities in Slovenia. The idea is to form "Case Study League", with preliminary rounds on several Slovenian faculties, and the winning groups would get the chance to be part of final competition in Portorož, together with the teams from abroad. The goal is also to invite faculties from other neighbor countries, such as Croatia, Austria and Italy, to apply for the International Conference on Organizational Science Development and to bring their students to participate "International case study competition". This will eventually bring to high participation in formal education at all levels and well-developed network of educational organizations in Slovenia.

REFERENCES

- Bevc, V., Fošnarič, A. & Sentočnik, S. (2002) *Spremljanje in vrednotenje pedagoškega dela strokovnih sodelavcev*. Ljubljana, Slovenia: Zavod RS za šolstvo.
- Coleman, M. (2000). *Leadership and strategic management in education (Vol. 2)*.

- London, United Kingdom: SAGE Publications.
- Cronin Jr, J.J., & Taylor, S.A. (1992) Measuring service quality: a reexamination and extension. *The journal of marketing*, 56(3), pp. 55-68.
- Damnjanović, V. (2011) *Marketing in Practice Applying the Case Study mm^m Method*. Belgrade, Serbia: Faculty of Organizational Sciences.
- David, F.R. (2011) *Strategic management: concepts and cases, 13th edition*. New Jersey, USA: Prentice Hall.
- Dess, G.G., Lumpkin, G.T. & Eisner, A.B. (2007) *Strategic Management: Text and Cases, 3rd edition*. New York, USA: McGraw Hill Higher Education.
- Devetak, G. & Vuković, G. (2002) *Marketing izobraževalnih storitev: intelektualna lastnina, zadovoljstvo odjemalcev, strategije, poslovna odličnost, benchmarking, metodologija raziskovanja, elektronsko poslovanje, ustvarjalnost*. Kranj, Slovenia: Moderna organizacija.
- Erskine, J.A., Leenders, M.R., & Mauffette-Leenders, L.A. (2003) *Teaching with cases 3rd edition*. Ontario, Canada: Ivey Publishing, Richard Ivey School of Business, University of Western Ontario.
- Florjančič, J. & Ferjan, M. (2000) *Management poslovnega komuniciranja*. Kranj, Slovenia: Moderna organizacija.
- Flynn, A.E. & Klein, J.D. (2001) The influence of discussion groups in a case-based learning environment. *Educational Technology Research and Development*, 49(3), pp. 71-86.
- Hammond, J.S. (1976) *Learning by the case method*. Boston, USA: Harvard Business School Publishing Division.
- Heath, J. (2006) *Teaching and writing case studies: a practical guide, 3rd edition*. Cranfield, United Kingdom: European Case Clearing House.
- Ji, Z. (2009) Teaching Evaluation. *Chinese Education and Society*, 42(2), pp. 7–19.
- Keller, G. (1983) *Academic strategy: The management revolution in American higher education*. Baltimore, USA: The Johns Hopkins University Press.
- Klein, D.A. (2009) *The Strategic Management of Intellectual Capital*. Oxford, United Kingdom: Routledge, Taylor & Francis Group Ltd.
- Kotler, P. (1996) *Marketing management (Trženjsko upravljanje, analiza, načrtovanje, izvajanje in nadzor)*. Ljubljana, Slovenia: Slovenska knjiga.
- Kwek, C.L., Lau, T.C. & Tan, H.P. (2010) Education quality process model and its influence on students' perceived service quality. *International Journal of Business and Management*, 5(8), p. 154.
- Letcher, D.W. & Neves, J.S. (2010) Determinant of undergraduate business student satisfaction. *Research in Higher Education Journal*, pp. 1-26.
- Mauffette-Leenders, L.A., Erskine, J.A. & Leenders M.R. (2001) *Learning With Cases, 2nd edition*. Ontario, Canada: Ivey Publishing, Richard Ivey School of Business, University of Western Ontario.
- Ministry of Economy, Republic of Slovenia (2013) *Strategija razvoja Slovenije 2014-2020*. Retrieved 26th November 2014 from <http://www.eu-skladi.si/ostalo/operativni-programi/strategija-razvoja-slovenije>
- Mintzberg, H. (1990) The Design School: Reconsidering the Basic Premises of Strategic Management. *Strategic Management Journal*, 11(1990), pp. 171-195.
- Obradović, V., Petrović, D. & Mihić, M. (2013) *Strategic Project Management – Project Strategy and Measurement of Success*. In Levi Jakšić, M., Barjaktarović Rakočević, S., Martić, M. (Ed.) *Innovative Management and Firm Performance: An Interdisciplinary Approach*, pp. 165-186. Hampshire, UK: Palgrave MacMillan.
- Pearce, J. & Robinson, R. (2011) *Strategic Management: Formulation, Implementation & Control, 12th revised edition*. New York, USA: McGraw Hill Higher Education.

- Pivec, F. & Schlamberger, N. (n.d.) *Strategy of Higher Education with Special Attention on R&D: from Government to Governance, A Look into the Future of Slovenian Higher Education and Research*. Retrieved November 25th 2014 from http://is.jrc.ec.europa.eu/pages/ISG/PREDICT/documents/STRATEGY_OF_HIGHER_EDUCATION_RD_final.pdf
- Potočnik, V. (2000) *Trženje storitev*. Ljubljana, Slovenia: Gospodarski vestnik.
- Pratt, D.D. (1997) Reconceptualizing the evaluation of teaching in higher education. *Higher Education*, 34, pp. 23-44.
- Ravindran, S.D. & Kalpana, M. (2012) Student's Expectation, Perception and Satisfaction towards the Management Educational Institutions. *Procedia Economics and Finance*, 2(2012), pp. 401-410.
- Robbins, S. & Coulter, M. (2005) *Management, 8th edition*. New Jersey, USA: Pearson Education Inc.
- Rowley, D.J., Lujan, H.D. & Dolence, M.G. (2001) *Strategic Change in Colleges and Universities: Planning to Survive and Prosper*. San Francisco, USA: Jossey-Bass Publishers.
- Seymour, D.T. (1992) *On Q: Causing Quality in Higher Education*. New Jersey, USA: Macmillan Publishing Company.
- Simmons, D.D. (1974) *Notes on the Case Study*. Cranfield, United Kingdom: European Case Clearing House.
- Snoj, B. (2007) *Kakovost in zadovoljstvo kot posledici delovanja marketinške kulture*. In V. Trnavčević, R. Biloslavo, B. Snoj, V. Logaj, B. Kodrič (Ed.) *Ko država šepeta: Marketinška kultura v šoli*, pp. 107-129. Koper, Slovenia: Fakulteta za management.
- Todorović, I., Čudanov, M. & Komazec, S. (2014) *Improvement of Organizational Knowledge Transfer through Integration of Functional Silos in Smart Network: Case Study of Public Enterprises*. In Ordoñez de Pablos, P., Jovell Turró, L., Tennyson, R. D., Zhao, J. (Ed.) *Knowledge Management for Competitive Advantage During Economic Crisis*, pp. 299-309. Hershey, USA: Idea Group Publishing.
- Todorović, M., Petrović, D., Mihić, M., Obradović, V & Bushuyev, S.D. (2014) Project success analysis framework: A knowledge-based approach in project management. *International Journal of Project Management*.
- Toljaga-Nikolić, D., Todorović, M. & Bjelica, D. (2014) How different approaches can help in coping with project risks?, *Serbian Project Management Journal*, 4(1), pp. 41-48.
- Zeithaml, V.A., Parasuraman, A. & Berry, L.L. (1990) *Delivering quality service: Balancing customer perceptions and expectations*. New York, USA: Simon and Schuster, Inc.

