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Faculty of Business Economics with a seat in Košice**



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E-ROADMAPPING IN NEW ECONOMY: SELECTED ASPECTS

E-ROADMAPPING V NOVEJ EKONOMIKE: VYBRANÉ ASPEKTY

Kazimierz W. KRUPA

Abstract

E-Roadmapping – a new economy set in Change Management (CHM). CHM is an organized, systematic application of the knowledge, tools, and resources of change that provides organizations with a key process to achieve their business strategy. Managed Change approach to change management and is designed to bring the organizational and people sides of change together - for results and benefits. Addressing the human elements of change by way of this disciplined approach will increase the speed of implementation of your change project and thereby decrease the cost. Managed Change is an application of knowledge, tools, and resources of change to provide organizations with a process to achieve their strategy. Working through the Managed Change model, change agents identify the potential for resistance, why that resistance may occur, who could potentially be resistant, and the severity of that resistance. To mitigate the risk to the change caused by that resistance, the change agents can then build communication, learning and reward system plans that accurately reflect the needs of the targets of change.

Keywords: Change Management, e-Roadmapping, vibration economy, new economy

Abstrakt

E-Roadmapping – strategický nástroj v novej ekonomike a v manažmente zmien. Manažment zmien je organizovaná, systematická aplikácia znalostí, nástrojov a zdrojov zmeny, ktorá organizáciám spolu s kľúčovými procesmi zabezpečuje uskutočnenie ich obchodnej stratégie. Manažment zmien pristupuje k riadeniu zmien a je navrhnutý tak, aby spoločne zahŕňal organizačnú a ľudskú stránku zmeny – výsledky a prínosy. Adresovaním ľudskej stránky zmeny formou tohto odborného prístupu sa zvýši rýchlosť implementácie vášho projektu zmeny a tým sa znížia náklady. Použitím modelu manažmentu zmien určia agenti zmien potenciál pre rezistenciu, taktiež určia prečo sa rezistencia môže vyskytnúť, kto môže byť potenciálne rezistentný ako aj silu tejto rezistencie. Aby bolo možné zmenšiť riziko zmeny spôsobené rezistenciou, agenti zmien vytvoria systémy komunikácie, učenia sa a odmeňovania, ktoré presne odrážajú potreby cieľov zmeny.

Kľúčové slová: Manažment zmeny, e-Roadmapping, nová ekonomika

Introduction

This paper introduces e-Roadmapping – a new Change Management set for executives and entrepreneurs who need to strategize in the new economy. The rapidly changing commercial environment and new focus on innovation and speed of execution means that for many organizations the old models of assessing the competitive landscape and forecasting a long-term strategy are

dead. So how are company leaders to plot their future and maintain a sense of direction for their business? E-Roadmapping Change Management examines ways of dealing with this complexity and provides a tool-kit for formulating strategy with an entrepreneurial spirit.

1. Aspects change management and theoretical project management

E-Roadmapping Change Management in new economy is very important. Is an organized, systematic application of the knowledge, tools, and resources of change that provides organizations with a key process to achieve their business strategy age digital. Managed Change¹ approach to change management and is designed to bring the organizational and people sides of change together - for results and benefits. Addressing the human elements of change by way of this disciplined approach will increase the speed of implementation of your change project and thereby decrease the cost. Working through the Managed Change model, change agents identify the potential for resistance, why that resistance may occur, who could potentially be resistant, and the severity of that resistance. To mitigate the risk to the change caused by that resistance, the change agents can then build communication, learning and reward system plans that accurately reflect the needs of the targets of change. They can, with this data, determine:

- The risk to the change.
- The cost of mitigating that risk.
- The specific action steps required to reduce and/or eliminate the resistance.

Š. Majtán and R. Štefko speaks, in the **traditional approach**, we can distinguish five components of a project (four stages plus control) in the development of a project:

1. Project initiation.
2. Project planning.
3. Project production or execution.
4. Project completion.
5. Project monitoring or controlling (See: Majtán, 2008) (Figure 1).

¹ Managed Change is an application of knowledge, tools, and resources of **change** to provide organizations with a process to achieve their strategy.

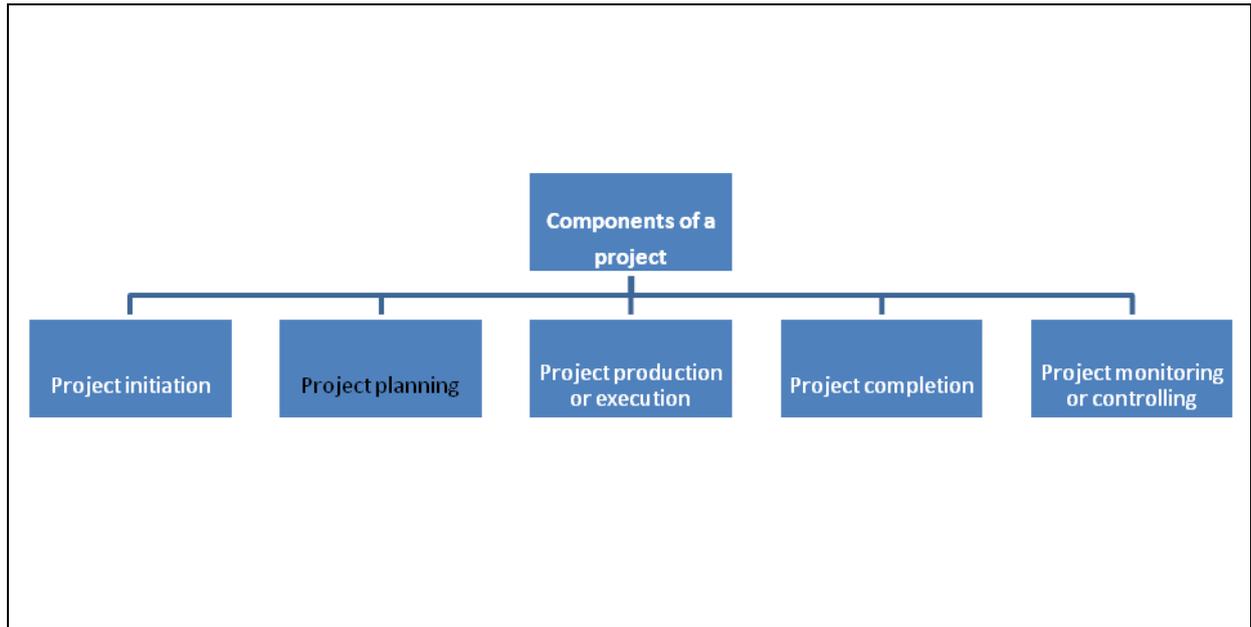


Figure 1

Components of a project

Source: Own elaborate

L. Sojka speak, not all projects will visit every stage as projects can be terminated before they reach completion (Sojka, 2007). Some projects probably don't have the planning and/or the monitoring. Some projects will go through steps 2, 3 and 4 multiple times. Many industries utilize variations on these stages. For example, in bricks and mortar architectural design, projects typically progress through stages like: 1. Pre-Planning, 2. Conceptual Design, 3. Schematic Design, 4. Design Development, Construction Drawings (or Contract Documents), 6. Construction Administration (tab. 1) (See: Schlichter, J.: *An Organizational Project Management. Maturity Model*, PMFORUM, p. 23-56). While the names may differ from industry to industry, the actual stages typically follow common steps to problem solving - defining the problem, weighing options, choosing a path, implementation and evaluation. Project management tries to gain control over five variables:

Table 1

Stage projects

Source: Own elaborate

Utilize variations on these stages projects	1. Pre-Planning
	2. Conceptual Design
	3. Schematic Design
	4. Design Development
	5. Construction Drawings
	6. Construction Administration

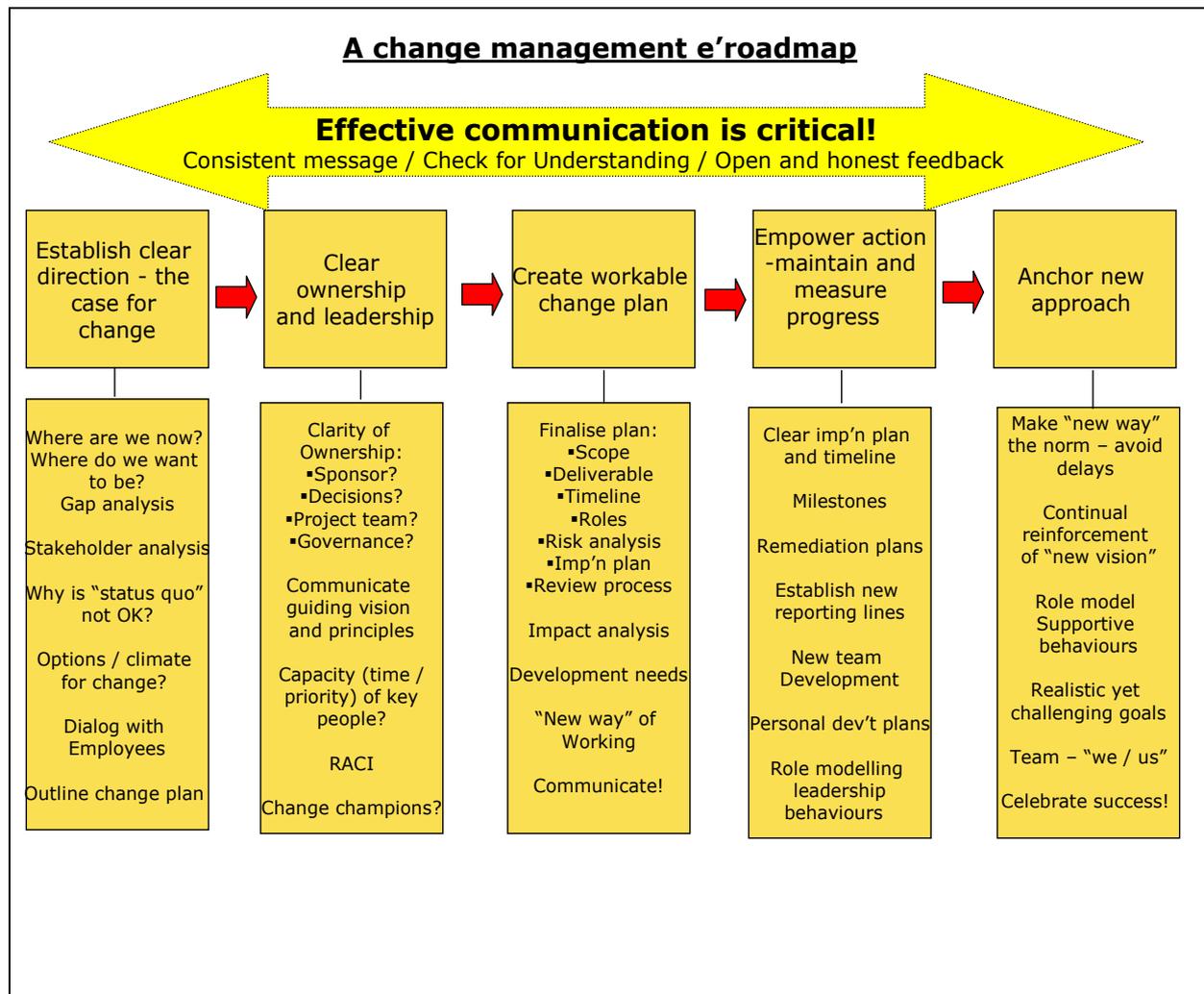


Figure 2

A change management e'roadmap

Source: [online]. [s.a.]. Available on:

<www.rgu.ac.uk/.../A%20quick%20look%20guide%20to%20leading%20change.PPT>

- **time** - The amount of time required to complete the project. Typically broken down for analytical purposes into the time required to complete the components of the project, which is then further broken down into the time required to complete each task contributing to the completion of each component.
- **cost** - Calculated from the time variable. Cost to develop an internal project is time multiplied by the cost of the team members involved. When hiring an independent consultant for a project, cost will typically be determined by the consultant or firm's hourly rate multiplied by an estimated time to complete.
- **quality** - The amount of time put into individual tasks determines the overall quality of the project. Some tasks may require a given amount of time to complete adequately, but given more time could be completed

exceptionally (Spenser, Laura, 1989). Over the course of a large project, quality can have a significant impact on time and cost (or vice versa).

- **scope** - Requirements specified for the end result. The overall definition of what the project is supposed to accomplish, and a specific description of what the end result should be or accomplish.
- **risk** - Potential points of failure. Most risks or potential failures can be overcome or resolved, given enough time (See: Sharplin, A. (2005) *Strategic Management*, Oxford, pp. 289-321).

Project Management is basically divided into five parts:

1. Requirements analysis.
2. Engineering and design.
3. Procurement.
4. Development or construction.
5. Maintenance or post development system (or software) support.

B. Bobk and J. Tej believe that a requirements analysis begins the process by defining the requirements and specifications, first in coarse terms, followed by increasingly refined terms, until a clear concept of operation and design can emerge (Tej 2008). It is critical to the remaining steps that this step be complete and not changed, because the cost to make changes to the requirements is exponential as one moves from step to step. The basic design, conceptualization and engineering comes under the category of engineering works. Procurement is the purchase of raw material like brought outs, materials, tools and tackles, etc required for the project. Construction includes implementation, installation or construction project including testing (Прийма, Вовк, 2006).

A steps process for effective e'roadmap change management:

1. Establish a clear direction - a sense of urgency.
2. Clear ownership and leadership.
3. Communicate the case for change early and often.
4. Create and maintain a workable change plan.
5. Empower broad-based action - maintain and measure progress.
6. Anchor new approaches (fig. 2).

Establish a clear direction - a sense of urgency:

- A clear case for change, approved at the appropriate level;
- A compelling and reasonable argument, laid out in the form of a directional paper or memo;
- The right climate for change – the ground work with stakeholders to create an initial sense of involvement and engagement with the challenge;
- An understanding of the timescale involved, even if its not fully defined;
- An understanding of the urgency for change, and the consequences of not changing.

Some barriers to effective change ([online]. [s.a.]. Available on:

<www.rgu.ac.uk/.../A%20quick%20look%20guide%20to%20leading%20change.PPT>):

1. The compelling case for change.
2. Failing to “paint the right picture” of the future state.
3. Poor employee involvement and discussion.
4. Failing to build up the case for change over time – too rushed.
5. Failing to share key data with employees – lack of transparency.
6. Not understanding what change is.
7. Failing to see change as a journey, not a single event.
8. Over-simplified view of “getting the change out the way”.
9. Employee involvement.
10. Failing to involve employees in feedback sessions.
11. Failing to involve employee teams in optimising solutions and developing. implementation plans that will work!
12. Ownership confusion.
13. Failing to establish clearly who is responsible for what, and who is making the decisions.

Ineffective implementation:

- Viewing implementation as the “easy part”!
- Failing to clarify who is coordinating implementation;
- An unclear transition plan of roles and responsibilities;
- Poor alignment of senior team around leadership behaviours;
- Poor communication – confusion about what is happening, and when.

Perpetuating “the way we do things here” too long. Failing to see the impact of the wider sector or economic environment. “Good times” may have masked some less than effective management practice.

2. Important problems vibration economy (aspects methodology and technology on organizational structures transformations)

Sam Adams coined the terms "big-M" , when referring to the large consulting-house usage, and "little-m" methodology when referring to the popular methodology books, written by Booch, Coad & Yourdon, Rumbaugh, Wirfs-Brock, Shlaer & Mellor, and others (personal communication). I have found value in these terms and shall use them in this paper. "Little-m" methodologies describe some deliverables with their standards, and perhaps a few techniques, for primarily one role on the project, the designer. In terms of the definitions given earlier, that usage can well be accounted by the word "method" or "technique", plus notational standards. "Little-m" methodologies are interesting to consider, since they receive so much attention in most discussions of methodologies. In the context of the results of this paper, "little-m" methodologies have a much smaller scope than "big-M" methodologies. For this reason, I shall primarily work with "big-M" methodologies in this paper (See: Alistair A.R. Cockburn *Methodology space*, Humans and Technology, Central Bank of Norway University of Oslo 1997, p. 1-21). Methodology is *how an organization repeatedly produces and delivers systems*. It is who they hire, what they hire them for, what people expect from co-workers, what conventions they follow, and even what sorts of projects they agree to do. When an organization places a job advertisement in the newspaper, the ad is an artifact of that organization's methodology. The ad names the job title, duties, and skills expected of the person to be hired. It is already understood that the hired person will use certain skills to carry out certain activities, producing certain deliverables, interfacing to certain other people. It follows quite naturally from the discussion of the term, "methodology", that the scope of a methodology is the range of roles, their activities and their deliverables it attempts to cover.

Center for Social and Economic and J. Meyer impression, in recent times, technology has become an ever increasing presence in the workplace and it is one of the hot topics among the business world (Herold, Kiernan, 1995). More and more businesses, large and small, are trying to incorporate the latest technology into their operations. This notion is evidenced by the fact that the popular business publications now have technology sections, and information systems departments are becoming critical components of most organizations. Even this week's issue of *Business Week* carries a cover story on cyberspace and its application to business. The appeal of the whole information technology arena is that it is designed to make people and organizations more knowledgeable, efficient, and/or profitable. The scope of technology that an organization structures can adopt or employ is vast, ranging from something seeming simple, such as buying a personal computer with a word processor, to investing in the latest state-of-the-art computer-aided manufacturing machinery. Regardless of the complexity of the system or the size of the organization, one

thing is certain - the incorporation of such technology or information systems will accompany change. Purposely, I have not said that they will cause change because the reverse is also true. Implementation of technological systems can either act as a catalyst for change or be the means of achieving a desired change. Regardless of the motivation, a properly integrated system ideally will take into account the impact on the organization before it is put into place. This paper will look at the relationship between technological advances/information technology and change in an organization. It will also give some examples of how information technology has been implemented in some specific cases in industries such as aerospace, computers, oil and gas, railroad, and manufacturing (look Shazam).