EVENT RISK MANAGEMENT – EMBOK MODEL APPROACH

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Abstract: This paper is focused on special events project management concept and implementation of the risk management concept in the field of organizing these kinds of projects. A key objective was to establish the need for risk management framework for the event industry, which will become applicable to all types of special events and could be applied as a generic tool for event organizers and other stakeholders in order to realize successful special events risk management. The framework has been determined by studying the EMBOK, the risk management framework which contains phases, processes, domains/functional areas and core values and due to its thoroughly structured nature explains the process of risk management in the best possible way. Special attention was paid to the importance of lessons learned concept for special event risk management.

Keywords: Special Event, Risk Management, Event Management Body of Knowledge, Lessons Learned

1. INTRODUCTION

Special event management represents a kind of industry with rapid growth and increasing significance and value. Increase in number of organized festivals, sports manifestation, concerts, conferences, and symposiums worldwide, and their importance for community as a whole, indicate special event management cannot be ad hoc process.

The extent literature on this topic suggests several explanations of the term special event. Special event management (event planning, managing, and organizing) is relatively young discipline that came into the focus of academics in the last couple of decades. Although there is no unique and widely accepted definition of special event, several authors agree that an event represents an integral part of service economy. It can be described as designed offer with limited duration based on particular idea. In economical term, event is an offer placed on the market in order to satisfy heterogenic and

immaterial needs of customers (Andrejević & Grubor, 2007). From the other hand, in customers' needs context, an event can be defined as a unique mixture of activities that represent a tool for realization of event's overall objective and satisfaction of customers' needs (Salem, Jones, & Morgan, 2004).

The definition that can be find in Accepted Practice Exchange Industry Glossary – APEX, describes an event as an organized activity such as meeting, convention, fair, special event or gala dinner, which consists of various but interrelated functions (APEX, 2003).

(Filipović & Kostić-Stanković, 2008) suggest that special events are short-term or long-term projects with precisely defined purpose and targeted audience, organized in order to attract and gain affection of targeted audience for particular product or service. Periodicity and the fact that each manifestation represents a driving force for interference of management, programs, decorations and people, stand out

as mutual characteristics of each event (Getz D., 2005). Also, many relevant authors link the term special event for rituals, presentations, shows and celebrations, specially organized in order to achieve particular social, cultural or combined objective.

Donald Getz distinguishes two aspects of special event definition (Getz & Frisby, 1988):

- Organizer aspect: Special event is a one-time or infrequently occurring event outside the normal program or activities in particular environment, attracting attention of audience, media and sponsors.
- Participant aspect: Special event offers to participants an opportunity for vacation or professional development, social and cultural contents unusual in everyday life.

Considering aforementioned definitions and tendency for growth in special event industry, it is very difficult to construct the definition that includes all types and forms of special events. In the widest context, special event represents a group of projected activities that use particular resources to gather projected profile and number of participants around achievement of defined objective (Jaško, 2009).

2. SPECIAL EVENT PROJECTS AND RISK MANAGEMENT

Special events are being organized in order to give the participants opportunity to gather, interact, get new knowledge and skills etc. The question is what can be so “risky” about these events? This is a very frequent question that comes from observers, visitors and stakeholders who do not participate in organization of these events, so they are not able to overview the wide specter of risks that is inseparable component of special event management. These risks can be categorized into four groups (Tassiopoulos, 2005):

- Economic risk (financial loss, lack of financial resources)

- Performance risk (low quality of outcomes, instability)
- Psychological risk (bad image of an event, inadequate place and environment)
- Physical risk (safety issues, risk of disease outburst, criminal activities).

However, the need for in-depth analysis of risks distinctive for special events is evident. Related to special event key stakeholders, these risks can be classified into three groups: risks related to participants, risks related to sponsors, and risks related to organizational team members.

(Silvers, 2005) emphasizes that broad body of literature on risk management in special event industry deals with insurance and legal obligations. Nevertheless, the same author suggests that it is important to pay equal attention to both organizers and participant in public or private events. What lacks in this procedure is systematic and logical approach to special event risk management. This process must be comprehensive, consistent, reliable and proactive. Literature also deals with social responsibility as a barrier that event managers and organizers must take into account while managing the event. Legal issues related to contracting process between managers and clients are not solved in a proactive way.

(Silvers, 2005) indicates that risk management is the basic responsibility of special event organizers, where comprehensive and practical tools are available to them to efficiently manage event risks. The same author describes the risk management as the art and science of planning, assessing and managing future events in order to provide adequate effects, and procedure or practice of eliminating or mitigating risks. The aims of event risk management are related to property protection, legal obligations, potential losses control, adequate growth management and social responsibility (Berlonghi, 1990). In risk management, the focal point should be on the following areas: legal and ethical obligations, health & safety, emergency prevention, preparedness and reaction, and proper decision making. (O' Toole & Mikolaitis, 2002) emphasize that special event

stakeholders, such as state agencies, insurance companies, and sponsors are paying more attention to planning the risk management process.

Special event organizers also have legal, ethical and financial responsibility for managing event risks (Jones, 2004). Unfortunately, wide body of evidence suggests that generated and comprehensive guidelines for event risk management are not developed or properly implemented, causing that event organizers are approaching this area without distinct and structured management tools. (Heldman, 2005) defines the risk management as an integral component of project management, indicating that risk is usually related to negative impacts those represents threats for project or special event. Furthermore, risks can be considered as potential opportunities those could contribute to successful realization of the event, in case of proper utilization. (Heldman, 2005)also

indicates that most organizations will accept the risk if potential benefits are higher than adverse effects of risk realization. In order to assess risk and to develop risk management strategy, it is necessary that stakeholders understand the term, concept and types of risks their business operations are faced with. (Bowden, Lane, & Martin, 2001). Organization's risk portfolio can include events with potential effects on investments, revenues, health & safety of employees and local community, environment, legal obligations and insurance coverage (O'Toole, 2007).

According to (Van der Wagen, 2007), special event risk management can be defined as a process that consists of identifying, assessing and managing risks. This process represents the foundation for establishing logical plan for risk management on special events projects, which is presented in Table 1.

Table 1. Special event risk management plan (Van der Wagen L. , 2007)

RISK MANAGEMENT PLAN					
No.	Identification: nature	Risk	Assessment: Risk impact	Management: Control	Management: Contingency planning
1.	Weather: raining or extremely high temperatures		Rain will cause lower attendance and on-site sales	Weather forecast and providing various types of protection against rain	Volunteers and other staff provides raincoats in case of rain or water and soft drinks in case of hot weather
2.	Fire and evacuation		Potentially strong risk impact	Establishing VERP (Venue Emergency Response Plan)	VERP should identify clear communication channels with emergency services
3.	Crowd control		Potentially strongest risk due to transportation delays	Promo materials and tickets issuing	Deploying more experienced staff to solve issues on critical spots
4.	Financial management		Financial failure for event organizers, cost overruns, breach of contract	Financial control systems, limited authority for purchasing and spending	Short-term cash derivatives market. Sponsorships and partnerships
5.	Organizational team management		Impact of poor selection and training of project team members on service quality	Specification of recruitment requirements and job description	Engagement of specialized agencies and more experienced project team members

Regardless of special event size, weak focus on risk management is evident in many organizations. Nevertheless, in case of large events, in spite of favorable external environment, significant losses can be generated in case of poor management of internal operational elements. The same author emphasizes that risk management is iterative process where efficient communications represents the core activity. Without communication and constructive exchange of information between stakeholders, management and project sponsors, successful risk management would not be possible.

3. EVENT MANAGEMENT BODY OF KNOWLEDGE

EMBOK model has been developed by J.R. Silvers as a holistic framework which explains event risk management process in a completely structural and simple manner. This model suggests knowledge framework and a short description of scope and processes of event management. Iterative and widely-accepted processes in the field of risk management, sequential phases and the core values enable event organizers to encompass each functional area in a systematic and comprehensive way, where clear definition of organizers' accountabilities and responsibilities for risk management are of main importance. Conceptual framework for EMBOK structural model is suggested in order to provide the appropriate structure for collection and investigation of knowledge and processes used in event management (Silvers, Bowdin, O'Toole, & Nelson, 2004).

This comprehensive model that is consisted of phases, process, core values and five knowledge domains/functional areas provides logical and systematic approach to the management of the risks influencing events of all types and sizes. It links all event phases (from initiation to project evaluation and closure), risk management process (slightly

modified for the purposes of event industry), and core values necessary for decision making process. Integration of abovementioned elements affects the domains of administration, design, marketing, operations and risk, which represents the activities and responsibilities of event planners in a logical manner. EMBOK structure is represented in Figure 1.

The advantage of implementing EMBOK model in organizing and managing events is the fact that this framework encompasses each particular area of event that managers must be focused on, and provides an appropriate tool for event risk management, especially in the area of identifying potential risks. Most of academics and practitioners in the field of event management base their event risk management models on the similar framework. (Sonder, 2004) emphasizes that the framework had been developed and implemented many years before EMBOK was restructured and optimized.

Special event management phases illustrate the sequential nature of this process, emphasizing time as a critical factor of each special event project. Whole process is cyclic, and results of evaluation phases contribute to research phase of succeeding special event. These phases are aligned with traditional project management terminology and include initiation, planning, implementation, realization and closure. Efficient event management relies on risk management in each aforementioned phase.

This model proposes the process approach to event risk management, which includes assessment, selection, monitoring, communication and documentation. Whole concept is based on widely accepted model of risk management process, which is sequential and iterative system that promotes dynamic approach to changing nature of event and related risks.

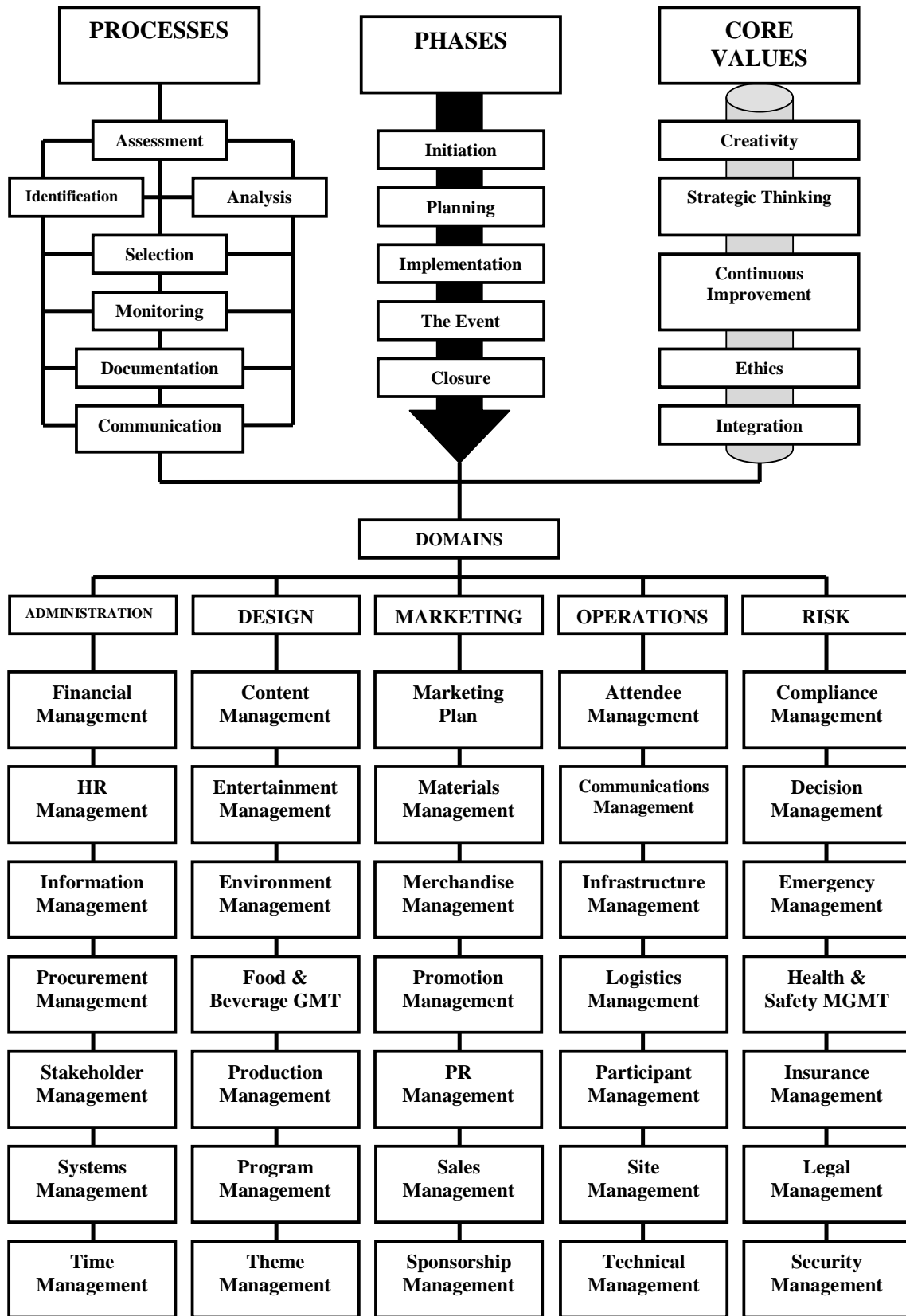


Figure 1: The structure of EMBOK model (Silvers J., 2008)

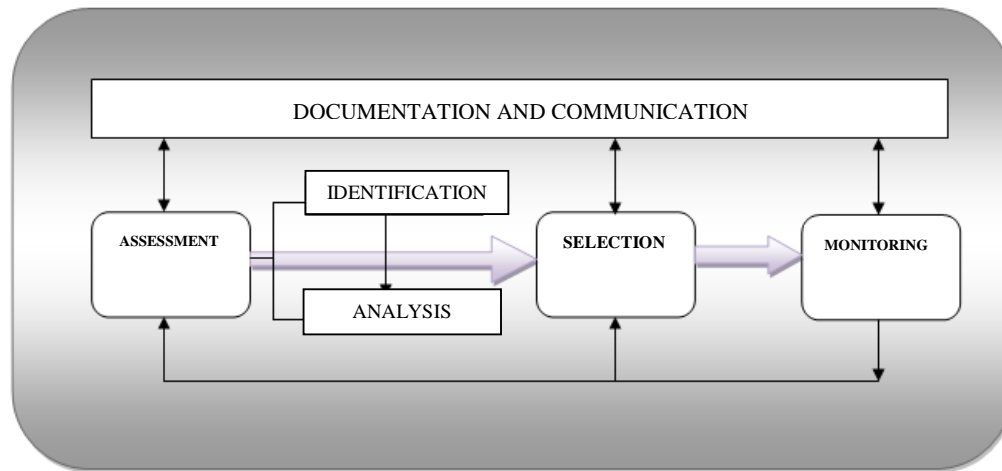


Figure 2: EMBOK process model (Silvers J., 2004)

This approach suggests the following five processes:

- **Assessment:** process based on identification of areas with potential high danger and risks. Later, risks are classified and assessed in order to reveal eventual impacts and their probability and other characteristics important for decision-making process.
- **Selection:** process based on decision-making about further actions and developing of risk response strategy. Event planner also determines resources, timeframe, responsibilities and reporting systems.
- **Monitoring:** current control of selected risk response strategy demands full attention of executive/organizational board. Further evaluation of efficiency might indicate the need for alternative plans and risk management strategies.
- **Documentation:** decisions, identified risks, selected methods and risk response strategies, alternative plans and assessment criteria must be registered and reported to all stakeholders and kept as a benchmark or lesson learned for future projects.