Verner M. Kiernan², speak the contribution of information technology and its impact on the organization structures is emphasized by David Nadler, who states "perhaps the largest single influence on organizational architecture and design has been the evolution of information technology". Technology certainly has its place among the key elements which shape an organization. The model used by Andersen consultants is typical when it lists technology as an equal attribute, along with strategy, people, and business processes. The interconnectivity of these elements should be obvious, for one cannot be changed in a transformational sense without at least consideration of the others. While the formal structure or arrangements within an organization will likely be affected by the arrival of new technology, this does not have to be the case in all situations. A transformation can also occur through the business changing the way it operates. More specifically, information technology can be linked to changes in factors such as job design, physical layout or location, supervisory relationships and autonomy, cooperation inside and outside the organization, and formation of work teams. One futuristic idea whose time has come is the notion of the virtual workplace . This concept is based on the idea of employees being able to work independently as a result of having access to information. One article proposes "the virtual workplace provides access to information you need to do your job anytime, anyplace, anywhere employees do not have to be tied to their offices to do their jobs". The idea of not even having a set office space certainly would be a change from the typical routine of showing up at the office from 9 to 5 (ideally) and performing your work at your desk. Such a plan would obviously be dependent on the job to be accomplished, but it is interesting to think of the supervisory implications. Such employees would have the ultimate amount of autonomy and would have to be managed accordingly. Tasks would have to be more objective or goal oriented and measures of job performance could no longer depend on face to face interaction, but rather would have to be tied strictly on the ability to complete assigned tasks.

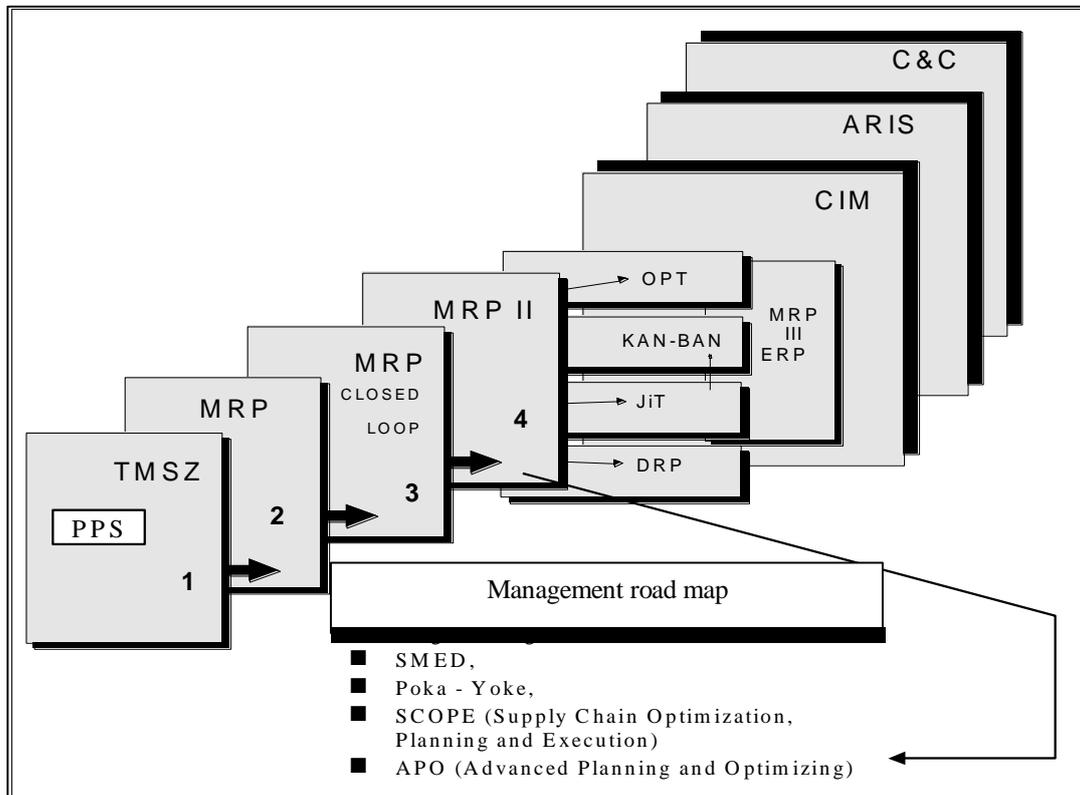
² And J. Zieleniewski, T. Pszczołowski, A.K. Koźmiński, H. Bieniok, K. Fabiańska, J. Rokita, J. Trzcieniecki.

J. Zieliński speak, it seems to be a common theme that information systems will change even more traditional supervisory relationships. Computer networks allow people to communicate quickly, share ideas, and transfer information without regard to physical locations, or to a reasonable extent, even without regard to the temporal dimension. Therefore, a supervisor will be able to monitor the activities of a larger number of subordinates without requiring them to report directly to him/her. Both David Nadler and Jeremy Main³ refer to this "span of control" as a measure of how many individuals or teams that a supervisor can effectively manage. Main makes the point that such spans will give way to "spans of communication" which he defines as the number of people that an executive can reach through a good information system. Nadler makes the prediction that such an executive could supervise hundreds of empowered individuals and groups. It is important to note that again interdependency of people and technology comes up in the form of empowerment. Obviously, such relationships would not be possible under traditional job limitations, but through empowerment of employees, such a stage can be appropriately set. This implies that the employees are properly trained on the technology and that they understand the direction taken by the organization and their role in it. Thus the informal organization is also affected because now the culture is changing by giving employees more authority and self-direction. The renowned management theorist Peter Drucker sums up the autonomy of this new empowered employee by saying " employees in the new information-based company will know what they have to do without a flock of vice-presidents feeding them information and orders" .

Z.J. Klonowski and W.J. Rothwell impression the use of information systems can also impact a firm's relationship with suppliers or customers. The ability to gain information from others up or down a process or distribution channel makes having control over that process or entity less of an issue. This is especially true of companies that may have considered a vertical integration strategy, but now realize that "vertical integration becomes less necessary when companies use information systems imaginatively" The ability to share information and the ease of transferring designs can also lead to an increase in outsourcing, which is a growing trend as companies try to reduce their own workforces and may find themselves shorthanded. As an example, Troy Pioneer Group has capitalized on this very concept by drawing designs and building prototypes and models for the top three U.S. auto manufacturers. The tasks that employees perform within an organization are being drastically affected by the increased mechanization and application of technology as a part of the production process. In many settings, tasks previously performed directly by human operators are being automated, changing the human's task to one of supervisory control. Now the expectations of an average employee in such an

³ And M. Bielski, J. Kisielnicki, H. Sroka, Z. Mikołajczyk, L.J. Krzyżanowski, T. Kasprzak, G. Kołodko, S. Wrycza, I. Durlik, B. Wawrzyniak, A. Zarębska.

environment has to change, because they are no longer performing repetitive tasks, but rather must be able to recognize and react to problem situations. Such progress has to start somewhere, and in reality this movement towards robotics has its roots in the theories of scientific management (Kotter J.P. (2001), *What Leaders Really Do*, Harvard Business Review, December, pp. 12-18).



Legend:

- MRP – Material Resource Planning
- MRP closed loop – Material Resource Planning
- MRP II – Manufacturing Resource Planning
- OPT – Optimized Production Technology
- KAN-BAN – JiT in TOYOTA
- JiT – Just in Time
- DRP – Distribution Resource Planning
- MRP III – Money Resource Planning
- ERP – Enterprise Resource Planning
- CIM – Computer Integrated Manufacturing
- ARIS – Architecture of Integrated Information Systems
- C & C – Computer & Communication

Figure 3

Capabilities of information technology

Source: KLONOWSKI, Z.J.: MRP II - propozycja dla biznesu. In: *Computerworld*, nr 23, 1996a : 64

Delphi Group calls although it seemed to have merit in its time, Taylorism and scientific management is viewed now as the basis of the monotonous jobs typically performed on assembly lines and other piece rate labor. In a sense, the application of these principles de-humanized the tasks by breaking them up into a series of simple motions. This approach in turn led to the individual tasks being candidates for early numerical control efforts, eventually evolving into automation by robots. Some researchers feel that "without factory environments providing an abundance of requirements for such simple motions, it is questionable whether the industrial robot could have been developed at all" and that "industrial robots can only find use in areas where, in a very real sense, the human work has already been robotized". The fact that today such work has been automated to a great extent leads to the issue of restructuring the work. A pattern which seems to be catching on is illustrated by A. Rosenbrock in his description of a workforce which shares in the purpose of production through the organization of production 'islands' or 'cells'. These cells would be self-managing and responsible for scheduling, quality, supplies for their area, and the maintenance of their machinery. He basically sees the automated facility as an opportunity to shift the emphasis towards work teams with a great deal of autonomy. In reality, these concepts have been implemented at the much celebrated Volvo production plant at V. Kalmar. Although I started out by stating that the formal structure does not have to change to qualify as a transformation, the above discussions point to the fact that the structure will nearly always be affected by the implementation of technological systems. In his *Fortune* article, Main speaks about winning companies, saying "they will adopt fluid structures that can be altered as business conditions change. More than being helped by computers, companies will live by them, shaping strategy and structure to fit new information technology. This emphasis on flexibility points out the fact that there is no one formula for determining how the formal organization will look after such a change. In his simile between organizations and architecture, Nadler points out that "in organizational terms, the role of the hierarchy as the principle means to coordinate, control, and facilitate communication is dramatically impacted by the capabilities of information technology (ESI, MIS, ERP, MRP II). The existence of these capabilities, however, does not determine the organizational architecture of the future; it merely makes a new architecture possible". Nonetheless, the efficiency gained from technology and associated information systems (fig. 3) will generally serve to reduce the number of people in an organization. (Except perhaps in the information systems department/area. But with tightening budgets, even these departments are feeling the need to downsize). Main also makes the prediction that corporate staffs could disappear, and that after implementing IT programs, it is common for an organization to move from a dozen layers of middle management between the front-line supervisor and the CEO to about six.

C. Rand says thus, a key advantage of information systems is to be able to simplify organizational structures. Although they served a purpose at one time, the benefits of improved coordination and increased supervision discussed earlier replace the need for tall, hierarchal organizations. In fact firms with well-developed management information systems lend themselves to a move towards flat structures. However, caution needs to be exercised. One author warns that delay ring is not right for every organization and should not be done indiscriminately. While implementation of information systems (See: Klonowski 1996a) and technology in general can be a boon to an organization and be part of a transformation that results in radical improvement, it is also essential to at least consider the drawbacks associated with this progress. By doing so, the organization can avoid some of the associated pitfalls. These disadvantages can be categorized as behavioral and non-behavioral. To begin with the second of these groups, there are potential problems with the networks that would be established to allow information to flow. First of all is that as the number of users increases, strains on the system and on the ability to monitor users' activities will begin to emerge. Furthermore, companies want systems that can cross organizational boundaries, which would be needed for the utmost level of outsourcing or collaborating design efforts. As many frustrated computer users would understand, there are potential constraints due to compatibility between systems. In addition, such a system would make it easier for a potentially hostile company to gain sensitive information that it could use to its advantage.

Mickey North Rizza, research director at AMR Research says the behavioral issues revolve around two major themes. One is that people and organizations tend to reject new technology because they are reluctant to change. For this reason it is important that the change come about as part of accompanying change in the organizational practices and culture. It is also essential to incorporate organizational learning in to the acceptance of information technology. It is through learning (with coaching from those familiar with the technology) that the organization's members will allow the change to take hold and reach new heights of productiveness. The second theme concerns employee involvement in the change and the resulting job satisfaction.

This aspect relates back to the discussion of empowerment needed to effectively implement automated processes. If it is not viewed as part of an overall transformation, the addition of technological process improvements or information systems which on the surface take away human responsibility is likely to lead to job dissatisfaction. In one sense such advancements remove the last bit of skill that employees put into their job. Evidence of such discontent is given by absenteeism within the auto industry and by acts such as sabotage at a state-of-the-art General Motors facility at Lordstown, Ohio. The bottom line is that as good as technology may be, it cannot act alone as a cure-all to improve organizational effectiveness.

At this point it will be illustrative to give some examples of how information technology has been implemented in some example companies and industries. The aerospace industry has been under tremendous pressure to change the way that they do business as a result of the shrinking availability of defense funds. GE's Aerospace Division underwent a restructuring that was described by Phil Magrogan, a systems architect for GE, in saying "we've completely revolutionized our corporate structure, our management strategies, and the way we use technology". The technology change came in the form of new Sun Micosystem SPARC workstations which were networked together and equipped with Computer-Aided Design/Computer-Aided Manufacturing software.

With this new system, engineers can track projects, share information and data, and even view images simultaneously. This advance came at the expense of 50% of the engineering staff, but with a savings of \$12 million (The system cost \$3 million to put in place, but was funded by the savings from former salaries). Under the new structure, several layers of reporting relationships were eliminated. The final product left only five levels between the president and the engineers. Furthermore, teams are used extensively. When a problem arises, a team of technical professionals will form to solve it, then disband. In this example, the restructuring of the information systems was done as part of an overall plan and resulted in radically different processes and relationships. Magrogan also says "it is likely that the next IS organizational chart will not show standard boxes and lines. Instead, it will indicate interlocking circles representing people whose job functions mesh to perform certain tasks". As a footnote, these changes still didn't prevent GE from divesting of its aerospace division by allowing it to merge with Martin Marietta a year later.

Information technology was also a core element of the turnaround of Union Pacific Railroad. The overall goal was to eliminate layers of unnecessary middle management, increase their efficiency, and improve customer service radically. Accomplishing this goal would not have been possible without the technology implemented in their revised, centralized operations. All customer service functions were consolidated into one National Customer Service Center in St Louis, where customers could be given up to the minute information on their shipments and UP's schedules. This in turn, is made possible by the world's largest computer controlled dispatching facility located in Omaha, Nebraska. In this facility, a 100 yard long screen displays all of the railroad's trains and 10,000 miles of track and constantly monitors the movements of each by means of electronic sensors on the train cars. Their success at implementing this technology along with the other accompanying changes, both formal and informal, enabled UP to make a dramatic turnaround. Independent petroleum companies face extremely hard times, given the domination of the industry throughout the world by state-owned companies and large corporations such as Exxon. In 1990, there were less than 15 independent oil companies, all

struggling to survive. This is the type of crisis that prompts companies to rethink their strategies, and in the case of these independents, they saw that to remain competitive, they "must develop and apply a strategy based on technology and multidisciplinary team dynamics". With the aid of Gemini consultants, these independents have identified critical issues that they must focus on. These areas are improving internal communications, integrating information systems, simplifying processes, rewarding contributors, and streamlining organizational structure. Although information systems is specifically listed as one, they understand that this aspect is also linked inseparably from the others. Of the most significance is the fact that the traditional organizational structure of having an exploration division and production division, each with their own hierarchy was completely replaced by cross-functional teams. The implementation of these teams was assisted by new information systems and computing resources which allowed communication between teams and allowed all of the independents to share a common database. As in the previous example, the system was designed to give them all of the tools needed to autonomously perform any needed geoscience functions.

Z. Klonowski speak, many information systems departments themselves are also discovering that they can stimulate improvement in overall company performance by integrating information systems to internal structural change. To do so involves establishing self-directed work teams with more responsibility and freedom. For example, West Coast Energy, Inc. is a natural gas transportation company in Vancouver, British Columbia. They found that the original support provided by their systems and information systems staff did was not aligned with the way that the company did business. After failing at one attempt to fix the problem, they realized that the key was in the linkage between the processes and the information technology. The division manager of information systems and technology summed it up as "originally, we tried to disperse the staff out to the business units, but we were getting little receptiveness. Later, we implemented a reorganization to align IS with business processes. We used to be functionally aligned. Now we are business process aligned" (Goff, Leslie, (1994), *Smart Staffing*, Computerworld, vol 28, October 31, pp. 99-100). Another example of this same issue in a different industry is Metronic Corporation in Minneapolis, which makes medical implant devices. Their 90 member information systems department is organized into sixteen functional teams that are aligned with the corporations six lines of business. But there still is flexibility. As the project load changes, team members may cross over to other teams to provide assistance. From this discussion and the examples given, it is apparent that technology is a critical element of organizational structures transformations. While it is generally viewed as progressive and a means to increase the efficiency and overall performance of a company, this can only happen if it is done as part of a larger change effort, regardless of whether the change is driving the technology, or technology is driving the change.

Companies that are able to successfully undergo such changes will be better prepared for the future, since there is no doubt that the emphasis on increased use of information technology and advanced automated systems will continue. As one source put it, "the trend toward a highly mobile, flexible, dynamic, informed and networked workforce is growing exponentially". With this fact in mind, Nadler's quote regarding the evolution of technology is as relevant today as when it was written (See Jenner, L.: *Are You Ready For The Virtual Workplace?* HR Focus, Vol. 71, July, p. 15-16, 1994).

Conclusion

A growing number of companies are opting to perform increasing types of professional services in foreign countries, creating, for some companies, unprecedented opportunities to reduce costs and nucleate strategic relationships, while, for others, representing a major threat to current prosperity. Outsourcing and Offshoring of Professional Services: Business Optimization in a Global Economy discusses the considerations and implications surrounding the outsourcing and offshoring of professional services, such as software development computer-aided design, and healthcare, from multiple global perspectives.

We might think that change is a new phenomenon, but it isn't – it has been there for a long time! We just didn't recognise it as such. There are very few organisations where change is not a normal way of life – whether we like it or not. Consequently it's how we deal with (not whether we deal with) change that makes all the difference to success. Building an effective "case for change" doesn't happen overnight – it takes time and employee engagement. Although leaders have a responsibility to set the "frame" for change, employee involvement is critical:

- Feeding back ideas and views;
- Improving and building on plans;
- Effective implementation.

Ultimately employee buy-in makes the difference between success and failure, but that only comes through:

1. A viable and realistic case for change.
2. Employee engagement to develop viable change plans.
3. Consistent and regular communication.
4. Role modelling of expected culture and behaviours by leaders.

Change has much more to do with the so-called "soft" issues and much less to do with hard, structural issues. Change will simply not happen without effective leadership.