- **Communication:** organizational board president or organizational team leader should facilitate information flow in order to ensure that stakeholders are informed about all identified risks and response strategies on time. Open communication helps to identify potential mistakes and stimulates consultations with experts to solve the issue rapidly.

To ensure and sustain special event success, some principles must be implemented on every decision related to each element, phase and process. These principles are related to the following core values:

- Creativity
- Strategic thinking
- Continuous improvement
- Ethics
- Integration.

It is of great importance to align all decisions related to special event risk management with aforementioned core values. Risk domain of EMBOK model is focused on legal obligations, health and safety, emergency situations and legal aspects. Author of this model also indicates that described functional areas are significant for each project type and mainly based on monitoring and implementation of existing standards, documents and legal acts.

4. LESSONS LEARNED AND THEIR IMPORTANCE FOR RISK MANAGEMENT

This paper emphasizes the importance of documenting and preserving information regarding special event risk issues and special event projects in general. (Silvers J., 2008) proposed the overview of previous projects' documentation and lessons learned as a very significant technique for risk identification. Lessons learned can be described as an useful project management information gained through experience that organization should retain for future use and that can be relevant for organizing the same or similar projects in the future. These lessons can be simply identified by asking project team members or other stakeholders, such as suppliers, participants or sponsors a question.

Individuals or project team members can benefit from the knowledge that was created through experience of those who were engaged in similar activities in previous projects or events.

Many organizations that describe themselves as *learning organizations* overlook their own experience as a platform for learning, experience and knowledge transfer and performance improvement. Implementation of lessons learned helps project teams to increase their productivity and reduce risk appearance probability. Regardless the fact that lessons learned can make the risk management process more efficient, there are several reasons why these lessons are not recorded or used properly:

- Lack of time,
- Lack of management support,
- Lack of clear guideline for collection and systematization of lessons learned,
- Failure in lessons recording process and poor databases.

Another problem is related to collecting lessons at the very end of project by gathering the project team members who are trying to retroactively remember what were identified

problems and how they were solved. This way of collecting lessons learned is possible in case of short-term projects that last for couple of weeks. Nevertheless, in case of long-term projects, it is very difficult to wait for project closure in order to collect and preserve gained knowledge. Team members often forget to record useful information, they leave the team before project ends, or they are simply focused on new projects they are planning to be involved in after closing the current project. For these reasons, it is better to record lessons throughout entire project cycle, at the moment risk event shows up, including project team response to such situations.

Due to abovementioned issues, it is very important to develop well-defined and simple process for collecting, analyzing and distributing lessons learned. Proposed process consists of:

1. Disclosure of lesson
2. Documentation of lesson
3. Lesson warehousing
4. Usage of lesson

Project team members should identify and record lessons learned, and forward them in the form of a report to project manager. Indicator that lessons can be recorded is the appearance of problems related resources, staff or customer dissatisfaction. In order to proceed with a project, these problems must be resolved. Brainstorming session with a project team and independent moderator should be organized, in order to disclosure valuable lessons learned. Lessons can also be detected by asking the following questions:

- What went wrong with the project?
- Which aspects of the project were realized well?
- What should be improved?

Necessity for documenting and dissemination of gained knowledge is evident, where creation of standardized report on lessons learned is of great importance. Proposed report is presented in Figure 3.

Project Title:				
Date:				
<u>Problem description</u>	<u>Impact on costs</u>	<u>Impact on timeline</u>	<u>Impact on staff</u>	<u>Corrective actions taken</u>
Are available resources (time, costs, and staff) sufficient and efficiently used?				
<u>Lesson learned</u>	Describe possible improvements of process and how particular problem can be avoided in future.			

Figure 3: Proposed inquire for collecting lessons learned

Once collected, lessons learned should be stored in open-access central data base that supposed to be well organized and accessible to all project stakeholders. Online systems, such as interactive portals and intranet sites stand out as adequate solutions that provide smooth and quick access to lessons learned.

Usage of lessons learned should be an integrated part of organizational culture. Prior to the start of a project, project managers should take into consideration all lessons that might be useful, and to use them wherever it is possible. Furthermore, lessons learned must be available to other project team members as assistance to realization of their tasks.

Significant benefits of lessons learned implementation are the following:

- Efficiency increasing
- Improvement of project management tools and techniques
- Project team members professionalism increasing
- Time savings
- Cost savings
- Risk reduction
- Providing the best practice for particular activities realization
- Creating competitive advantage of organizations that implement lessons learned concept

5. CONCLUSION

Besides the fact that general concept of project risk management can be applied to all industries, the complexity of special event

projects demands development of comprehensive model that provides logical and systematic approach to management of risks influencing events of all sizes and types. This paper emphasizes the importance of EMBOK model as the appropriate framework for risk management which consists of phases, processes, core values and knowledge domains with associated functional areas and elements. Presented domains and functional areas of EMBOK model cover all important aspects of special event and help to event organizers to identify potential risks. The paper also proposes the process of collecting lessons learned and creating knowledge base that can significantly improve risk management on future projects.

Lessons learned concept is not properly valued in Serbian organizations. Proposed process of collecting lessons learned aims to emphasize their importance and helps project teams to efficiently implement assigned projects. The implementation of each project should start with accessing data base with lessons learned during previously implemented projects, where effective knowledge transfer should not be exclusive right for project teams only, but for organization as a whole too. Proposed model is only a starting point for further research in the field of lessons learned and wider implementation of this concept.

REFERENCES

Andrejevic, A., & Grubor, A. (2007). *Event management*. Novi Sad: Faculty of Business in Service.

- APEX. (2003). Accepted Practice Exchange Industry Glossary. Convention Industry Council.
- Berlonghi, A. (1990). *The Special Event Risk Management Manual*. California: Dana Point.
- Bowden, A., Lane, M., & Martin, J. (2001). *Triple Bottom Line, Risk Management- Enhancing Profit, Environmental Performance, and Community benefit*. Canada: John Wiley & Sons.
- Filipovic, V., & Kostic-Stankovic, M. (2008). *Public relations*. Belgrade: FON.
- Getz, D. (2005). *Event management and Event tourism*. New York: Cognizant Communication Corporation.
- Getz, D., & Frisby, W. (1988). Evaluating Management Effectiveness in Community-Run Festivals. *Journal of Tourism Research*, 22-29.
- Heldman, K. (2005). *Project Manager's Spotlight on Risk Management*. California: SYBEX Inc.
- Jasko, O. (2009). *Organization of special events - script*. Belgrade: FON.
- Jones, J. (2004). APEX Initiative of the Convention Industry Council. Speech presented at the Las Vegas International Hospitality and Convention Summit. Las Vegas.
- O' Toole, W., & Mikolaitis, P. (2002). *Corporate event project management*. New York: John Wiley & Sons, Inc.
- Salem, G., Jones, E., & Morgan, N. (2004). *An overview of events management*. Oxford: Elsevier Butterworth-Heinemann.
- Silvers, J. (2004). *Updated EMBOK Structure as a Risk Management Framework for Events*. retrieved on November 05, 2012 from http://www.juliasilvers.com/embok/EMBOK_structure_update.htm
- Silvers, J. (2005). The potential of the EMBOK as a risk management framework for events. *Conference Proceedings, Las Vegas International Hospitality and Convention Summit* (str. 228-245). Las Vegas: University of Nevada.
- Silvers, J. R. (2008). *Risk management for Meetings and Events*. Oxford: Elsevier.
- Sonder, M. (2004). *Event entertainment and production*. New Jersey: John Wiley & Sons, Inc.
- Tassiopoulos, D. (2005). *Event Management, A Professional and Developmental Approach*. Cape Town: Juta Education (PTY) Ltd.
- Van der Wagen, L. (2007). *Event management: for tourism, cultural business & sporting events*. Pearson Education Australia.

NETWORK FORMS OF ORGANIZATION AS AN INSTRUMENT OF STRATEGY IMPLEMENTATION – CASE STUDY: CITY OF BELGRADE

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Abstract: Bibliography, related to the strategic management, contains plenty of studies considering the relation between strategy and organization structure. However, there is a small amount of bibliography related to the specific methods used for achievements of strategic goals with the organization structure's contribution. The process of strategic management is already presented as a part of each form of organization, starting with the various institutional bodies, ending with the non-profit organizations. In spite of that, the relation between strategy and structure of such organizations remains inadequately analyzed. The subject of this study is the presentation of the organization structure as an instrument for the implementation of the city development strategy. The City of Belgrade is the concrete example that indicates the obvious connection between the advantages that the network organization form of local public sector could provide, and the strategic goals of the Development Strategy of the City of Belgrade.

Keywords: Strategic Management, Corporate Strategy, Public Sector, Network forms of Organization, Holding Company

1. INTRODUCTION

Relation between strategy and organization structure has been in the very center of the research, since the beginning of strategic management development, at early 60s of the last century. Corporate strategy concept primarily appeared in the field of "decision-making" as a simple and operative method of long-range planning, so as to provide maximal dedication to the organization goals (Caves, 1992). It was a subject of many studies, which on one side make the strategy and on the other the organization structure of the organization, to stand correlated (Chandler, 1962; Anshoff, 1965). Although there are states of the strategy "following" the structure, which means that organization structure significantly affects the strategy of companies (Hall & Saias, 1980; Amburgey & Dacin, 1995). The most of authors conclude that after all the structure "follows" the strategy. To choose an organization structure is a process that should completely improve the already accepted strategy value (Caves, 1992).

Modern forms of the strategic management process actually place choosing and construction of the organization structure into a strategy implementation stage, led by the strategy constitution. However, organizations don't begin with "a blank piece of paper" when they change the strategy, but operate within the existing framework. This framework contains the environment and the past of the organization, while a significant part of the past is its organization structure. The state placing the strategy above the structure seems equal to the state that sets the strategy above established capabilities of the organization, which beyond any doubt appears wrong (Minzberg, 1990).

Therefore, the most of forms approve the existence of the feedback, other words - an organization structure has significant effects on a strategy (Johnson & Scholes, 1999; Pearce & Robinson, 2007).

The implementation stage in strategic management itself contains two primary aspects, a formal and an informal one. The

formal aspect of the strategy implementation is associated to planning and constructing of an organization structure, while the informal one refers to the organization culture (Jovanović et al., 2007). Researches indicate that the implementation stage becomes essential for the strategy success, even more than the strategy constitution. (Mintzberg, 1990). Due to these reasons it appears necessary to search for new methods of strategy implementation, or for the adaptation of the existing ones into new fields.

Available bibliography includes plentiful studies about the relation between strategy and structure of various types of companies. Nevertheless, there are small amounts of literature engaged in the connection between organization forms within the City limits and the strategy of the City development. Strategic management remains outside the area of for-profit business organizations, so nowadays it can be found in public institutions and other non-profit organizations. (Robbins & Coulter, 2005). Therefore, it's required to investigate the possibilities to apply the existing concepts in new domains. The subject of this study would be to present the facilities provided by network organizations and particular forms of organization overall, for the strategy of City development implementation.

2. CITY AS A CORPORATION?

The Michael Porter's state, insisting on the fact that corporate strategy, as the highest level strategy, should answer the two questions: Which activities should be performed by the corporation? How operating units of a corporation should be managed by the main office? (Porter, 1987). If we access to deep analysis of this state, we could get certain conclusions.

A City, as a local self-government unit, makes decisions about its primary activities and selects the activities that could be transferred to the private sector, doesn't it? City does that through its ownership of local public companies and public utility companies. The City of Vienna is the owner of more than 75 companies whose activities are not strictly utility (Komazec, Todorović, & Krivokapić, 2012). On the other hand, the City of Ljubljana is involved in only elementary

public utility activities, by its ownership of no more than four local public companies (Indihar-Stemberger&Jaklic, 2007).

Regardless the number of utility and local utility companies in the possession and their activities, every City is searching for an optimized method of managing those companies and for managing the relations with their private partners as well.

The main office of a corporation can add the value if it observes the whole corporation as a family or a portfolio of activities and companies, or if it allocates resources, in order to synchronize profit goals of a corporation, cash flow and its increase in an optimal manner (Dess, Lumpkin & Eisner, 2007). If we accept this fact, the possibility of the City observed as a potential corporation becomes obvious. Companies in ownership of the City create its portfolio of activities and companies, and it allocates its limited resources so as to accomplish set goals.

3. CASE STUDY: THE CITY OF BELGRADE

Belgrade as a corporation

The City of Belgrade is the owner of 28 public and public utility companies so far. They perform various activities – starting with strictly utility ones: water supply, sewerage system or waste material collecting, ending with non-utility ones: TV and radio broadcasting, horse races arranging, etc.

The analysis gave us proof that, from the moment of its conduction, the public sector of Belgrade has been staffed by over 21.000 employees. About 80% of them were in charge of core activities in some companies while about 20% took part in non-core activities (Todorović, Komazec & Jevtić, 2012). Non-core activities are mostly common for all companies. They usually include, inter alia, activities like maintenance of buildings, security, fire safety, internal transport, food, accountancy, administrative office, advertising, then financial, legal or general activities, human resources activities e.t. Besides, certain core activities appear in more than one company. They primarily refer to equipment maintenance, procurement,

storage, vehicle maintenance e.t. They are not the main purpose of the company, but they are unquestionably accepted as core activities, since without them the primary activity could not be performed (Jaško, Todorović& Komazec, 2013).

After defining the activities that exist in each public and public utility Company of Belgrade, the determination of their organization method becomes required. The functional form of the organization structure was identified in all of these 28 companies, which were the subject of the analysis. This is not a surprising fact, since this is the most frequent organization form of local public and public utility companies, in countries that are not classified as being the most developed ones (Szabo, 2008).