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INTERCONNECTION OF CLUSTERS AND BALANCED SCORECARD

PREPOJENIE KLASTROV S BALANCED SCORECARD

Bohuslava MIHALČOVÁ – Ludmila KARABAŠOVÁ

Abstract

The article deals with potential idea of linking clusters with conception Balanced Scorecard (BSC). Mentioned points of view clarify different reasons why strategic concept as for instance BSC is an important element of long-term cluster functioning. Many interesting facts from review of agency Europe INNOVA are stated to emphasize the relevance of general idea. Authors advance own vision about process of BSC establishment in cluster's strategic management. Moreover, authors present their own proposals for strategic perspectives, metrics and their values typical for clusters.

Keywords: Cluster, Balanced Scorecard, Strategy, Performance, Indicators, Supporting Programs

Abstrakt

Článok sa zaoberá myšlienkou prepojenia klastrov s metodikou Balanced Scorecard. Spomenuté sú rôzne hľadiská objasňujúce dôvody, prečo je strategická koncepcia akou je napríklad BSC dôležitou súčasťou dlhodobého fungovania klastra. Uvádzame množstvo zaujímavých faktov zo správy agentúry Europe INNOVA, aby sme zdôraznili dôležitosť celej myšlienky. Autorky približujú vlastnú predstavu o procese zakomponovania BSC do strategického manažmentu klastra. Navyše, predkladáme vlastné návrhy strategických perspektív, ukazovateľov a ich hodnôt charakteristických pre klastre.

Kľúčové slová: Klaster, Balanced Scorecard, stratégia, výkonnosť, ukazovatele, podporné programy

Introduction

Idea of interconnection of two well known conceptions Balanced Scorecard and clusters is remarkable because of several reasons. It would solve primary problems of clusters existence – insufficient integrity, uncertain future tendency and slow moving ahead – by set conceptual rules for application and control of chosen strategy, typical for BSC. Implementation of tool BSC in clusters ensures monitoring of performance indicators selected and confirmed by representatives of all subjects in cluster while responsibility for fulfillment of indicators target values is clearly defined. Reached values of set indicators show strengths and weaknesses of association therefore members participate on election of perspective cluster's direction. Consequential advantage is detailed knowledge of selected strategy by particular members what assures single thinking and so more valuable synergy effect of fellowship functioning. After

all, other benefit of cluster's management by BSC is fact that if economic, politic or market conditions has changed, we can flexibly correct the strategy and promptly install new strategic projects in order to decrease negative results, to eliminate them or eventually transform apparently disadvantageous circumstances into our advantage.

1. Principles of cluster functioning

Regional clusters as geographic concentration of economic activities in frame of specific segment are considered as interesting conceptual tool for understanding of region economic power and competitiveness. They can help companies to increase their productivity, competitiveness and also provide space for innovation and growth.

Cluster is therefore perceived as expression of innovation approach to entrepreneurial progress. M. E. Porter (1998) already before decennary defined cluster as geographic concentration of interconnected firms and institutions in certain area. Clusters include partnerships of linked industrial sectors and other subjects important from competition aspect, for instance suppliers of specific incomes, also distribution channels, customers, manufacturers of supplementary products and businesses providing knowledge and technologies. Many clusters involve state and other bodies like universities, offices for standards, agencies providing trainings, business associations providing learning, educational, informational, technical and research support.

Productive and dynamic cluster must be based on stable ground so must have healthy core. White book (2004) presents seven constructional elements of cluster: geographic concentration, specialization, participants, competitiveness and cooperation, critical quantity, cluster life cycle and innovation. Therefore superior core includes highly specialized companies from identical segment functioning in geographic neighbourhood which cooperate with similar suppliers and customers. Such links between firms are usually informal but might become also formal. This is suitable environment for creation of new companies, strong competitiveness based on interconnection of organizations.

Corporations start up naturally and if one company is growing than demand increases also for other related segments and that means contribution for whole cluster. Companies cooperate as well as compete what force them to innovate and improve technologies all the time. They educate their employees so transfer of knowledge in case of mobility among firms is guaranteed. Clusters and clusters initiatives are not without problems indeed. Loss risks and difficult points so called traps are following (Jáč, Rydvalová, Žižka, 2005):

- specialization vulnerability,
- effects from “openness to world”,
- rise of inflexibility,

- decrease of competitive press,
- own recession, and
- syndrome of self-sufficiency.

Possible way how well developed cluster may avoid mentioned troubles is to exploit innovation opportunities. After all, well known Porter's diamond represents five competitive forces on the market – negotiation power of suppliers and customers, substitute products, potential competitors and rivalry among existing firms in the segment. Regional cluster might transform such competitors into partners and could reach higher effect of entrepreneurial activities and create great environment for emergent innovations.

Agency Europe INNOVA (2008) created by European Commission prepared report including relevant information about level of potential clusters progress in new ten members of EU from 2004 (EU-10). There are 367 regional clusters in evidence and those employ approximately 6 million people. Last researches in area of regional economics proved that clusters portfolio power is important factor for understanding effects of their functioning on economic force of region. That section is monitored from two directions. First of all, regions are watched according to number of stars – one star for each – size, specialization and cluster dominance along with defined conditions. Second point is to analyze whether stars come from minor or major quantity of clusters in specific region. Following figure 1 shows regions power according to number of clusters in particular category (1, 2 or 3 stars). For instance region Bratislava obtained 3 stars for only one cluster, 2 stars for two clusters and 1 star for five clusters what means that region has more clusters of minor power.

Report of Europe INNOVA Agency (2008) presents first systematic analysis of regional clusters within EU-10 countries. Report findings indicate specialization of EU-10 rather on manufacturing than on development scope. Differences among regions as well as between cluster's sectors are too apparent what might be caused by great historical changes. EU-10 clusters are too little geographically specialized and also low-concentrated within cluster's sectors.

Agency's report further mentions that regional clusters are perceived as instrument for Europe to overcome fact that productivity and innovation level is lower than in USA, eventually in Asia. Fragmentation of regional economic clusters in Europe is considered the biggest weakness.

Cluster as corporation consisting of quantum subjects from different areas naturally needs to formulate, realize and control single strategy agreed by all members from association. For that purpose conception BSC exists and following chapter brings near to its basics.

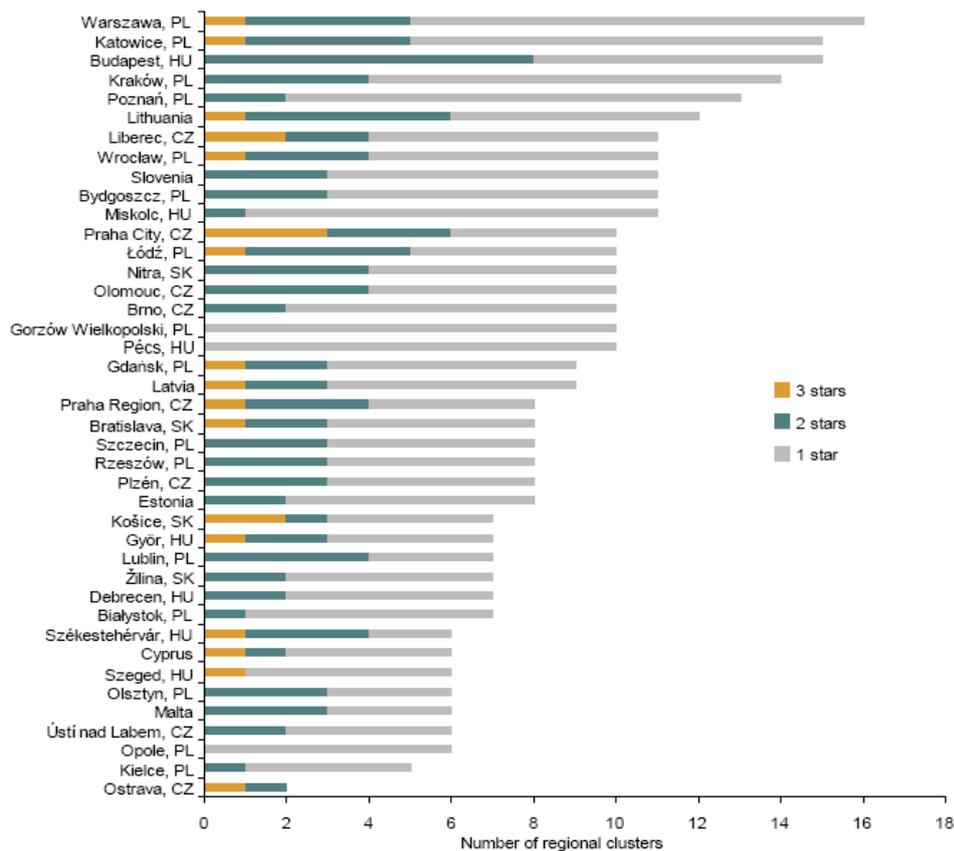


Figure 1

Cluster portfolio strength across EU-10 regions, 2004

Source: [online]. [s.a.]. [Cit. 2008-02-02] Available on: <<http://cordis.europa.eu/cip/index.html?article=1771&lang=EN>>

2. Fundamentals of Balanced Scorecard

Joining topic of clusters it's accurate to characterize BSC as complex strategic framework which guarantees strategy clarification, its communication into particular parts of organization or cluster and mainly provides tools (strategic objectives, indicators, programs) for monitoring, measuring and therefore influencing own performance.

Implementation of comprehensive management tool to daily business praxis is great asset for top management. Preparation of pilot project as well as real application of BSC may guarantee following advantages according to Fink and Grundler (1998):

- better settlement of strategy and its transfer to operative activities within whole organization/cluster,
- more transparent business operations through usage of cause and effect linkages,
- early uncovered and solved conflicts between objectives and problems emerging from different interests of various departments,
- effective coordination of decentralized business units management,

- simplified and strategy-oriented budgeting.

Methodology BSC divides organization or cluster to several perspectives in order to see important points, flows and processes transparently. Standard BSC perspectives are financial, customer, internal processes and employee perspective. Each organization has opportunity to choose some other perspective if it's relevant for its existence. Consequently company selects so called "key performance indicators" for each perspective which positively influence overall subject performance.

Organization Bain & Company (2009) conducts surveys about managerial tools usage from year 1993. Company processed questionnaires from 1430 executives of different industries within worldwide economy in January 2009 reflecting their situation in 2008. Findings indicate intensive trend to cut the costs by means of method Benchmarking which was on first position on the ladder of the most used managerial tools. Next tools are Strategic Planning, Mission and Vision Statements, Customer Relationship Management, Outsourcing and Balanced Scorecard. 10 the most used tools complete Customer Segmentation, Reengineering, Core Competences and Mergers and Acquisitions. Report generally signifies decrease of managerial tools usage from 15,3 in 2006 to 10,6 in 2008. BSC apply 53% of surveyed organizations and satisfaction index is 3,83 what is not the worst value (3,59 - Downsizing) but also not the best position (4,01 – Strategic Planning). Ultimately usage of Balanced Scorecard experienced recession, however, satisfaction index registered growing tendency.

Authors Horváth & Partners (2002) who applied BSC into more than 100 organizations highlight important aspect while thinking about BSC as strategic management system: "Who aims to implement BSC, must accept assumption that it will change company's current management system".

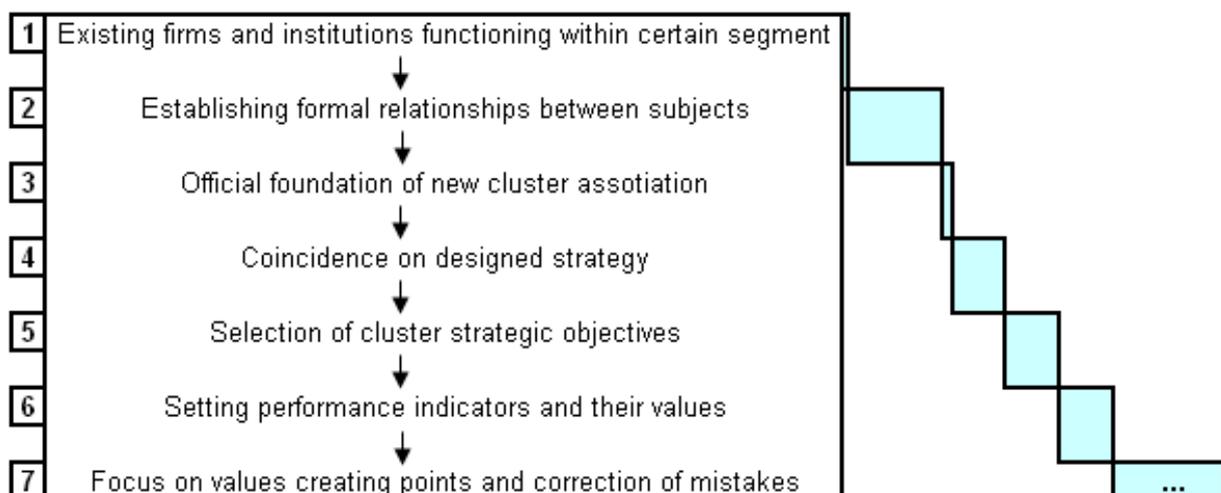
3. Discussion about clusters system functioning based on BSC

Mentioned report of Europe INNOVA Agency (2008) proved existence of clusters in EU-10, however, Slovakia is one of examples confirming that subjects in clusters do not cooperate on sufficient level. Several clusters even do not have own name therefore idea of homogeneous strategy supported by particular fellowship members is naturally far away from reality. When no strategy is prescribed, no long-term objectives are specified, no performance is measured than how is it possible to reach progressive growth?

Question of finance as essential mean for effective cluster functioning cannot be perceived like obstacle seeing that different European support programs exist. Innovation and knowledge transfer – attention points of those programs – are important characteristics of operating cluster.

European seven years lasting budgeting perspective meets priorities of long sustainable progress and economic growth which are based on innovations as engine of European prosperity. Financial instruments of European politics were established for years 2007 – 2013 to create stable and innovative environment. Joining these ideas Seventh Research Framework Programme and Programme for Competitiveness and Innovation were built up ([online]. [s.a.]. [Cit. 2008-02-07] Available on: <<http://cordis.europa.eu/aoi/article.cfm?article=1773&lang=EN>>). Central interest of next programme called EUROPEER SME is to optimize exchange of valuable knowledge by definition of transfer conditions and formation of development schemes as well as effort to strengthen coordination of research and development politics directly in relation to small and medium-sized enterprises ([online]. [s.a.]. [Cit. 2008-02-02] Available on: <<http://www.eu.region-stuttgart.de/en/detail/259526>>). Moreover, Slovak Agency for Support of Research and Development announces public tender for submission of progressive projects within programme “Support of Universities and Slovak Academy of Sciences Cooperation with entrepreneurial environment” every year ([online]. [s.a.]. [Cit. 2008-02-02] Available on: <<http://www.apvv.sk/vyzvy/suspp2007/main.php>>). Such initiative might be considered as important in fact because collaboration among research and business sphere is insufficient at least in Slovakia.

Following scheme 1 shows sequence of phases which existing clusters should take a part in order to obtain unique strategic conception and single long-term direction. Particular phases are evaluated by field representing relative time passage required for passing concrete stage. We may dispute whether first two phases concern cluster existence. Nevertheless, even cluster does not exist formally with own official name, subjects concerned (manufacturers, suppliers, distribution channels, banks, universities, etc.) are already partners from market point of view as they already cooperate within specific industry.



Scheme 1
Phases of existing cluster with growth perspective
 Source: Own scheme

In general, important business **fields** are human resources, processes, customers and financial aspect. Clusters are allowed to supplement their own Balanced Scorecard by innovation perspective or spread perspective (respecting new members) for example. Cluster participants can set common **strategic objectives** within selected perspectives which mostly contribute to positive cluster development.

After all, we attempt to define possible **strategic indicators** typical for cluster performance measurement. Report of Europe INNOVA Agency (2008) introduces except mentioned indicator “cluster portfolio strength” also other potential performance metrics dedicated to clusters like “convenience of entrepreneurial environment”, “export extent” or “support of region high prosperity level”. Here are some proposals of potential strategic metrics for cluster fellowship:

- value of transferred knowledge from subject where it was created (e.g. universities) to subjects which exploit those information (e.g. businesses) – as revenues from new knowledge or decreased costs,
- number of improving innovation patents within cluster,
- intensity of relations between particular members of association,
- others.

That report also helps to determine **target values of strategic indicators**. Result of metric “convenience of entrepreneurial environment” divides countries of EU-10 into three groups. Czech Republic, Hungary and Slovenia dispose of well developed cluster programmes. Lithuania and Poland dedicate relative attention to cluster initiatives within the scope of raising general competitiveness. Finally Estonia, Latvia, Slovakia, Cyprus and Malta focus mainly on development of cross-sectional economics and merely deal with topic of clusters. Therefore target value might be defined as position on official ladder of EU-10 countries. Regarding to another index “export extent” - 2/3 of EU-10 export value comes from clusters activities. 16 clusters existing in Slovakia produce 71% of total export. Eventual target value is higher share of cluster subjects on overall country export. Last indicator “support of region high prosperity level” can be measured by macro indicator GDP per inhabitant or by total employment within certain region. Outcome of those metrics can show that even region has high quality environment for clusters establishing (e.g. Czech Republic) such a potential is not exploited and cluster does not grow.

Key task for cluster associations is not to create Balanced Scorecard or some other complex tool of strategic management. More important is to use, update and optimize designed strategy and means for its support in order to prosper from all coming market opportunities.

Conclusion

According to mentioned report from 2008 is Slovakia on 1st position among all EU-10 clusters in relation to total employment in communication devices sector (Nitra) and shoemaking trade (Nitra), on 3rd position within production technologies segment (Nitra), on 4th position in apparel industry (Košice), petrochemistry (Bratislava) and textile industry (Nitra). Other prominent positions were captured by Poland. These findings prove growth potential of Slovakia and maybe conceptual management of clusters activities through Balanced Scorecard application - as suggested in this article – is right instrument to retrieve functioning of existing clusters and their long-term prosperity.