It can be concluded that we can perceive the City of Belgrade as a potential corporation constituted by 28 companies. Due to the functional branching of each company and the lack of shared activities, a lot of operations are performed in many „places“ in the system. This causes inadequate utilization of working capacity, initiated by inadequate allocation of human resources. Also the obstacles, created by the functional organization, don't allow the exchange of knowledge and experience. Consequently, they remarkably reduce the amounts of possibilities for organizational studying (Todorović, Čudanov, Komazec & Krivokapić, 2013).

Another consequence of this organization form is the extremely high level of cooperation and resource sharing between public and public utility companies, although all of the companies belong to one and only local self-government (Todorović, Komazec & Jevtić, 2012). Each company tends to be exclusively concentrated on its activities, so it disregards the fact of it being no more than a part of bigger organization system.

Furthermore in this study the analysis of the strategy of the City of Belgrade, as a corporate strategy, imposes itself as required. The initial question that should be answered by the corporate strategy, according to Porter, is related to activities of the corporation. In the case of the City of Belgrade, that decision could be implemented through the company

privatization, in spite of them being either independent either a part of a holding company. The best indicator of such strategic decisions at the city level is provided by the reform of the local public sector in Italy, during the 1990s. Large amounts of cities constituted the public holding companies. Afterward, parts of such holding companies were either sold, or public-private partnerships were formed (Garrone, Grilli& Rousseau, 2010).

As the next topic, the corporate strategy set the method of managing the mentioned companies in the city of Belgrade, so this study should provide the instruments for the existing strategy implementation of the city of Belgrade.

Development strategy of the City of Belgrade

Strategic plan appears crucial in the public sector parts, like local self-government, so it becomes an element of the standard repertoire in the management of the local self-government units (Bryson, 1988). The City of Belgrade set in 2011 the Development Strategy related to seven areas: Protection of the Nature and the Environment, Economic Development, Development of Transport and Transport Infrastructure, Development of Technical Infrastructure, Social Development, Development of the City Identity, and Institutional Development (according to City of Belgrade, Development strategy, 2013).

The section of the Strategy, related to the institutional development, as its basic strategic goal suggests: Modernization and further improvement of the city governance as a whole and its integral parts in order to mobilize its territorial capital and activate territorial potentials, achieve greater territorial cohesion, increase competitiveness and enable sustainable development supported by regional connections with the environment.

Strategic goal has been defined in terms of strategic planning, thus, as such, it has been a long-term one (Jovanović, Obradović, Petrović&Mihić, 2007). However, it is necessary to specify the tasks and activities that should be conducted during the next 2-3 years for the purpose of strategy

implementation, or else reaching the strategic achievements (Bryson, 1988).

As an initial task of the city of Belgrade, in order to accomplish the strategic goal, there is the Improvement of the organization structure of the City of Belgrade.

Legal system, which regulates the relations between the founder and the public services, or public companies that are constituted by the local self-government, does not specify them precisely. The largest amount of space for the improvement of the City organization structure is provided exactly in this domain (according to the City of Belgrade, Development strategy, 2013). As the two basic operational goals about the improvement of the organization structure of the City of Belgrade, the strategy lists:

- Arrangement of public companies and institutions with the City on new bases, through defining the indicators for measurement of quality, quantity, efficiency and economy of task performing by direct and indirect beneficiaries;
- Defining the clear, precise and measurable norms and standards of activity conducting by institutions and companies that were constituted by the City. As a result, the improvement goals of their organizational, financial and technical operations shall be synchronized.

Hereinafter, this study will present the contribution of the implementation of the network form of organization structure to the accomplishment of operational and therefore strategic goals of the City of Belgrade.

4. IMPLEMENTATION OF THE NETWORK ORGANIZATION IN THE PUBLIC SECTOR

Network forms of organization structure are based on the company specialization, i.e. on the principle that an organization should be involved only in the activity which can be completely performed and stands for the essence of its business (Handy, 1992). This primary activity is called the core activity. Exactly such aspect of activity being basic,

core and subordinate, non-core, initiated the implementation of the network forms of organization structure in many cities worldwide (Komazec Todorović, & Krivokapić, 2012).

A holding company seems to be one of the institutional network forms with the most frequent usage. A holding company is a term defined as a company that regulates other companies, branch offices, through the stockholding (Dulanović&Jaško, 2009). This regulation includes the holding company effects on business of companies which keep their formal independence. On the continuum of the jurisdiction and responsibility, the managing could start with the simple control of the business results, ending with the dynamic participation in company operations.

Access to financial market subsidiary companies achieve through the holding company (Žarkić-Joksimović, 2009). Financial arrangements of subsidiary companies that exceed a certain amount need to merit the approval of a holding company. Investments, made by subsidiary companies, are strictly controlled by a holding company. Contrariwise, in most cases a holding company gives a lot of space to the subsidiary companies for operational activities, i.e. to perform its primary industry or commercial activity. Holding company main office provide a considerable level of autonomy to operational organization units and rely on programs of financial control and incentive in order to get the highest efficiency from individual operations. (Pitts, 1977). Progressive contribution of the corporation main office was named „advantage of the daughter company existence“ (Campbell, Goold& Alexander, 1995).

A holding company structure is being used when portfolio activities of a corporation are not closely related, so there is a limited potential for reaching a synergy (Dess, Lumpkin & Eisner, 2007). Due to all of this, a holding company has been the adequate solution for organization structure of the City, since in majority of cases the companies in the possession of the City are in charge of many unrelated activities.

5. STRATEGY IMPLEMENTATION OF THE CITY OF BELGRADE THROUGH THE HOLDING COMPANY ESTABLISHMENT

In the further text, there is a review of potential holding company benefits, as a network form of organization and the analogy between the benefits and already set operational goals.

Goal I: Arrangement of public companies and institutions with the City on new bases, through defining the indicators for measurement of quality, quantity, efficiency and economy of task performing by direct and indirect beneficiaries.

There are plenty of potential network's advantages in both public and private sector. They include, inter alia, more efficient resource consumption, increased possibility of planning, complex problem solving, greater competitiveness, better customer and consumer service and learning improvement within an organization (Jaško, Jaško&Čudanov, 2010). As a concrete example of network organization development for the purpose of the achieving of the goals, similar to the City of Belgrade ones in the institutional development area, we could list the City of Milan. Within the framework of the public holding company in Milan, there is a complex set of instruments for the monitoring of the public holding company activities. Besides increasing the control level, the goal of this system is the holding company to fulfill the requirements of the city of Milan, regarding the quality and quantity of services (Todorović, Komazec & Čudanov, 2013).

There is a specialized department (Line Office), involved in the implementation of the arrangements between the city of Milan and the holding company. Financial-accounting department concerns the financial control and verification of the companies contained in the holding company (Longo & Cristofoli, 2008). Both of these departments represent the financial relationship between the City and the public holding company. The contract defining between the City and the public holding company is the initial step in the system implementation. This contract precisely lists requirements of the City that affect the

company regarding the quality and quantity of services. The subject of the agreement is also the price, which would be paid to the holding company by the city, after service providing. Apart from the contract defining, this department, staffed by the subject-matter experts, has the other task – monitoring of the contract execution and improvement of the provided service payment in cooperation with the Financial-accounting department.