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CORPORATE SOCIAL RESPONSIBILITY

SPOLOČENSKÁ ZODPOVEDNOSŤ FIRIEM

Michal PRUŽINSKÝ – Mária GIRGOŠKOVÁ

Abstract

This article is devoted to the importance of corporate social responsibility (CSR) in current business environment. It explains basic definitions and aspects of corporate social responsibility. It contains main pillars of CSR – economic, social, and environmental. It brings major information about perception of CSR in Slovak republic.

Keywords: Corporate social responsibility, social responsible business, sustainable development

Abstrakt

Článok je zameraný na dôležitosť spoločenskej zodpovednosti firiem (Corporate Social Responsibility - CSR) v súčasnom podnikateľskom prostredí. Poukazuje na základné definície a aspekty spoločenskej zodpovednosti firiem. Obsahuje v sebe hlavné piliere spoločenskej zodpovednosti – ekonomický, sociálny, environmentálny. Zároveň prináša informácie o vnímaní CSR v Slovenskej republike.

Kľúčové slová: Spoločenská zodpovednosť firiem, spoločensky zodpovedné podnikanie, udržateľný rozvoj

Introduction

Corporate social responsibility and sustainable development is one of the most frequented words in last few years, because social responsibility is the base of sustainability of each company and whole society as well. Companies are influenced not only by economic and politic factors, but they are still more influenced by public opinion and social system, too. The companies start more to devote to goodwill and human aspects of their company.

Corporate Social Responsibility – CSR is a concept of business where organization voluntarily decides to implement in its activities such decisions, which resulting in a contribution to improving the environment, as well as improving the overall business environment, all while respecting the interests of shareholders. We understand it as a broader commitment to create and to follow ethical standards, to impact positive on the environment, to improve the quality of life of workers and to promote the development of the communities in which organisation operate. It is a moral obligation of successful people to contribute the development of society. There are many definitions by which we could express the concept of social responsibility. However, all are based on common idea, which is to make business in the way which should benefit the widest

range of people. The first leaders of this idea have been mainly philanthropic personalities. Their desire was to nurture territories, on which they operated. The current dimension of corporate social responsibility beyond corporate philanthropy. Although corporate philanthropy is a part of corporate social responsibility, it can't reduce just on it.

Social responsibility is built on three pillars - economic, social and environmental. These pillars may interrelate or complement each other. The economic pillar contains particularly transparent business, application of the principles of fair - play in the business, product safety and fair competition. The social pillar covers mainly care for employees and corporate philanthropy. The environmental pillar is mainly about improving the environment.

The management of the companies (Pružinský, 2008) stresses a competitive position on the market. The companies bring to the market latest products with sophisticated technology and outstanding design. The value of the product includes the values of the production factors. The basic rules for achievement of competitive advantage dictate to decrease production costs in order to reach both the cost leadership and implementation of the latest technologies. This allows decreasing of the production price on the market. Production means go regularly into the value of the product and it is very tricky to buy them with discount, which is the only way how to reduce the bill price. Work is very special production factor, which is linked to human knowledge and capabilities to put into the product an added value. This is more variable portion of the product value.

Corporate Social Responsibility brings many benefits to companies that reduce costs and increase organization profit, build brand and image of trusted partner, improve relations in the organization, increase productivity, improve collaboration with suppliers and improve the overall business environment.

This topic is very important in the present. It is more and more talked about it and more companies in Slovakia are discovering that CSR activities was always in the business but they was not called them like this and they did not investigate their extraordinary benefits delivered to companies. The idea of corporate social responsibility started to use more often between managers seven years ago. The first CSR strategies and personnel who was responsible only for CSR came to Slovakia with the first subsidiary branch offices of large companies from abroad that they had taken it from their parent companies. It is now very modern to create formal CSR strategy in the business, to set up a CSR departments and to have employees responsible only for CSR and its coordination. Some companies, however, forget that this procedure should be a natural part of its corporate culture and business style. Violent implementation of CSR activities to the company only spends effect.

Despite the many activities in company social responsibility area, which in their entity belong to social responsibility, there is still deficit of information. Companies do not know methods and procedures for measurement and valuation

of these activities and subsequently use them for public presentation. Very often the problem is that some firms consciously refuse implementation of new CSR principles.

Many organisations try to improve CSR situation in Slovakia. One of the leaders is Pontis Foundation, which initiated establishment of informal association Business Leaders Forum in 2004. Their aim is to create a space for communication and information about CSR in Slovak republic. Business Leaders Forum makes a few researches in Corporate social responsibility area. The aim of research was to find out customer attitude and awareness about CSR. It is important to create a responsible customer attitude about CSR and subsequently support CSR activities in business sphere. (Girgošková, 2009)

1. Corporate social responsibility

A term „corporate social responsibility“ is not easy to define. There are many ways how to interpret or define it.

Corporate social responsibility (CSR) on the one side we can define like moral commitment of successful people to take part in development of community. On the other side we can see it like a strategy, in which different companies voluntarily realise social, economic, environmental or other programs beyond common activities. It means, that companies do not do this because of some duty or command, but because they want to do some beneficial activities (Mitošinka, Hyžová, 2007).

The aim of corporate responsibility is to reach commercial success in way, which respect ethic values and human resources, communities and environment. Corporate social responsibility includes anti-corruption measures, corporate governance, protection of spirit property, transparency, ecology, quality management, sponsorship, charity and firm philanthropy.“ (Nimrichterová, 2008)

According to (Pružinský, 2005) there still exists a necessity of creation of more and better jobs for social cohesion. This means attracting more people into employment and modernising social protection systems. Workers and enterprises need to become more adaptable and labour markets more flexible. There also needs to be more investment in human capital through better education and skill-building.

Necessary economic growth is the most important agenda for oncoming years. That will cover the human needs and preserve the level of our life style. Human needs fulfilment demands a production of more and more products. At the same time we ask for higher quality of the products we buy. Higher quality products and sophisticated technology require the knowledge workers. Those people (Mihalčová, Faltus, 2003) are crucial for all of the production processes. Work force has to be educated and trained.

Several authors agree that more appropriate is to use a term social responsible business, because social responsibility can be associated with not just firm sector, i.e. third sector, but also with private sector or governance sector. This term social responsible business came into being sometimes in a half of last century. We understand it like social responsible business which leads in ethic principles the company should adhere in business. We can say that social responsible business is business where company reach commercial or economic success by respect for ethical principles, human sources and environment. All this activities we can divide in three areas: social, economic, environmental. (Donorsforum, 2008)

2. Corporate social responsibility concepts

Corporate social responsibility includes three concepts. It is profit responsibility, stakeholder responsibility and societal responsibility. Their characteristics are showed below.

Profit responsibility

Profit responsibility concept means that companies have the primary duty to maximize profits for its owners and shareholders. This view was expressed by Nobel laureate economist Milton Friedman, who said: "There is only one and only one social responsibility of business - to use resources and put them into action to increase profits, and as long as it remains within the rules of the game, which talk about an open and free competition without tricks and fraud." (Berkowitz, 1997)

Stakeholder responsibility

The frequent criticism of the profit point of view led to a wider concept of social responsibility. Stakeholder responsibility core is the company commitment to people who can affect the achievement of its interests. These are customers, employees, suppliers and distributors. (Berkowitz, 1997)

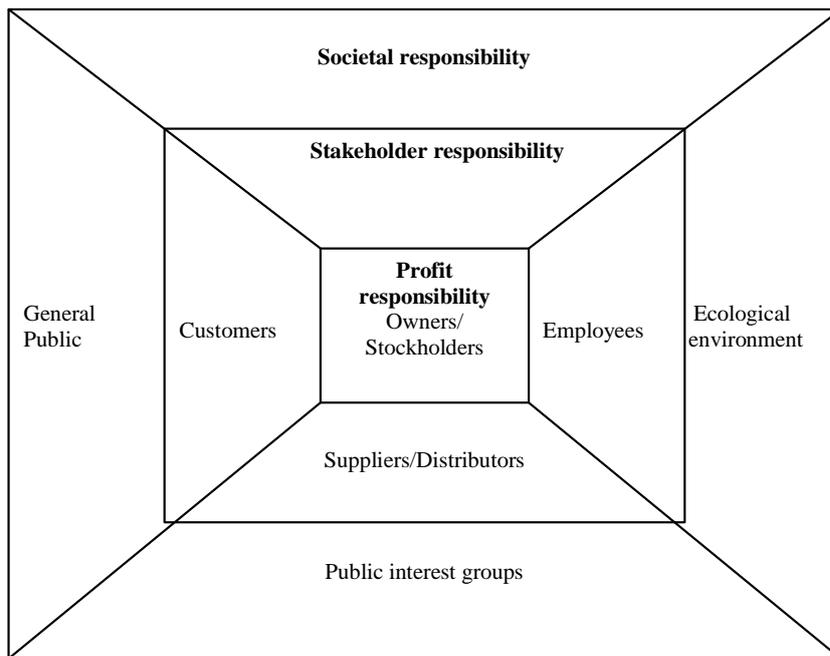


Figure 1

Three concepts of corporate social responsibility

Source: BERKOWITZ, E. N. a kol.: *Marketing*. United States of America : The McGraw-Hill Companies, 1997. p. 110-112.

3. Social responsibility in business environment

The idea of corporate social responsibility began to penetrate to Slovakia with the arrival of multinational corporations in the nineties 20th century. In 1992 became yet in the former Czechoslovakia Association of Business Leaders Forum. Since 1993, its scope narrowed only to the Czech Republic. The aim of the Business Leaders Forum is be a guarantor of socially responsible management and helps create partnerships between businesses, governments, schools and local communities with a view to achieving improved social, economic and environmental environment. The Slovak Republic builds awareness about social responsible business since the mid-nineties, several NGOs. One of the most important are: the Center for Philanthropy, o.z. PANET, Integra Foundation, the Pontis Foundation and the Institute for Economic and Social Reforms (INEKO). Each of these organizations devote to a particular topic, which falls under the broad concept of corporate social responsibility. (Bussard, 2008)

The issue of corporate social responsibility is the subject of numerous investigations. In Slovakia devote to it Pontis Foundation in cooperation with the Association of Business Leaders Forum. The main objective of these surveys is to contribute to the development of numerous debates and the deepening of theoretical knowledge about social responsible business in Slovakia. The effort

is to promote the expansion of supply of relevant information for companies which want to do business socially responsible. Surveys monitor and evaluate the data collected on various aspects of social responsibility, questions were focused on broad themes. A survey of corporate social responsibility is mainly devoted to the acquisition of knowledge, the perception of corporate responsibility, the interest in information from the media about socially responsible companies.

Although, there are significant efforts to spread awareness of this topic, still operate the organizations, which know nothing about corporate social responsibility or do not want to know something about it. One problem is that some firms refuse implementation of CSR principles because once a company express support for CSR there is no way back.

There are several organizations which try to improve CSR situation in Slovakia. One of the leaders is Pontis Foundation, which in 2004 initiated the creation of an informal association Business Leaders Forum. Their goal is to create space for communication and information about CSR in Slovak Republic. As part of its activities it realised several surveys. A Survey realised by Business Leaders Forum in Slovakia in October 2008 brought these interesting findings.

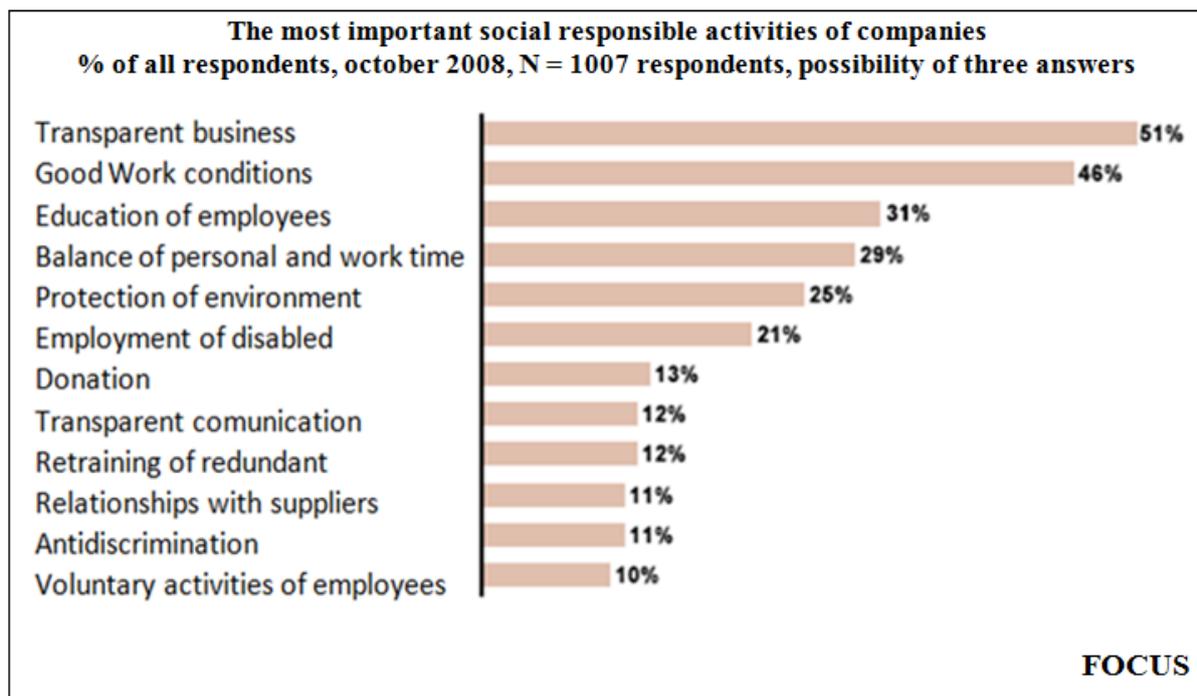


Figure 2

The most important social responsible activities of companies

Source: own treatment according to: [online] [Cit. 2009-02-13] Available on:
 <http://www.blf.sk/tmp/asset_cache/link/0000015044/blf%20newsletter%2026.PDF>

As can be seen in the picture, in 2008, the three most important firm activities in business (51%), appropriate working conditions (46%) and staff training (31%). The same conclusion has brought the Pontis Foundation survey

in 2004, 2005 and 2006. We can, therefore, to employment area is a priority for people in corporate social responsibility.

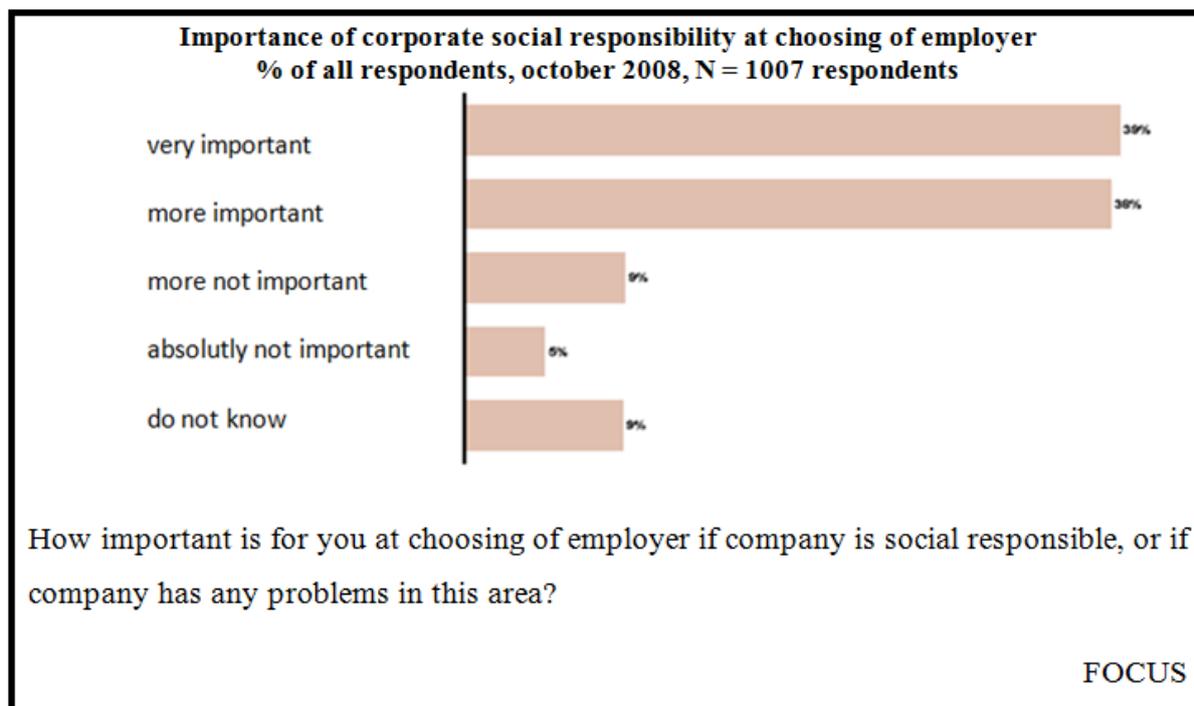


Figure 3

Importance of corporate social responsibility at choosing of employer

Source: own treatment according to: [online] [Cit. 2009-02-13] Available on:
<http://www.blf.sk/tmp/asset_cache/link/0000015044/blf%20newsletter%2026.PDF>

New area, which dealt with this survey was to determine what is important for people corporate responsibility in choosing their employment. Based on respondents' answers we can say that this is important for people in choosing their new employer (77%). It is not important just for a minority of respondents (14%), 9% of respondents could not comment on the matter.

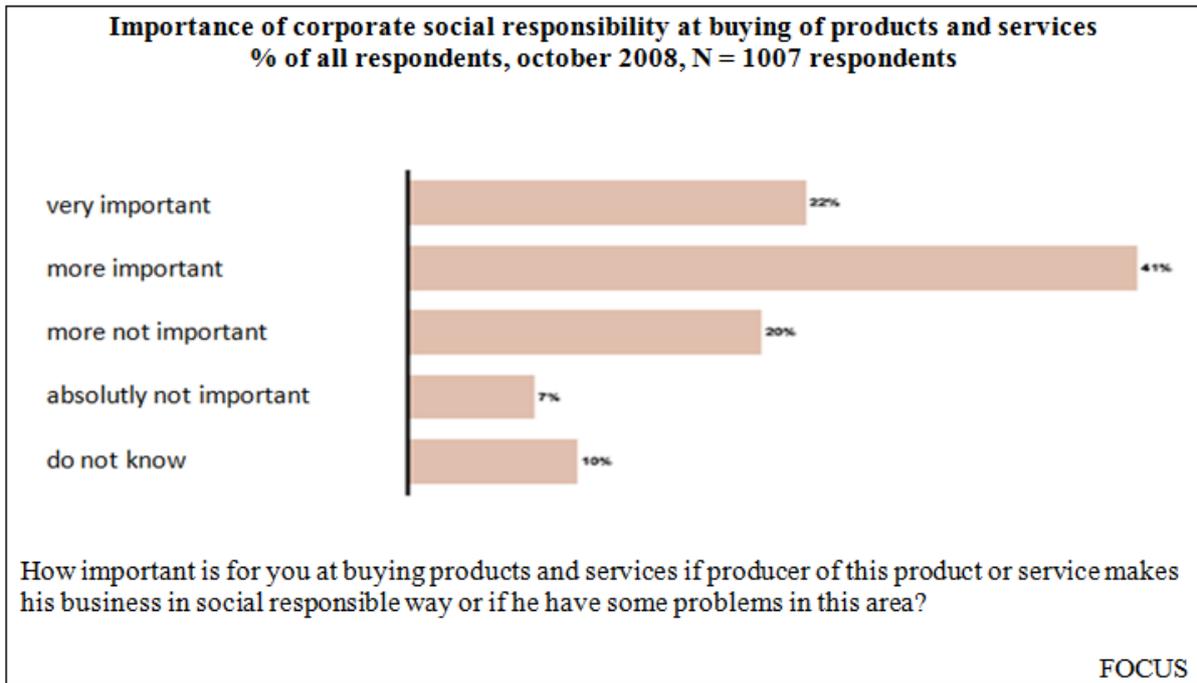


Figure 4

Importance of corporate social responsibility at buying of products and services

Source: own treatment according to: [online] [Cit. 2009-02-13] Available on: <http://www.blf.sk/tmp/asset_cache/link/0000015044/blf%20newsletter%2026.PDF>

Regarding the importance of corporate social responsibility when buying goods and services, was again a positive finding, it is important for more than a half of respondents (63%), 27% of respondents considered it unimportant and 10% could not comment.

Conclusion

The main reason for the emergence of the idea of corporate social responsibility was the question of how well do a business, do a business in way to benefit the most people.

Corporate Social Responsibility as a concept is still not clearly defined and offers us various forms of interpretation. Similarly, the possibility of its application is broken down into a wide range of areas. In Slovakia, just a few firms engage in corporate social responsibility, even if it offer for small and large companies to gain market stability, and subsequently maintain in the local environment, it contributes not just to protection of environment but also to developing the quality of life of Slovak citizens. Companies can by CSR activities obtain an increase in reputation and productivity of employees, and so generate a primary aim - financial profit.

There is still much, what could or should do. CSR must not only be a result of tightening of the rules of business, but should be a firm voluntary

commitment beyond legislation. Its doors are open to any company. And especially in the current economic situation should be a preference of companies acquire and restore the confidence of employees, customers and the public.

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MODELING OF THE INTEGRATED SYSTEM OF FOOD PRODUCTS' QUALITY ASSURANCE IN AN AGRICULTURAL AND COMPANY COMPLEX

MODEL INTEGROVANÉHO SYSTÉMU ZABEZPEČENIA KVALITY POTRAVINÁRSKYCH VÝROBKOV V POĽNOHOSPODÁRSTVE A V PRIEMYSELNOM KOMPLEXE

Pawel ŻUKOWSKI – Tomasz WOŁOWIEC

Abstract

In the paper we have proposed a model integrated quality control system for food products in the agriculture and industry complex. The model consists of GMP, GLP and HACCP together with the group of ISO 9000 norms. Agriculture and industry complex preparing to employ a quality control system would have to fulfill, in the preliminary phase, the GMP and GLP condition before introducing the HACCP system and without neglecting the requirements of the ISO 9000 norms. The system GMP and HACCP should be employed in parallel. We have described the working of the mentioned model quality control system for food products in an agriculture and industry complex. It is worth emphasizing that a quality control system guaranteeing healthy food products constitutes a complex and diversified action.

Keywords: Quality management, ISO 9000 norms, GMP, GLP, HACCP, integrated system

Abstrakt

V článku sme navrhli integrovaný model kvality kontrolného systému pre potravinárske výrobky v poľnohospodárstve a priemyselnom komplexe. Model obsahuje GMP, GLP a HACCP spolu so skupinou noriem ISO 9000. Poľnohospodárstvo a priemyselný komplex pripravujú zaviesť kvalitný kontrolovaný systém, ktorý by musel spĺňať predbežný stav, GMP a GLP podmienku pred predstavujúcim HACCP systémom a bez pozabudnutia na požiadavky noriem ISO 9000. Systém GMP a HACCP by mali byť využité paralelne. Opísali sme fungovanie modelu kvality kontrolného systému pre potravinárske výrobky v poľnohospodárstve a priemyselnom komplexe. Je zrejmé, že kvalita kontrolného systému garantuje zdravé potravinárske výrobky a pozostáva z komplexu rôznorodých činností.

Kľúčové slová: Manažment kvality, normy ISO 9000, GMP, GLP, HACCP, integrovaný systém

Introduction

The assurance of food products' quality at the beginning of the twenty-first century is more complicated and complex problem than ensuring the good quality of other, non-food products. The consciousness as well as the needs, wishes and expectations of food products' consumers are still getting higher (Żukowski, Muszyński, 1999, Burzyński, Wołowiec, 2008). More and more often they want food that not only does not influence their health in a negative way, but causes its improvement and provides the human organism with the

essential nutritious values, minerals, vitamins, microelements etc. That is why the consumers demand the high quality of products. Each manufacturer should take their demands into account while manufacturing or processing food that must not have any noxious components coming from the polluted environment, technological process, storage or transport which may harm the human organism.

The examination of food products at the end of the manufacturing process is not and cannot be sufficient to confirm their appropriate quality assurance and to ensure that they are valuable and safe for the human's health. The realisation of the idea of guaranteed quality food cannot only be fulfilled through the control of final products. The control of the "whole food product's life" is important, starting from the control of raw materials (the technology of plant growing and animal farming) through the course of manufacturing, packing, storing and transport till the moment of consuming (Berdowski, 1995, Oakland, 1993).

1. International Standards of the Guaranteed Quality Food Manufacturing

Nowadays, according to a global tendency, a lot of food manufacturers (in the USA, Canada, Japan, the countries of the European Communities) find it necessary to fulfill the whole set of detailed demands which are in favour of manufacturing and processing the guaranteed quality food products that are included in:

- Good Manufacturing Practice (GMP),
- Good Laboratory Practice (GLP),
- Hazard Analysis and Critical Control Point of food processing (HACCP),
- the system of good quality assurance based on the international ISO 9000 standards¹.

The demands of *the Good Manufacturing Practice* (GMP) deal with all factors that can influence the hygiene and health security of a product in the course of manufacturing or processing and, as a consequence influence the quality of a final food product. The demands connected with firms deal mostly with:

- the construction of the manufacturing buildings and other buildings and structures,

¹ ISO 9000:2005 Quality management system – Fundamentals and vocabulary; ISO 9001:2008 Quality management systems – Requirements; ISO 9004:2000 Quality management systems - Guidelines for performance improvement; ISO 19011:2002 Guidelines on Quality and/or Environmental Management Systems Auditing.

- the technological equipment, machines and other manufacturing equipment,
- the quality of raw materials, components that have been partly manufactured and other additional components,
- the technology of processing and manufacturing,
- the qualifications and training of the working staff,
- the methods of the quality control used in a company (Spiegel, Luning, Ziggers, Jongen, 2003, Manning, Baines, Chadd, 2006).

The rules of GMP were defined at the beginning of the seventies in the twentieth century for the needs of the pharmaceutical industry and later for the food industry in the USA. These demands have been accepted as the obligatory ones in the food industry by the American Food Drug Administration (FDA) and by the Codex Alimentarius created by the FAO/WHO.

The Good Laboratory Practice (GLP) is the consequence of the fulfilling of good industrial practice program. The activities carried out by laboratories, according to the Good Laboratory Practice are connected not only with the control of food products and the inspection between operations, but also with the research and control of the raw materials. The laboratories that work according to the GLP rules should have:

- properly qualified staff, suitably to performed function,
- the apparatus checked and calibrated regularly,
- the standard methods of analysis accepted by the suitable international organisations and checked in the appropriate conditions during the examinations in the laboratories,
- the plan of frequency of drawing and examining samples,
- the results of the analytic examinations registered, kept and accessible for managers and controlling factors,
- the laboratory staff independent of the production managers and submitted to the leading managers of an institution.

The laboratories that work according to the GLP rules can additionally be given an appropriate accreditation, according to the general criteria of laboratory work included in the European standard EN-45001. If a laboratory gets this accreditation, the results of its research will be accepted in the international trade (Wołowiec, 2008, Żukowski, Muszyński, 1999).

The system of Hazard Analysis and Critical Control Point (HACCP) is a supplement to the GMP method. It is the system of preventive and precautionary character. It defines the threats and control of critical points of the manufacturing and processing courses. The critical control points can be defined as these places in a manufacturing course where losing control may cause an unwanted risk of threatening the human's health by a manufactured product. The

critical control point may be an operation such as activity, procedure, course or step. The different ways of controlling and preventing can be used during the above mentioned operations. As a consequence it is possible to eliminate, prevent or minimise the certain threat (Berdowski, 1995, Zadernowski, 2004, Turlejska, 2004).

The system of quality assurance based on the ISO 9000 standards. The set of international ISO 9000 norms dealing with the products quality have been created earlier, independently of the HACCP system. The criteria presented in the ISO 9001 norms standard including 18 system demands altogether have been accepted as the most suitable model for firms of agricultural and food processing industry. If the firms introduce new products the model, according to the ISO 9001 norm includes 20 system demands (Kowalska, Majewska, Obiedziński, Zadernowski, 2006).

It is necessary to mention that the importance and sense of the HACCP system would cause changes in the interests and priorities in food manufacturing for many producers. It appears that in the countries of the European Communities the implementation of the ISO 9000 standards has been postponed because of a duty to introduce the HACCP system. The most important thing was to use the HACCP, that is to say, to analyze the threats and to control the critical points.

The Polish Centre of Research and Certification has been working since 1994. Its purposes are to work out the programs and to train workers, esp. for the engineering and technology, agriculture and food industry in the field of ISO 9000, TQM, GMP, GLP, HACCP, attestation, certification and verification of the systems assuring the good quality of food products. It is planned to work out the bases for activities of a government institution of control – the Agency of Food Control. It will have its controlling units in the provinces, at the border and in the offices of the lower level of the country administration (Berdowski, 1995, Zadernowski, 2004, Kowalska, Majewska, Obiedziński, Zadernowski, 2006).

2. The Construction of the Integrated Model of Food Products' Quality Assurance

The model of creating the integrated system of food products' quality assurance which would include both the demands of the international ISO 9000 standards and the rules and demands of the GMP, GLP and HACCP methods has been discussed more and more often recently. The programs of introducing the HACCP method based on the bases of the Total Quality Management (TQM) are created in many companies in the USA (Zadernowski, 2004, Kowalska, Majewska, Obiedziński, Zadernowski, 2006). The greatest pressure is put on the long-term firm's strategy in a field of preventing products' quality in a manufacturing course from threats and defects. The needs of improvement

and continual development of methods eliminating those threats and defects is taken into account as well.

Providing that the most important rule of TQM is “the consumer’s satisfaction more important than anything else”, the specialists in the field of the products’ quality put pressure on the need of spreading the HACCP idea among consumers. There are many ways that make it possible to popularize the knowledge about a proper storage of a purchased food product and its processing in households. The introduction of special educational programs in schools, distribution of the appropriate information brochures in shops selling food and publishing of suitable articles in the cookery magazines accessible to everyone have been recommended. Thanks to such activities the complaints about a poor quality of food connected with the defects that could be a result of ignorance about the safe-keeping and using these products can be reduced to much smaller number.

If we analyse the ISO 9000 norms and the HACCP method together, it appears that both methods have many features and components in common. It would be a mistake and a certain waste of time to treat these systems separately by the agricultural and industrial complex (Manning, Baines, Chadd, 2006, Turlejska, 2004, Spiegel, Luning, Ziggers, Jongen, 2003).

The HACCP method is also a perfect way to prevent the food product from threats and defects. This is because it defines places where the conditions of threatening the food security can have their origin. The method also defines ways of eliminating or reducing these conditions. The HACCP system allows to consider many important issues connected with the course of processing and controlling food products that influence their quality. At the same time the ISO 9000 standards are the basis that has to be used while constructing the HACCP system in agricultural and industrial complex. The demands presented in the ISO 9001 norm (the steering of a project) have to be taken into account. The norm includes instructions connected with planning and construction, allocation of duties, mutual technological and organisational connections, input and output data and information dealing with a verification of the system’s project and its possible change. The proper analysis of the ISO 9000 standards allows to find its important connection with the HACCP systems and gives necessary bases to define the activities for a practical application (Turlejska, 2004, Zadernowski, 2004, Żukowski, Muszyński, 1999).

Thanks to the integrated consideration of the issues connected with quality we can get a lot of information of a medical character that should be used to create the bases for the HACCP plan in an agricultural and industrial complex. The standards of the ISO 9000 are especially interested in forming and practical application of a quality policy which is very important for the effectiveness of a quality system in practice. The universality of the ISO 9000 norms allows to use them in many lines of business including the agricultural and food processing one. The ISO 9000 standards show how to implement,

record and keep the proper and effective quality system. Therefore, the HACCP system is the specific standard of food quality assurance and the ISO 9000 norms ensure the suitable conditions to make these standards possible to achieve.

Both ISO 9000 norms and the HACCP methods should be treated as the supplementary systems that are complementary to one another. We build the HACCP plan considering the specific character of the firm and the technology which it uses. Then we use the ISO 9000 norms to achieve the repeatability of processes and create the appropriate organisational structure in favour of the effective quality assurance. Both ISO 9000 and HACCP emphasize the need of training, the management responsibility and proper allocation of this responsibility as well as the verification of activities and suitable records. If one of these components is missing, the system's effectiveness will certainly decrease.

An agricultural and industrial complex should introduce the HACCP method and the ISO 9000 norms together in order to assure the good quality of manufactured food product effectively and to ensure its health safety. At the beginning an implementation of such model could be difficult to achieve in practice. The following questions have to be answered: What stage is an agricultural and industrial complex currently at? Which things should not be changed? What has to be changed? Who will be responsible for the particular areas? What are the priorities of the specific activities? The analysis of the firm's resources (people, materials, energy, finance, information etc.) has to be carried out. It is obvious that such changes generate costs connected with buying or changing a part of the technical and technological equipment and training for the managers and working staff. That is why, the gradual but consequent implementation of necessary basic changes should be proposed to firms, especially to the agricultural and industrial complex ones operating in the conditions of Polish economy transformations.

The model of the integrated system of food products' quality assurance (based on the ISO 9000 norms) is a general and widely developed idea that takes many factors of influence into account. It also concentrates on demands that are difficult to fulfill practically in a short time. Therefore, if we consider food manufacturing we have to accept the fact that agricultural and industrial complex which prepare to implement the quality assurance system should first follow the rules of GMP and GLP methods, then realise the HACCP method and finally introduce the whole presented system. If an agricultural and food processing company fulfils the rules of the Good Manufacturing Practice (GMP), it will be able to achieve the optimal conditions of food manufacturing hygiene. It will also allow to take the hygiene of working staff, apparatus, machines, buildings and the whole environment into account. Then the firm should carry out the analysis of both types of threats – currently existing ones and potential ones that can lead to lack of health safety of manufactured food.

Next it has to work out how to control its critical points. These allow to implement the HACCP method that is in fact the system of a preventing character.

The research and control of the whole product manufacturing cycle are important for the effectiveness of GMP and HACCP. The firm's laboratories are also of great importance. The suitable capital outlays should come from the laboratories. They should also demand to implement GMP and HACCP together with the rules of the Good Laboratory Practice. It is necessary if a firm wants to create the bases of its system basing on the ISO 9000 norms, esp. while creating the most suitable model for food business – the ISO 9001 standard which puts pressure on a permanent cooperation with a laboratory. If we want to prove the reliability of the existing quality system, it is essential to possess the current data and carry out analysis that allow to control the quality of processes and food products honestly with the use of the repeatable methods.

In agricultural and food processing companies the GMP and GLP systems are the preliminary stage of the preparations to implement the rules and regulations of HACCP and ISO 9000 standards. This is an essential process in the manufacture of the guaranteed quality food. At the beginning it is essential in the field of the internal and external factors that influence the hygiene of the manufacturing process. Later, after the preliminary period, it is essential for all the processes that can be observed during the whole product manufacturing cycle. This will reduce the excess of duties in the preliminary stage of changes which is usually connected with difficulties and resistance of the organisational and physical character. Considering the above mentioned facts and taking other conditions into account the model of the integrated system of food products' quality assurance in an agricultural and industrial complex has been presented in Figure 1.

It is necessary to remember that the assurance of guaranteed quality production is a complex process that concentrates on lots of different factors. It is complex because it takes the control of a raw material, its processing, packing, storing distribution and selling into account. In other words, it deals with all stages of a food product life cycle.