One of the notable characteristics of the public holding company management in Milan helps it to stand out from the most of other public holding companies. It would be the presence of the organizational units for the quality service management. (Todorović, Komazec & Čudanov, 2013). The goal of the quality management concept in the public administration is to recognize the demands of the utility service customers and to define the methods of their fulfillment. The quality management department in Milan conducts some researches, so as to determine satisfaction level of public holding company customers. The final product of this kind of research should be clearly defined service standards, which the public holding company would have to fulfill. After service standard defining, in cooperation with the Line Office department, service standards are being entered into a contract with the public holding company. In the case that they remain unaccomplished, the Line Office will prevent the service payment.

Goal II: Defining of the clear, precise and measurable norms and standards of activity conducting by institutions and companies, which were constituted by the City. As a result, the improvement goals of their organizational, financial and technical operations shall be synchronized.

Observing only holding company, as an institutional form, provides the conventional wisdom that the primary advantage of a holding company remains in the fiscal area, i.e. in the reduction of tax liabilities. However, the actual advantage of a holding company is based on the control of the subsidiary companies, primarily on the economy management of the subsidiary companies (Vasiljević, 2009). We can conclude that the creating of the holding

company from the public companies in the city of Belgrade, at the beginning of its functioning would reach the greatest achievements in the area of harmonization and improvement of the financial management. The improved results could be provided through better position on financial market, more efficient management of liquidity at the holding company level through the optimization of investments (Szabo, 2008).

On the other hand, the holding company will offer significant improvements in terms of organization. In fact, one of the essential advantages of the organization structure of the holding company is the cost reducing, associated with the hiring less staff and lower overhead costs, due to less massive corporation center and hierarchy with a lower number of levels (Dess, Lumpkin & Eisner, 2007). As an example of the mentioned state, the establishment of the public holding company in Győr, Hungary, could be referred. Such approach in this case has led to a cost reduction of management. (Jaško, Todorović & Komazec, 2013). Each company as a member of a holding company, before entering the holding company had its board of directors, while there is one single board of directors within the holding company.

Contrariwise, the particular organizational units could perform the activities like public procurement, management of human resources, financial and legal ones, in the main office of a holding company. In the mentioned establishment of the holding company in Győr, cost reducing appeared also in the procurement area. At the same time, the organization structure doesn't contain a centralized organizational unit that takes part in the entire procurement process at the holding company level. Procurement of goods and services great value is performed at the level of the holding company. Thereby, all the benefits of economies of scale are being used and purchasing prices are being reduced due to large orders, while procurement of specific goods and services, which are usually the small value ones, is performed in companies that consider them required (Szabo, 2008).

While observing a third aspect - technology, mentioned in the goals of the City of

Belgrade, we could conclude that also in this area the establishment of a holding company provides significant potentials.

Considering the relation between the main office and the subsidiary companies, a holding company can give some instructions to the subsidiary companies, perform the shared services, advertising, engineering, public relations, research and development, legal protection. It also may be the owner of patents and licenses (Charvériat, Gouthière, Bardet & Beetschen, 1991).

Nevertheless, the establishment of a holding company provides extensive "internal" services to companies, i.e. services that companies - members of a holding company could provide to each other with the optional terms for all agreement participants. In fact, this type of service may be charged with market or transfer prices, which is the strategic decision of a holding company or a city. It concerns primarily the allocation of profits, since the funds in any case remain within the holding company. (Jaško, Todorović & Komazec, 2013).

6. CONCLUSION

Based on elaborated reference examples, it could be concluded that connecting of public companies and public utility companies inside of the one local self-government can lead to the series of improvements. We can point out some of them, based on their importance:

- decreasing the financial pressure on local self-government's budget
- releasing of budgetary funds for other purposes like infrastructure development, development of cultural institutions, public care improvement, etc.
- reduction of overhead cost
- reduction of administrative expenses
- implementation of professional management
- increased level of management of public companies and public utility companies
- more efficient and more quality decision making at local self-government level

- improvement of work control of public companies and public utility companies
- increased transparency of public companies and public utility companies
- reducing procurement costs with the help of economies of scale
- improving the funding conditions of public companies and public utility companies through the creation of additional sources of funding
- additional funding possibilities due to active capital management
- tax optimization
- economic development of local self-government

When mentioned series of advantages, which come with this organizational model, are overviewed, the existence of two sides of this solution's benefits cannot remain undetected. The first one is the improvement of the performances of public companies and public utility companies, and the second is the improvement of the quality of public-interest services and life standards, which becomes crucial for local population. Public interests cannot be compromised, because of control mechanisms which exist in each solution. All mentioned advantages lead to the increased level quality of public-interest services, which are provided by the public companies and public utility companies, the improvement the life quality on the territory of local self-government and the increased level of satisfaction of the customers. This variety of benefits proves that the network form of organization can be very applicable as an instrument of strategy implementation in cities.

In this paper, there is an obvious link between advantages of network organization, and task and activities that should be performed by the City of Belgrade for the purpose of achieving strategic goal in area of institutional development.

The implementation of network forms of organization apparently carries certain risks. They especially stand out in large networks with the large number of members in the form of difficult coordination of their work (Jaško, Čudanov, Jevtić&Krivokapić, 2013). As

public sector in Belgrade has been in charge of large amounts of activities, this could represent a matter that requires a lot of attention. Therefore, the transfer of some activities to the companies outside of the holding company should be taken into consideration, in order to reduce the possibility that this problem will occur or take on a larger scale. It will not only prevent the occurrence of high costs of work coordination of companies within the holding company, but also it will provide certain market development, even local community development.

REFERENCES

- Amburgey, T. L., and Dacin T. (1994). As the left foot follows the right? The dynamics of strategic and structural change. *Academy of Management Journal*, 37(6), pp. 1427-1452.
- Ansoff, I. (1965). *Corporate strategy: An analytic approach to business policy for growth and expansion*. New York: McGraw-Hill.
- Bryson, J. M. (1988). A strategic planning process for public and non-profit organizations. *Long range planning*, 21(1), pp. 73-81.
- Campbell, A., Goold, M., & Alexander, M. (1995). Corporate Strategy: The quest for parenting advantage. *Harvard Business Review*, 73(2), pp. 120-132.
- Caves, R. E. (1992). *Industrial organization, corporate strategy and structure*. Springer US.
- Charvériat, A., Gouthière, B., Bardet, H. & Beetschen, A. (1991). *Les holdings – Guide juridique et fiscal*. Bureau Francis Lefebvre, Paris, France.
- Dess, G. G., Lumpkin, G. T., & Eisner, A. B. (2007). *Strategic management*. McGraw Hill.
- Dulanović, Ž. & Jaško, O., (2009). *Osnovi organizacije poslovnih sistema*, Beograd: Fakultet organizacionih nauka.
- Garrone, P., Grilli, L. & Rousseau, X. (2010) *Management Discretion and Political Interference in Municipal Enterprises, Evidence from Italian Utilities*.