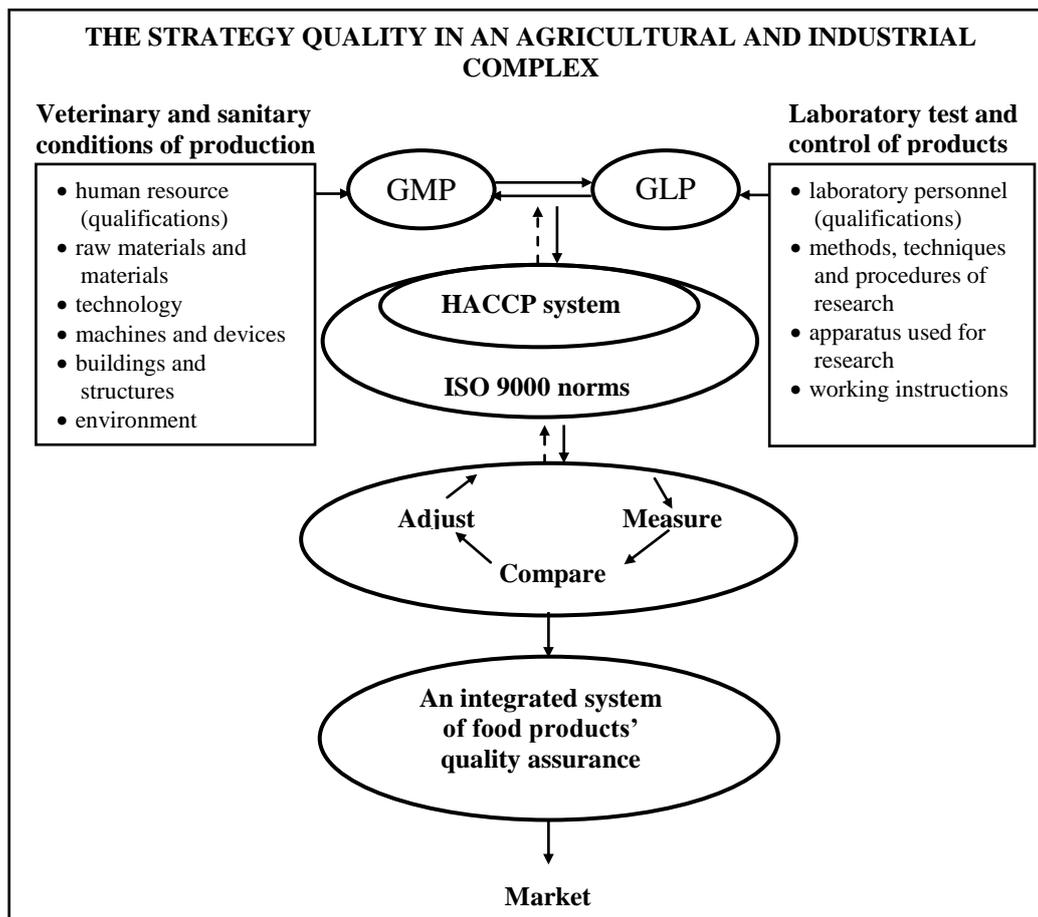


Figure 1
The Model of the Integrated System of Food Products' Quality Assurance in an Agricultural and Industrial Complex GMP – Good Manufacturing Practice, GLP – Good Laboratory Practice, HACCP – Hazard Analysis Critical Control Point, ISO 9000 norms – the set of the international ISO 9000 norms
 Source: own work

It considers lots of factors because it takes into account the following: workers' participation in all levels of firm's management, workers' training, their preparation to perform the functions, their responsibility and allocation of duties, desire to work, motivation and good intentions. We should also remember that the system of food products' quality assurance introduced in one company is not possible to be implemented in another one, even if they seem to be similar. The agricultural and industrial complex differ from one another. They are of different size, they use different technology, manufacture different products at different processing stages. The raw materials used by the company as well as the procedures and recipes that are often the firm's secret are also important. What is more, the managers have different knowledge, abilities and experience. They are engaged in the managing and manufacturing processes differently.

Conclusion

It has to be emphasized that the system of quality assurance in agricultural and industrial complex should be constructed in such way that it is easy to program, manage and verify. If a new system of quality assurance is created, the results of the analysis of a hitherto achieved level of quality should be treated as the basis. It could turn out that a firm has been satisfying the demands of the ISO 9000 norms for a long time, at least in some aspects of its activities. The purpose of this analysis is to separate the elements of the present system that may be used in the newly created model as well as the components which need changes and improvement. Therefore, the changes introduced during the creation of the quality system in a company do not have to be basically radical and complete. If a firm uses its good habits and best experiences, it is able to reduce the costs of an implementation of the new system significantly. The fundamental and complete change in some cases may turn out to be unjustified and will surely be expensive and labour-consuming.

The opportunity to apply for the certificate of quality is the consequence of introducing the system of the quality assurance based on the ISO 9000 norms and the HACCP rules. The system may function well without a certificate, though. The certificate cannot be obtained if a suitable system of the quality assurance has not been implemented. The point is to improve and guarantee the quality, to reduce the risk of food poisoning, to stop producing food products with no nutritious values and to improve the organisation and management of a company. The certificate confirms the above mentioned aspects officially. Anyway, there is no doubt that obtaining this document has a significant meaning for the firm's marketing and trading. Therefore, the number of institutions interested in getting the certificates in different branches is still rising. The name ISO 9000 has a great meaning, especially in Europe. If the firm obtains the certificate, its position gets better and it usually enables the firm to enter the foreign markets. People are more interested in the firm because the customers' trust in the firm rises. The certificate is especially important in trading in the international market. . Therefore, it is really worth applying for the ISO 9000 certificate. In other words, the rules and regulations of GMP, GLP and HACCP that improve the quality and health safety of products are worth implementing in agricultural and industrial complex. Such firms and their products will be noticed and appreciated on the European and global markets.

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QUALITY TODAY AND TOMORROW

KVALITA VČERA A DNES

Luboš SOCHA – Pavol BAJUSZ

Abstract

The article provides a brief description of the development in the approaches to quality from the beginning of the 20th century up to the present. It characterizes some of the institutions responsible for quality with emphasis on those involved in the declaration and awarding prizes for quality. The contribution concludes with the analysis of the issue of support and development of quality in Slovakia.

Keywords: Quality, Product, Prizes of Quality, TQM, National Program of Quality

Abstrakt

V článku je stručne popísaný vývoj prístupov v oblasti kvality od začiatku 20. storočia do súčasnosti. Sú charakterizované niektoré inštitúcie, zaoberajúce sa kvalitou, s dôrazom na tie, ktoré sú spojené s vyhlasovaním a udeľovaním cien za kvalitu. V závere príspevku je rozoberaná problematika rozvoja a podpory kvality na Slovensku.

Kľúčové slová: kvalita, produkt, národná cena kvality, TQM, národný program kvality

Introduction

The history of the mankind bear traces of various activities of human beings striving for quality. So far, the greatest leap in the issue of quality was made in the 20th century. Among others, it was driven by the need for improving competitiveness of national economies as the prerequisite to balance of payments. As a result, governments in many countries embarked on the quest for the most viable tools that would motivate the entrepreneurs to boost activities in terms of improving efficiency, decreasing costs and better results in satisfying customers, both domestic and international. In many cases, these effort were powered by the will to draw the attention of domestic customers to domestic production (Národní politika podpory jakosti v ČR a péče o kvalitu ve světě [online]. [s.a.]. [Cit. 2009-08-21] Available in <http://www.npj.cz/soubory/dokumenty/str_priloha_2.pdf>). It gave rise to organizations specialized in the issue of quality. In order to properly assess the importance of motivational and stimulation measures of states aimed at the quality of domestic production, it is necessary to be knowledgeable of the phases, within which the quality management was evolving at the corresponding period of time. Establishing organizations of non-state ownership and later on the entry and involvement of state in support of quality

was of great importance in determining the further approaches and trends in the field of quality, with more detailed analysis provided by the paper submitted.

1. Development in quality management

The beginning of the 20th century witnessed slow transition from craftsmanship to series production and quality was meant in terms of basic control. Quality was the responsibility of a single worker making the product. Only the development of mass production gave rise to the post the controller, who himself controls manufacturing and is solely responsible for quality in the company (Ford, Baťa). Standards (national, branch, company) are being introduced while contact between manufacturer and customer is diminishing. Development of statistical methods (testing of statistical hypotheses, statistical skúmanie závislostí, drawing up experiments etc.) have created conditions for specific applications in the field of quality.

The 30s saw the formation of first departments of quality control, responsible for input-, intermediate- and output control of quality, with focus not only on the technical side of manufacturing but also on its economy. Later on, statistical control of processes was introduced based on Shewhart's Methods of Statistical regulation of manufacturing processes further developed by Deming and Juran.

In the 50s and 60s, Ford adopts its first model of standards in the automobile industry, the QS 9000. Quality transferred control already to the design and engineering stages as well as on methods of reliability. It represents particularly the level to which the requirements are met. Principles of the „systematic quality improvement“ along with complete systems of application tools were formulated. It is also the beginnings of making better use the employee potential in terms of quality. Groups of qualities (Ishikawa) are formed with employees increasingly involved into team-based improvement of quality.

The 70s and the 80s were the years typical of integrated quality assurance, i.e. ensuring quality not only in production but also in the stages of development and pre-production, design plan analyses, tests, deficiencies, claims, product certification. Quality started to encompass the entire organizational structure of the company also in terms of all the departments. It was the start signal for the implementation of the ideas of Deming, Juran and others, currently known as TQM (Total Quality Management) with focus on satisfaction of customer needs. The essence of the concept is in that the quality of product is predetermined by the quality of the processes during which the inputs are transformed into outputs at required characteristics (Rozvoj kvality [online]. [s.a.]. [Cit. 2009-08-17] Available in <<http://zadanie.sk/index.php?go=karta&idz=16294>>).

Market requirements form the basis for formulating the „quality standards“ (ISO of 9000 order). They were developed on the basis of experiences of companies (Japan, USA) with the most remarkable achievements in their applying the principles of total quality management. Quality standards started to be applied as a basis for verification of the system's quality and awarding certificates (Historie a současné koncepce řízení kvality [online]. [s.a.]. [Cit. 2009-08-17] Available in <<http://www.citellus.cz/Akademie/Prednasky/Koncepce-rizeni-kvality-a-cestovni-ruch/4-Historie-a-soucasne-koncepce-rizeni-kvality>>).

Quality is customer-oriented with the aim to satisfy both present and future needs, i.e. the product accepted by the customer is of quality as it meets their requirements.

In the beginning of the 90s, the European Foundation of Quality Management introduced the EFQM model of excellence, serving as a recommendatory framework for controlling organizations in commercial and public sectors. The EFQM Model can also be applied as a methodology tool to improve managerial practices and also as a sum of criteria for their evaluation. The forefront is becoming occupied with comprehensive control of production processes, including physical architecture and planning, oriented at human potential and its efficient use.

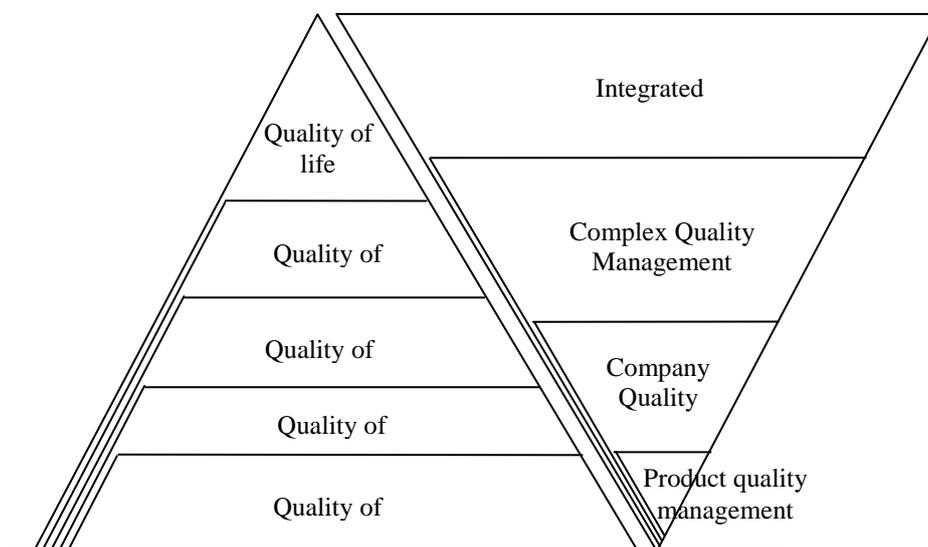


Figure 1
Pyramid of quality control and management
 Sources: Own product

The present time is characterized by Global Quality Control. It is the period of merger of the Quality Management System, Environmental Protection

(EMS – Environmental Management System – Standard ISO 14 000) and the system of safety and health protection at work the HSMS - Health and Safety Management System – into the *System of Integrated Management* (control and verification, merger of system documentation etc.) with emphasis laid on quality of life and that of the society.

As it follows from the development of quality management, quality as it has been in various periods preferred in concrete areas (Fig.1) linking up to the control processes. Fig. 1 illustrates how the individual elements of quality or quality management are mutually complementing and expanding themselves while the current era is typical of integrated management to achieve complex quality of life.

2. Institutions dealing with quality

The first institution in Europe to systematically deal with quality was the Institute of Quality Assurance-IQA, established in the UK already in 1919. Until the mid-20s other state and non-state organizations started to deal with the issue of quality.

In 1952 a German company for quality The German Company for Quality, the renowned DGOQ (Deutsche Gesellschaft für Qualität) and the Swedish Association for Quality were formed, and in 1953, the Netherlands Association of Quality, the KDI were founded.

An important era started in the year of 1956, when in France, the French Movement for Quality, in Italy the Italian Association for Quality, which together with the British IQA, German DGQ and the Dutch KDI established, in March 1957, the EOQ (European Organization for Quality, originally the EOQC – European Organization for Quality Control). In the course of the 60s and even the 80s, further national organizations for quality were established, mostly in the Western Europe.

It was the 70s that saw the formation of national bodies for quality also in the so called East-block countries, which within a relatively short period of time started joining the EOQ. But it was not before 1990, in some of post-socialist countries witnessed formation or reformation of organizations interested in quality which then entered into cooperation with the EOQ. Every year the Kongress of EOQ conference is held in one of the member countries. November (The month of Quality) is the period when international and further related activities are being held in each country involved.

Similarly to the EOQ, member countries are also organizers to specialists' seminars, educations for professionals in quality, issue professional publications and journals, cooperate with the institutions establishing and publishing standards for quality and are instrumental in awarding prizes for quality.

Government activities in terms of quality are in most of the countries conducted in cooperation with non-governmental organizations or groups of entrepreneurs and schools. There are lots of countries with existing active and direct government support to quality which is realized in via groups having been allocated important budgetary means aimed to develop quality in companies (France – Service of industrial products and information, Germany– Grants for the development of new products on winning tenders invited by the Ministry of Scientific and technical Development).

3. National prizes for quality

One of further ways was public support to the idea of quality offered by highest public servants by introducing national prizes or awards for quality.

The first ever award of national prize for quality started in 1951 (Deming's Prize) awarded in **Japan**, where quality has become state priority. Since the 50s the Japanese Government has been consistently helping quality assurance and improvement. This is the origin of the tradition of awarding national prizes for quality.

In the **United States**, starting with 1987, on passing the so called „Malcolm Baldrige National Quality Award“ Law, the national prize for quality is awarded annually by the President of the United States of America. The initiative in the form of a prize has seen extreme growth of the American industry particularly in the 90s both in terms of product quality, profit, efficiency and productivity.

Following the American example, awarding of national prizes started in other countries of the world. **Argentina** adopted a country-wide programme of quality already in the 90s. It is controlled by the Council chaired by the President. Quality is awarded at various levels and the winners are presented as standards to follow.

In **Australia**, the implementation of quality into public life is the responsibility of the Australian Organization for Quality, the AOQ, which is also awarding the national award for quality known as the GOLD Award. The prize was first awarded since 1996 on a regional bases within the separate member state of Australia and since 2004 it is awarded on a national scale.

In **Europe**, the importance of this award was first recognized by the largest European company which led to the establishment of the European Foundation for Quality Management, the EFQM, which set an EFQM Control Model on the one hand and the Programme of EFQM Excellence Award (Model EFQM a Národní ceny kvality [online]. [s.a.]. [Cit. 2009-08-21] Available in <<http://www.policie.cz/clanek/model-efqm-a-narodni-ceny-kvality.aspx>>), being awarded since 1989, on the other. The prize is awarded

by the EFQM, a non-government organization, enjoying the support of the EOQ -European Organization for Quality.

Since 1992, on an annual basis, categories like: large organizations, public sector organizations, medium-sized and small companies ([online]. [s.a.]. [Cit. 2009-08-21] Available in <<http://www.narodnicena.cz/eu.htm> >) are awarded the **French** prize for quality the PFQP established in 1992 by the Minister of Industry and the French Association for Quality, the MFQ. **Portugal** has passed an Act on Quality and established the Council for Quality at the Ministry of Industry and Energetics. The Ministry for Foreign Trade also established its Directorate General for Quality.

In **Sweden**, the National Prize for Quality is highly valued and is awarded to excellent firms with excellent economic records, on an annual basis, handed over by the King of Sweden. In **Germany** the national prize for quality the „Ludwig – Erhardt - Preis“ is awarded by the German Society for Quality and the Association of German Employers. In **Austria** the Ministry of Economics and Labour along with the Austrian Society for Quality are awarding the „State Prize for Quality - Staatspreis für Qualität“, subsidized by the Ministry.

In the **United Kingdom**, starting with 1994, under the auspices of the British Royal Family, a national prize called the UK Excellence Award - UKEA. The prize is based on assessment to the EFQM Excellence Model and the process is vested in the hands of the British Quality Foundation, the BQF.

In **Turkey**, starting with 1993, the National Prize for Quality is awarded the Turkish Organization for Quality, the KalDer. Assessment is performed on the basis of the EFQM Excellence Model applied also by awarding the European awards for quality. Turkish companies are fairly successful in prize programmes. It also enjoys the unanimous support of the local government, taking the form of educational programs in particular.