- City of Belgrade (2011). Development Strategy – City of Belgrade, Retrieved 26th November 2014 from <http://www.beograd.rs/download.php/documents/SRGBpredlog.pdf>
- Hall, D. J., & Maurice A. Saias (1980). Strategy follows structure!. *Strategic Management Journal*, 1.2, pp.149-163.
- Handy, C. (1992). Balancing Corporate Power: A New Federalist Paper. *Harvard Business Review*, 70(6), pp. 59-73.
- Indihar-Stemberger, M. & Jaklic, J. (2007). Towards E-government by business process change - A methodology for public sector. *International Journal of Information Management*, 27(4), pp. 221-232.
- Jaško, O., Jaško, A. & Čudanov, M. (2010). Impact of Management upon Organizational Network Effectiveness. *Management*, 16(56), pp. 5-13.
- Jaško, O., Todorović, I. & Komazec, S. (2013). *The Holding Company as a Possible Institutional Solution for the Public Sector Organization*. In Levi Jakšić, M., Barjaktarović Rakočević, S., Martić, M. (Ed.) *Innovative Management and Firm Performance: An Interdisciplinary Approach*, pp. 165-186. Hampshire, UK: Palgrave MacMillan.
- Johnson, G. & Scholes, K. (1999). *Exploring Corporate Strategy*. New Jersey: Prentice Hall.
- Jovanović, P., Petrović, D., Obradović, V., & Mihić, M. (2007). *Metode i tehnike projektnog menadžmenta*. Beograd: Fakultet organizacionih nauka.
- Komazec, S., Todorović, I. & Krivokapić, J. (2012) *Extending Holding as Institutional Model to Public Sector*. Proceedings of the 13th International Symposium Symorg: Innovative Management & Business Performance, Zlatibor, Serbia, June 5-9, 2012, pp. 1447-1454.
- Longo, F. & Cristofoli, D. (2008). *Strategic Change Management in the Public Sector: An Efmnd European Case Book*, New Jersey: John Wiley & Sons.
- Mintzberg, H. (1990). The design school: reconsidering the basic premises of strategic management. *Strategic management journal*, 11(3), pp. 171-195.
- Pearce, J. A., & Robinson, R. B. (2007). *Strategic management: Formulation, implementation, and control*. McGraw-Hill.
- Pitts, R. A. (1977). Strategies and structures for diversification, *Academy of Management Journal*, 27(2), p.p. 292-307.
- Porter, M. E. (1987). *From competitive advantage to corporate strategy*. Cambridge, MA: Harvard Business Review.
- Robbins, S. & Coulter, M. (2005). *Management*. New Jersey: Prentice Hall.
- Szabo, I. (2008). *Managing Local Public Utilities Companies by Municipal Holding Company: Case of Győr, Hungary*, MTDI, Faculty of Law and Economy, Győr, Hungary: Széchenyi István University,
- Todorović, I., Čudanov, M., Komazec, S. & Krivokapić, J. (2013). *Improvement of Organizational Knowledge Transfer through Integration of Functional Silos in Smart Network: Case Study of Public Enterprises*, Proceedings of the International Forum on Knowledge Asset Dynamics IFKAD 2013, Zagreb, Croatia, June 12-14, 2013.
- Todorović, I., Komazec, S. & Jevtić, M., (2012). *Benefits of Introducing Holding Institutional Model to Public Sector in the City of Belgrade*, Proceedings of the 13th International Symposium Symorg: Innovative Management & Business Performance, Zlatibor, Serbia, June 5-9, 2012, pp. 1455-1461.
- Vasiljević, M. (2009). *Kompanijsko pravo – Pravo privrednih društava*. Belgrade, Serbia: University of Belgrade, Faculty of Law.
- Žarkić-Joksimović, N. (2009). *Upravljanje finansijama – osnove i principi*, Fakultet organizacionih nauka, Beograd: Fakultet organizacionih nauka.

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I Semestar

- Menadžment
- Osnove ekonomije
- Informatika I
- Engleski jezik I

II Semestar

- Teorija upravljanja projektom
- Matematika
- Informatika II
- Engleski jezik II

II GODINA

III Semestar

- Strategijski menadžment
- Alat za upravljanje projektima
- Teorija organizacije
- Osnove finansija
- Upravljanje rizikom projekta - Izborni

IV Semestar

- Osnove marketinga
 - Softverski paket za upravljanje projektima
 - Upravljanje ljudskim resursima - Izborni
 - Upravljanje promenama u projektu - Izborni
(Studenti biraju dva izborna predmeta)
- Praksa

III GODINA

V Semestar

- Upravljanje investicionim projektima
- Projektni menadžer i timski rad
- Program menadžment - Izborni
- Upravljanje projektima u javnom sektoru - Izborni
- Preduzetništvo - Izborni
(Studenti biraju dva izborna predmeta)

VI Semestar

- Projektni portfolio menadžment
 - Upravljanje informatičkim projektima
 - Projektna organizacija - Izborni
 - Izrada biznis plana - Izborni
 - Upravljanje komunikacijama u projektu - Izborni
(Studenti biraju dva izborna predmeta)
- Završni rad

NASTAVNI PLAN MASTER AKADEMSKIH STUDIJA - PROJEKTI MENADŽMENT

I GODINA

I Semestar

- Savremeni menadžment
- Metodologije projektnog menadžmenta
- Pravci razvoja projektnog menadžmenta

II Semestar

- Upravljanje znanjem
- Projektno liderstvo
- Upravljanje kvalitetom projekta

II GODINA

III Semestar

- Upravljanje kapitalnim projektima - Izborni
- Upravljanje biznis i društvenim projektima - Izborni
- Upravljanje ugovaranjem u projektu - Izborni
- Finansijska tržišta i institucije - Izborni
- Krizni menadžment - Izborni
- Projektno finansiranje - Izborni
(Studenti biraju tri izborna predmeta)

IV Semestar

- Praksa
- Završni rad

NASTAVNI PLAN OSNOVNIH AKADEMSKIH STUDIJA - POSLOVNI I INOVACIONI MENADŽMENT

I GODINA

I Semestar

- Menadžment
- Osnove ekonomije
- Informatika I
- Engleski jezik I

II Semestar

- Teorija upravljanja projektom
- Matematika
- Informatika II
- Engleski jezik II

II GODINA

III Semestar

- Strategijski menadžment
- Proizvodni menadžment
- Teorija organizacije
- Poslovne finansije

IV Semestar

- Inovacioni menadžment
- Menadžment tehnologije
- Upravljanje ljudskim resursima - Izborni
- Marketing menadžment - Izborni
- Upravljanje promena - Izborni
(Studenti biraju dva izborna predmeta)
Praksa

III GODINA

V Semestar

- Ekološki menadžment
- Investiciono odlučivanje
- Biznis inovacije - Izborni
- Preduzetništvo - Izborni
- Upravljanje komunikacijama - Izborni
(Studenti biraju dva izborna predmeta)

VI Semestar

- Upravljanje inovacionim projektima
- Savremeni menadžer
- TQM - Izborni
- Izrada biznis plana - Izborni
- Menadžment MSP - Izborni
(Studenti biraju dva izborna predmeta)
Završni rad

NASTAVNI PLAN MASTER AKADEMSKIH STUDIJA - POSLOVNI I INOVACIONI MENADŽMENT

I GODINA

I Semestar

- Savremeni menadžment
- Liderstvo
- Inovacije i preduzetništvo

II Semestar

- Elektronsko poslovanje
- Upravljanje znanjem
- Operativni menadžment

II GODINA

III Semestar

- Upravljanje finansijskim rizikom - Izborni
- Finansijski menadžment - Izborni
- Menadžment u javnom sektoru - Izborni
- Finansijska tržišta i institucije - Izborni
- Upravljanje rizikom - Izborni
- Upravljanje tehnološkim inovacijama - Izborni
(Studenti biraju tri izborna predmeta)

IV Semestar

- Praksa
- Završni rad



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Serbian Project Management Association (YUPMA) was formed as YUDRUP in 1986. In 1997 it has become a full member of the International Project Management Association (IPMA). YUPMA and its members have so far taken part in a large number of national and international research and other projects in the field of management.

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