The national prize of **Hungary** for quality has been awarded since 1998 with the support of the Ministry of Economics and Transportation, based on the ideas of a Japanese expert prof. Shiba – the „Shiba Award“. Currently, the Government is supporting the awarding of the National Prize for Quality to the EFQM Model of Excellence.

4. Support of Quality in Slovakia

State is starting to take the issue of quality more seriously only to the end of 90s. The reason was rather prosaic. One of the conditions of accepting Slovakia by the European Union was also the realization of the document adopted by the Council of Ministers of the EU on "European policies on support of quality" of 1994. The European Council demanded that every member state develop national programmes of quality with focus on tools, such

as increasing awareness to quality, TQM, supports of the systems of quality and further activities.

To this end, the Slovak Government, as one of the associated states, adopted the Decree No. 673/1998, wherein the „Slovak National Programme of Quality“ was declared and, for the first time, formulated the relation between state and the need to improve quality. Forming part of the programme was the declaration of year 2000 „The year of quality,, and the introduction of the „Slovak National Prize for Quality“ as one of its main priorities (Národný program kvality SR [online]. [s.a.]. [Cit. 2009-08-22] Available in <<http://www.unms.sk/?narodny-program-kvality-sr>>). The document stated the role of state played in support of policies on quality as follows:

- increasing the awareness of quality,
- introduction of quality management systems particularly in medium-size and small companies,
- harmonization of technical standards with those of the EU,
- procurement of information systems on quality,
- increasing export performance and competitiveness of the economy,
- voluntariness in certification,
- organizing prestigious contests aimed at increasing quality,
- development of environmental management systems,
- labour safety and health,
- evaluation of goods and products in terms of labour safety and occupational health protection and further concrete activities.

Coordination of the Slovak National Programme of Quality, until 2003, was assigned to the *Slovak Ministry of Economics SR* in cooperation with other ministries, interest-groups and unions and companies, schools, citizens' associations and entrepreneurs. Starting with 2001, the Principal coordinator in the implementation of the Slovak National Programme of quality has been vested in the hands of the UNMS SR (Slovak Authority for Standardization, Metrology and Testing), which is in cooperation with the members of the Council of the Slovak National Programme of Quality established on the basis of the Slovak Government resolution No. 406 as of 9 May 2001.

The Slovak National Programme of Quality represents the efforts of the Slovak Government developed in via its state administration, non-governmental organizations, associations and with the contribution of entrepreneurs that are aimed at improving overall performance of the Slovak national economy and increasing satisfaction of citizens. The programme's foremost goal is to achieve higher efficiency, productivity and quality, prerequisites to competitiveness of our entrepreneurs at both domestic and international markets (Národný program kvality -história [online]. [s.a.]. [Cit. 2009-08-21] Available in <<http://www.standard-team.com/cikkek/Narodny->

program-kvality---historia.php>). The time-line of implementation for the current National programme of quality was set for the period of 2009 – 2012.

4.1 National Programme of Quality for the period of 2009 – 2012

The Slovak National Programme of Quality for the period of 2009 – 2012 is a fundamental document of state policies on quality approved by the Slovak Government on 21 January 2009 (Jurkovičová, M. 2009. Národný program kvality SR – implementácia manažérstva kvality na úrovni samosprávy [online]. [s.a.]. [Cit. 2009-08-24] Available in <http://212.89.230.198/www.ecm.eu.sk/fileadmin/subory/Vzdelavanie/Kvalita_v_samosprave_2009/jurkovicova_final.pdf>), and is based on the evaluation of the previous Slovak National Programme of Quality adopted for the period of 2004 – 2008. The results obtained from the analyses helped formulate the *vision, mission and strategic objectives* for the years of 2009 – 2012 and set out the long-term aims in line with the strategic documents of the European Union, Slovak republic and goals of concrete ministries and other central organs of state administration.

Vision of the National Programme – to achieve status when quality becomes a stable and natural part and value of life for Slovak citizens and to make sure that their quality of life matches the average established in EU member countries.

Mission of the National Programme as part of the strategic framework of state policies on quality – to support strategies of improving quality of products and services, public administration and permanently sustainable development of the society as a whole, and motivate the parties interested in order to complete the mission set forth.

The Slovak National Programme of Quality for the period of 2009 – 2012 is made up of two parts:

- Part One is focused on activities in the field of quality implemented by the ministries and Central Organs of State Administration (COISA) in nine strategic areas (safety of citizens in terms of the basic indicators on quality of life, healthcare, social care and employment, environmental protection, public administration services, informatization of the society, entrepreneurship, education, science and research and culture) articulated in strategic goals.
- Part Two is concentrated on activities of quality management implementation in organizations of public administration for the period of 2009 – 2012, coordinated by the UNMS SR and supported by other branches of the national economy (Návrh Národného programu kvality SR na roky 2009 – 2012 [online]. [s.a.]. [Cit. 2009-08-21] Available in <http://www.unms.sk/swift_data/source/dokumenty/kvalita/npk/NPK%202009_2012.pdf>).

The Slovak National Programme of Quality contains clear and trustworthy objectives with which the entrepreneurs, the public sector and all the citizens can be identified. Implementation of the programme is focused on providing support under conditions which would facilitate successful functioning within the European and World market as well.

4.2 Contest for the Slovak National Prize for Quality

The Slovak Authority for Standardization, Metrology and Testing is both the advertiser and organizer of the contest for the Slovak National Prize for Quality (Národná cena za kvalitu SR 2009 [online]. [s.a.]. [Cit. 2009-08-25] Available in <<http://www.unms.sk/?narodna-cena-za-kvalitu-sr-2009>>), with the aim to motivate and support organizations of public and private sectors in their effort towards further improving performance by way of implementing the EFQM Model of Excellence and the CAF (Common Assessment Framework) one. The contest is organized annually following a strictly defined programme. Since 2000, the criteria have conformed with the ones used at contests for the European prizes of quality, for which winners of national levels can apply (Národná cena SR za kvalitu 2003 [online]. [s.a.]. [Cit. 2009-08-21] Available in <<http://www.posam.sk/wwwsite/index.nsf/0/0E18EEAEF3111705C1256E3C004DDAFB?OpenDocument>>).

The Slovak National Prize for Quality, organized under the auspices of the President of the Slovak republic is open for any organization involved in the manufacturing product or providing services as well as for those of the public service registered in the Slovakia in compliance with the applicable laws. As part of the contest, the UNMS SR is organizing information seminars to improve public awareness to the need to introduce a system of quality into all aspects of production, services and public service.

The starting framework for awarding is set by models with fixed criteria and an evaluation scale on the bases of which the individual companies are evaluated and compared. The Slovak National Prize for Quality contest is based on a consistent and objective verification of efficiency and quality of all activities performed within the organization. Methodology is provided by the EFQM Model of Excellence and the CAF Model. Both are assessing how the results of organizations (satisfaction of customers, employees, contribution to the society and key performance indicator) correspond to the plans set by the top management of the organization in via corporate strategy and planning, human resource management, partnerships, finance, system of managements and processes.

Proper use of the aforementioned elements of organizational management result in organizations obtaining excellent financial and non-

financial outputs. The EFGM Model of Excellence is designed for organizations of entrepreneurship and public administration while the CAF Model (Common System of Quality Assessment) is primarily designed for any type of public service organization (Jankal, R. 2009. Kvalita ako súčasť marketingového mixu v službách [online]. [s.a.]. [Cit. 2009-08-24] Available in <<http://fmmi10.vsb.cz/639/qmag/mj61-cz.pdf> >).

On the occasion of awarding the Slovak National Prize for Quality, the contest results are announced as „Top-managers of Quality“ and „Appraisal for contribution to the publicity in the field of quality“. The ceremonial act of awarding the prizes takes place, as a rule, during the European Week of Quality, and is held at the Bratislava Castle or in the Primacial Palace. The President of the Slovak republic is solemnly handing over the prizes to winners and participants of the finals of the contest.

The contest for „Top-manager of Quality „ is advertised and organized by the ÚNMS SR with the aim to power up the tradition of evaluating and awarding distinguished representatives of quality management in Slovakia, on an annual basis starting with 2002. It is designed for managers of quality, delegates of quality, methodologists and managers of quality models in organizations of public and private sectors.

The contest for „Appraisal for contribution to publicity in the field of quality“ is advertised by the UNMS SR with the aim to support and award the columnists for their work reflecting the issue of quality management and thereby creating room for presentation of potential variants to solving problems related to the issue.

Conclusion

These days, we are experiencing a fairly dynamic era wherein for most of organizations it is rather difficult to maintain their position and place in the market. The matter got only worse owing to the World Economic Crisis, with all its negative effects to prosperity of organizations acting in all walks of our life. All to the good of the search for new ways of increasing prosperity and efficient use of company potential of every organization.

An important role is played by the state, how it approaches to the support for organizations interested in building quality management systems in order to improve their potential in the competitive environment in the domestic and international market. It is possible only on condition that processes and products are subject to continuous improvement in line with customer requirements. Today in the World, there are some 90 programmes of national prizes for quality based on the four continental models of quality appraisal (Deming's Prize, National Prize for Quality of Malcolm Baldrige, Australian Prize for Quality and the European Prize for Quality Európska cena kvality). The

prizes are awarded to winner by high state officials, as a rule. Laureates of the prizes thus become distinguished models to follow. Currently, an important element in the modern approach is in active participation of state authorities and regional organs of state administration demonstrating support to QUALITY.

It is necessary, however, to be aware of the fact that an introduced and certified system of quality management in an organization is no warranty of the quality in production. Any organization, through completion the certification process is declaring its environment that have created all the conditions to meet the quality requirements as set.

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CHARACTERISTICS OF A CONSTRUCTION TENDER

CHARAKTERISTIKA STAVEBNÉHO TENDRA

Elżbieta RADZISZEWSKA-ZIELINA

Abstract

In Poland, the legal basis of the tender procedure is the Act of 29th January 2004 on the Public Procurement Law. Due to the fact that the Public Procurement Law has been constantly changing, there are no manuals and guides to aid public investors in this respect. Some tenders are cancelled due to the fact that the customer has not been aware of a recent amendment and thus has not prepared the invitation to tender according to the regulations currently in force. In order to aid public sector customers as well as bidders, the Author of the present paper describes the tender procedure which remains in accordance with the Public Procurement Law and, then, on the basis of her own research and analyses, lists the most important elements that a construction tender should include. An outline of a construction tender, proposed by the Author, consists of two essential parts: the enterprise's presentation package and the package presenting the object of the tender. The Author describes and exemplifies some selected marketing concepts in the enterprise's presentation package, such as an enterprise's motto, mission and vision statements, and the enterprise's code of behaviour, which are aimed at making the customer familiar with the enterprise's activity and convincing the customer to choose the offer made by this enterprise.

Keywords: Invitation to tender, tender, construction enterprise, public procurement

Abstrakt

V Poľsku je právny základ postupov tendrov stanovený v Zákone verejného obstarávania z 29.januára 2004. Zákon verejného obstarávania sa neustále mení, z tohto dôvodu neexistujú manuály a príručky, ktoré by napomáhali verejným investorom. Niektoré tendre boli zrušené najmä z dôvodu, že zákazník nebol informovaný o súčasných zmenách a nepripravil pozvanie na tender, ktoré je potrebné uskutočniť podľa pravidiel, ktoré sú v súčasnosti v platnosti. Z dôvodu podpory zákazníkov verejného sektora ako aj ponúkajúcich, autorka v článku opisuje postup tendrov, ktorý je v súlade so Zákonom o verejnom obstarávaní a na základe výsledkov vlastných výskumov a analýz uvádza najdôležitejšie časti, ktoré by mal obsahovať stavebný tender. Návod stavebného tendra, ktorý navrhuje autorka, pozostáva z dvoch hlavných častí: z časti prezentujúcej podnik a z časti prezentujúcej objekt skúmania. Autorka opisuje a na praktických príkladoch ilustruje niektoré vybrané marketingové koncepty v časti prezentujúcej podnik, ako napríklad motto, poslanie a víziu, ako aj podnikové pravidlá správania sa, ktoré sú zamerané na oboznámenie zákazníka s aktivitami podniku s cieľom presvedčiť zákazníka, aby si vybral ponuku vytvorenú práve týmto podnikom.

Kľúčové slová: Pozvanie na tender, tender, stavebný tender, verejné obstarávanie

Introduction

In Poland, the legal basis of the tender procedure is the Act of 29th January 2004. After amendments made in 2006 and 2007, its uniform text was

published by the Public Procurement Office on the 20th November 2007. The next changes followed in 2008, 2009 and 2010. The latest amendments came into force on the 29th January 2010. Due to the fact that the Public Procurement Law has been constantly changing, with amendments introduced practically every year, there are no manuals and guides to aid public investors in this respect. The Act itself is as many as 60 pages of text in altogether 9 chapters. In order to aid public sector customers as well as bidders, the present paper contrasts the procedures of two basic tender modes in the form of a table: an open tender and a limited tender. Such a presentation may facilitate the comparison and application of the two modes in practice. The final part of the paper, based on interviews with several Polish experts who organize public construction tenders and on analysis of several sample tenders, presents the essential elements that a construction tender should include.

The performance of a construction enterprise on the market, including its marketing activity, is discussed by the present Author in (Radziszewska - Zielina, 2008). Elements of marketing and management in a construction enterprise are presented in a paper by (Kozlovská, Mesároš, Čepelová, 2003). The situation of Polish construction enterprises in respect of public procurement of construction work is analysed by the present Author in (Radziszewska, Zielina, 2007).

1. Characteristics of the basic tender modes

An open tender is the mode in which, in response to a public invitation to tender, all interested contractors may submit tenders.

A limited tender is the mode in which, in response to a public invitation to tender, all interested contractors may apply to be allowed to bid and tenders are then submitted by the contractors invited to do so.

The tender procedure is a set of rules, known at least to the tender participants, which allow for commissioning and awarding a contract for construction work.

Table 1

The procedure for the open and the limited tender

Source: The present Author's own elaboration

<p>The procedure of the open tender is as follows:</p>	<p>The procedure of the limited tender is as follows:</p>
<ul style="list-style-type: none"> • Invitation to tender by the customer, • Informing those contractors that the customer knows, • Expressing interest by the contractors and obtaining the tender documentation necessary for tender preparation, 	<ul style="list-style-type: none"> • Announcing the intention of invitation to tender along with description of the object to be commissioned (public announcement of a commission), • Expressing interest by potential contractors (applying to be allowed to tender and a statement of fulfilling the tender conditions) • Verification of the applications, • Presentations of enterprises applying to enter the list of bidders, • Listing the enterprises which the customer invites to tender, • Invitation to tender.
<ul style="list-style-type: none"> • Tender preparation, • Submission of tenders along with payment of the tender fee (if required), • Public tender opening and giving the basic information about the tender and the bidder, • Tender validity verification by the customer, • Assessment of valid tenders, • Selecting the most profitable tender by the customer or annulment of the invitation to tender (informing all bidders about this decision), • Payment of the guarantee of proper contract fulfillment by the chosen bidder, • Contract signing (following the period allowed for possible protests or complaints). 	

2. Tender

A construction tender is prepared by a construction entrepreneur. In the case of public commissions, a customer often either specifies what a tender must be like or provides a ready form consisting of points to fill in. In the case of private commissions, a customer is not obliged to use the procedure dictated by the Public Procurement Law. However, a private customer sometimes uses it

seeing the superiority of this mode, allowing for the choice of the best tender. If the customer does not specify the content of a construction tender, the present Author's suggestion for bidders is to prepare their tender according to the points presented below. The points have been elaborated on the basis of interviews with experts who organize tenders and on the basis of sample construction tenders. The research method chosen by the present Author was the interview and analysis of the existing documents. Methods of this type are discussed e.g. in a publication by (Mesárošová M., Mesároš P., Mesároš F. 2008) and in the handbook by (Radziszewska-Zielina, 2006).

The structure of a sample construction tender:

1. The enterprise
 - 1.1 Presentation of the construction enterprise:
 - Its brief history (year of foundation, number of employees),
 - Information on the scope of its activity,
 - Information on its legal status and, if applicable, its transformations (NIP – Personal Identification Number, REGON – Polish Business Registry Number),
 - An enterprise's philosophy of activity on the market (motto, vision, mission, code of behaviour),
 - Its organizational structure,
 - Presentation of its top management and department managers (a photograph, employment date, achievements).
 - 1.2 An enterprise's policy concerning safety measures, quality and ecology.
 - 1.3 Materials which present the enterprise's experience:
 - Previous projects that are the most important and conceptually related to the project in question,
 - The name and address of a given object, its photograph and details of work,
 - The names of persons and enterprises fulfilling the key roles.
 - 1.4 Awards and distinctions, certificates and recommendations.
 - 1.5 Economic indicators (financial condition, the capital).
2. The subject of the tender
 - 2.1 Description of the planned project:
 - The most important elements of the project (e.g. construction preparation, arrangement and methods of performing particular tasks, work schedules, cost calculation, etc.)
 - The employees' qualifications and experience,
 - Presentation of the persons responsible for the execution of the planned project.

The remaining part of the paper discusses selected elements of a construction enterprise's presentation package, providing their examples.

The motto is a message, has an informational character aimed at better perception of the enterprise by customers on the market, expresses the enterprise's main value and guiding rule, e.g.

- Quality and fair competition,
- Our greatest value is our customer's full satisfaction,
- Our customers' success is our success.

The mission is a more detailed statement, concerns a particular tender for a particular project and a particular aim of the enterprise. It also includes the information on what, for whom and where the enterprise offers, the type of the enterprise's products, the functions that it is going to fulfill, the markets and customers that it is going to serve, e.g.

- Our efforts are focused on our enterprise's cost-effective development on the national and the Eastern markets via the marketing and production of high-quality hydroinsulation materials and protective coating, which we offer both to individual customers and to institutions.

Moreover, the mission statement is the starting point for all kinds of economic activity as it provides the framework for setting objectives.

The vision is the concept of an enterprise's future, the aspirations that should be common both for the management and for the other members of an organization; it is an image of an enterprise's future which its employees want to create, e.g.

- An aspiration to provide for people's needs by creating optimum living conditions,
- Becoming the leader in the sale of thermoinsulation materials in the małopolskie province in respect of the quantitative and qualitative share on the market as well as in respect of profitability and reputation.

Values and the code of behaviour in an enterprise constitute the way of behaving in respect of the ethics and partnering relations with suppliers and customers, specified in points.

An enterprise's strategy defines how to achieve the intended objectives and tasks, constitutes the way to implement the management's plans and defines the actions to be undertaken in order to realise the mission and the vision.

An example of an enterprise's code of behaviour:

Our enterprise's actions are focused on the values which allow us to fully implement the policy of a stable and socially responsible enterprise. Our values are: reliability, quality, infallibility. They are our invaluable development capital. The perfect quality of the services we offer, reliability in business and sound knowledge are the foundations on which we build our enterprise's prestige. We provide services of the highest quality.

- We implement the latest technologies and materials in production.
- We guarantee reliability, punctuality and fair prices.
- We provide complex service: from a concept and a project to the completion of a turnkey investment.
- We take care of the natural environment by using only environmentally friendly materials and technologies.
- We aim at customers' full satisfaction.

Conclusions

In the case of public procurement in Poland, the tender procedure must be conducted according to the legal regulations contained in the Public Procurement Law. The difficulty of its application is due to, among others, constant amendments made in its text. In the case of private commissions, the customer does not have to conduct the procedure strictly according to this law. The Author of the present paper proposes an outline of a construction tender. The outline may be helpful in preparing a tender by a construction enterprise. Apart from the elements related to the object of the tender, the tender should include the enterprise's presentation, which must convince the customer to choose the offer made by this enterprise. The paper defines and gives examples of some selected, relevant concepts, such as an enterprise's motto, mission and vision statements, which are commonly confused in practice.

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RATE OF BANK CONCENTRATION IN V4 COUNTRIES

MIERA BANKOVEJ KONCENTRÁCIE V KRAJINÁCH V4

Daniela ROMANOVÁ – Mária GIRGOŠKOVÁ

Abstract

The aim of this thesis was to compare the concentration of the banking sector in the V4 countries (Slovak Republic, Czech Republic, Poland, Hungary). V4 countries have similar geography and mainly commercial and economic interests. Their cooperation is greatly deepened by joining the European Union. In all V4 countries the banking sector is highly developed and dynamic and its impact on the growth of the country's economy is strong. For assessing of market concentration can be used multiple indicators. To calculate and assess the concentration of the banking sector in the V4 was used Herfindahl-Hirschman indicator (HHI), which is one of the most frequently used indicators of market concentration. On the basis of its value can be determined whether the sector is in the high, medium or low concentrated industry. The bank sector in each economy has key position and it is necessary to check its main indicators which can have decisive impact on its future market position.

Keywords: Concentration, bank sector, V4 countries, competitiveness, Herfindahl-Hirschman index

Abstrakt

Cieľom príspevku bolo porovnať koncentráciu bankového sektora v krajinách V4 (Slovenská republika, Česká republika, Poľsko, Maďarsko). Krajiny V4 majú podobné geografické a predovšetkým obchodné a hospodárske záujmy. Ich spolupráca sa značne prehĺbila vstupom do Európskej únie. Vo všetkých krajinách V4 je bankový sektor veľmi dobre rozvinutý a dynamický a jeho vplyv na rast hospodárstva krajiny je silný. Pre posúdenie koncentrácie trhu možno použiť viacero ukazovateľov. Na výpočet a posúdenie koncentrácie bankového sektora vo V4 bol použitý Herfindahl-Hirschmanov indikátor (HHI), ktorý je jedným z najčastejšie používaných ukazovateľov koncentrácie trhu. Na základe jeho hodnoty sa dá určiť, či toto odvetvie je vysoko, stredne alebo nízko koncentrované. Bankový sektor má v každej ekonomike kľúčovú pozíciu a je nutné sledovať jeho hlavné ukazovatele, ktoré môžu mať rozhodujúci vplyv na jeho budúce postavenie na trhu.

Kľúčové slová: Koncentrácia, bankový sektor, krajiny V4, konkurencieschopnosť, Herfindahl-Hirschmanov index

Introduction

For the effective functioning of market mechanism is necessary the existence of the banking system which consists of financial institutions. Financial institutions are commercial banks, insurance companies, stock exchanges and so on. Their primary activity is to realise financial transactions between debtors and creditors. Each country has different features of the banking sector.

Almost all studies show that bank merger has a competitive behavior already at a small number of measurements made in this area. They also include

measurements that are statistically estimated, also include indicators (usually averages), which are obtained from bank financial statements. Professionals engaged in research in this area may prefer one measure over another. Therefore, there is no consensus on the existence of the "best instrument" by which we could determine the competitive of the environment (Northcott, 2004).

Over the last ten years, the European banking markets have become much more concentrated. Number of banks in the European Union fell from around 9,624 in 1997 to less than 7,500 in 2003, which is actually a 18% reduction (ECB, 2004).

We know the different indicators of bank competition in the market. They are moving in the same direction, and in a similar level.

The banking sector is highly fragmented sector. In some countries, it consists of only a few large banks, which manage the financial market in the country. In other countries there are a number of banks but their market shares are quite small.

1. Structural and non-structural indicators

In general there are two types of measures of competition, by which we analyze the competitive features of the banking industry. They are structural and non-structural indicators (Lerner, 1934).

Structural indicators

In traditional industrial organization theory, based on the Structure - Conduct - Performance (SCP) paradigm, are the features of competition in the industry derived from the structural characteristics that influence the behavior of the company and its performance.

There are several indicators which can express the market structure. These include k-bank concentration ratios (CKR), the Herfindahl-Hirschman Index (HHI) and Lerner Index. The SCP approach is aimed to determine whether there was a relationship between the structural characteristics of industry and corporate performance (measured by various indicators of profit or price). This approach was based on empirical studies as outlined in the 40's and 50s, which were originally based on the manufacturing industry, which have high fixed costs, few competitors, and also restricted entry of new firms. Under these conditions, increasing market concentration has been associated with statistically higher prices and higher than normal profits. At smaller number of companies and limited competition was easier to practice unfair practices - explicitly or implicitly to control outcomes in the market, what leading to anticompetitive behavior.

Non – structural indicators

Non-structural indicators of competition are used to quantify the pricing behavior of firm and are based on measurements of monopoly position in the market, which was developed by Lerner (1934). These include measurements of competition between oligopolists and measurement, which test competitive behavior in a competitive market space. Empirical literature (YWATA, LAU, PANZAR) is aimed at the New Empirical Industrial Organization (NEIO) access. These measurements have been developed from the theory of firm in terms of market balance and use price range form in competition conditions. In the Lerner index is price range - the average revenue over marginal cost and price differences in the perceived border of income. The higher the spread, the greater market power.

2. Indicators and competitive behavior of bank sector

Herfindahl-Hirschman index (HHI)

This index is commonly used to determine the degree of market concentration. Its value is the sum of the squares of market shares of subjects included in the calculation. The HHI takes into account the relative size and distribution of companies in the market and it is close to zero, when the market consists of a large number of firms relatively the same size, in our case of banks. HHI increases when the number of companies on the market is decreasing and if the differences in size between those firms increases. Markets in which the HHI is between 1000 and 1800 points are considered middle concentrated, and those in which the HHI is above 1800 points are considered to be highly concentrated (The Herfindahl-Hirschman index. [online]. [s.a.]. [Cit. 2009-11-23]. Dostupné na: <<http://www.justice.gov/atr/public/testimony/hhi.htm>>).

Herfindahl-Hirschman index is based on the assumption that the competitive strength increases with the square of market share. The maximum value of the HHI can be 10,000, what would mean that in the observed industry operates just one bank. This argument, however, generally can not occur, it is only theoretical.

The calculation of the HHI value can achieve different values which can be divided into the following three groups, namely:

- a) a highly concentrated industry, if $HHI > 1800$;
- b) moderately concentrated industry, where $1000 < HHI < 1800$,
- c) low concentrated industry, where $HHI < 1000$ (Kračinovský, 2008).

Lerner Index

Lerner Index, named after the economist Abba Lerner, describes firms on the market. It is defined as (Lerner Index . [online]. [s.a.]. [Cit. 2009-11-23]. Dostupné na: <http://en.wikipedia.org/wiki/Lerner_Index >):

$$L = \frac{P - MC}{P}, \quad [1]$$

where P is market price, which is determined by firm and MC are marginal costs of firm.

The index ranges from 1 to 0, thus the resulting value is higher, the greater is market power. For perfectly competitive firms (where P = MC), L = 0, this company has no influence on the market. The main problem here is that it is almost impossible to obtain the necessary information about the prices and especially about the costs.

The measure of market power - now known as the Lerner Index was formally introduced by Abba Lerner already in 1934.

3. Concentration of bank sector in V4

For the monitoring of the bank sector concentration, we have selected the V4 countries, which consist of the following countries - Slovak Republic, Czech Republic, Poland and Hungary. There are a considerable number of active banks in each of these countries. We can therefore say that the banking sector is diverse and has a large market share within the industries in the individual territories. This research is demonstrating how varied the bank concentration in the years 2002 - 2005, what can be seen in Table 1. This table provides us the number of banks in individual countries and their percentage change (percentage growth or decline) in the observed period.

Table 1

The number of credit institutions

Source: The Czech National Bank, The National Bank of Poland, The European Central Bank.

Country	2002	2005	Change
Slovakia	29	21	-27,6 %
Poland	1,378	713	-48,3 %
Hungary	45	41	-8,9 %
Czech republic	50	38	-24,0 %

In all V4 countries took place during the observed period the percentage decrease in the number of credit institutions. The highest recorded percentage decline had Poland, where the number of these institutions fell to 713, what represents a decrease of 48,3%. The smallest decline has reached Hungary, where the number of banks decreased from 45 to 41, what represents a change of – 8,9%. In Slovakia, fell in those years the number of banks on 8, what represents a decrease of 27,6%. In comparison with the Czech Republic we have achieved a greater decrease, 3,6%.

For the survey of bank sector in V4 countries, we calculated the Herfindahl-Hirschman Index (HHI), which better characterizes concentration in those sectors.

It is calculated using the relationship (Kračinovský, 2008):

$$HHI = \sum_{i=1}^n x_i^2, \quad [2]$$

where n is the number of all banks in bank sector and x_i is the share of i-bank on the relevant market.

Resulting values of HHI for different V4 countries in the years 2002 – 2006 are showed in Table 2 and on the picture 1.

Table 2

Concentration measurements (HHI) of V4 countries in different periods

Source: Fitch-IBCA database.

Countries	2002	2003	2004	2005	2006
Slovakia	1,943	2,051	1,842	1,533	1,707
Poland	1,691	1,359	1,162	1,046	1,047
Hungary	1,569	1,492	1,204	1,170	1,222
Czech republic	2,406	2,065	1,884	1,725	1,609

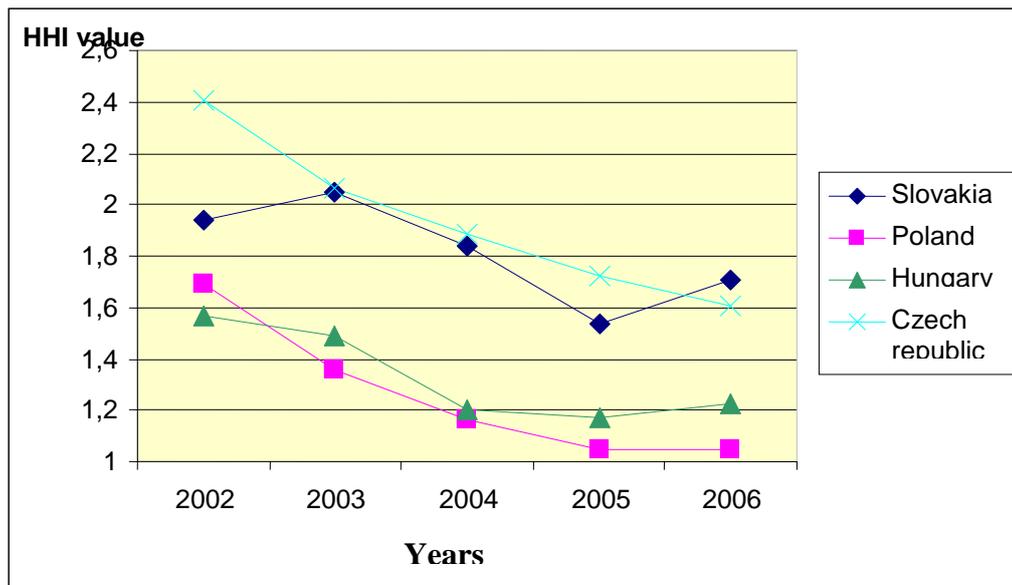


Figure 1
Graphic representation of HHI development in the V4 countries
 Source: own treatment.

According to the calculated values of HHI, we can say, that the concentration of bank sector proceeded from the zone of the high contrast branch to the zone of the middle-concentrated, in the Slovak Republic. It means that none of the banks has such position on the market to influence its prosperity expressively. The development was influenced by several bank mergers, which passed during the last period. In the bank sector we can notice the decreasing of market shares in the biggest banks of the Slovak Republic. The bank sector of the Slovak Republic is dynamic and it has a very high potential, which is attractive for internal and foreign investors.

The similar situation is visible in the Czech Republic, where the bank sector proceeded from the zone of the high contrast branch to the zone of the middle-concentrated branch.

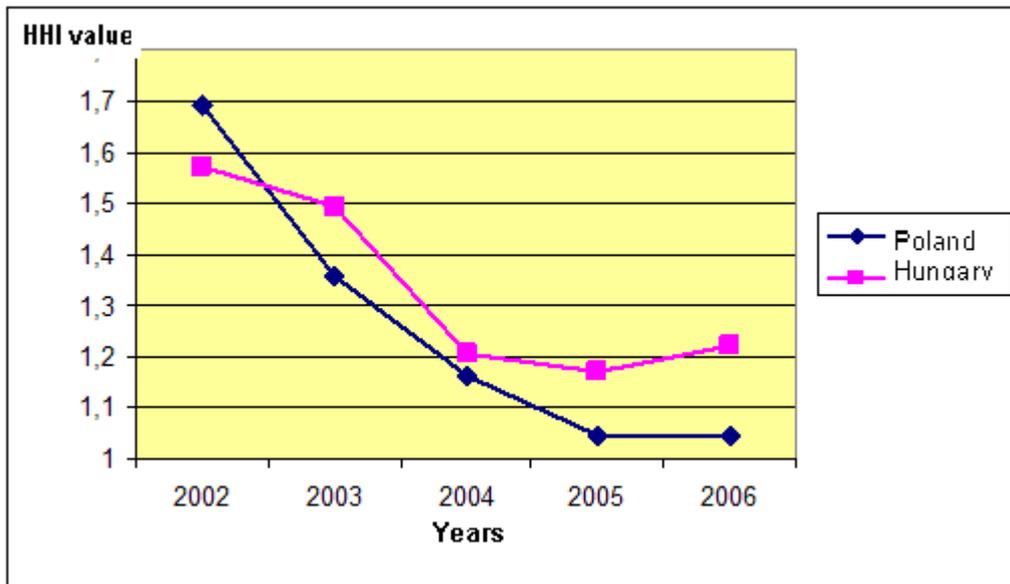


Figure 2
The comparison of HHI in Poland and Hungary
 Source: own treatment.

Hungary has a bank sector, which we can consider as middle-concentrated according to the values of HHI of the indicator. In the last period it is approaching to the lower-bound of the sector.

The same situation we can see in Poland, where the concentration of the bank sector is approaching to the lower-bound of the middle-concentrated branch.

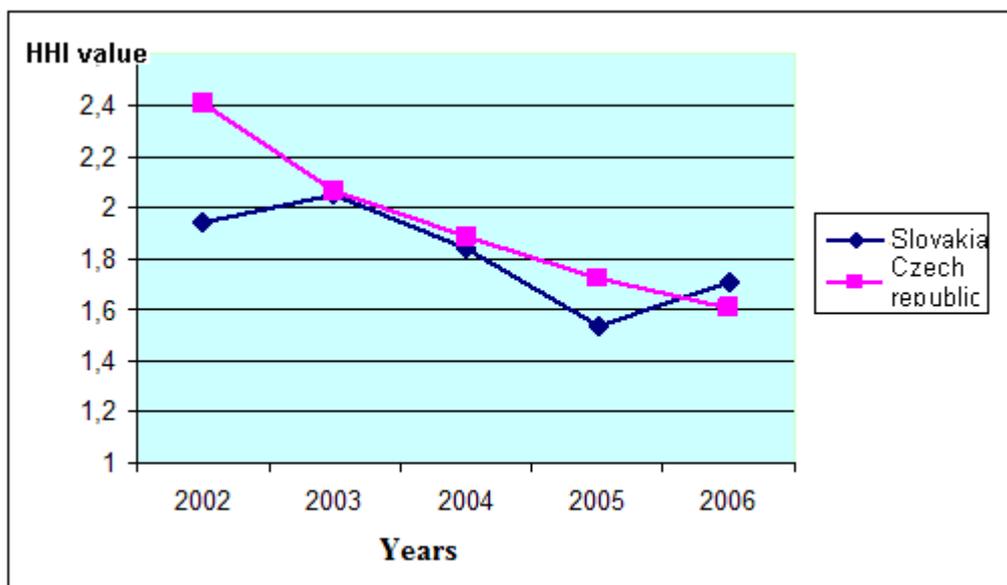


Figure 3
The comparison of HHI in the Slovak Republic and Czech Republic
 Source: own treatment.

Conclusion

The bank sector belongs to the sectors, which influence the development of the economy in the country. It is influenced by the globalization, which is a distinct trend of the world trade. The sector is dynamic and is characterized by a constant development of a potential. Each bank sector has its regulation and the control from the state.

We choose the bank sector of the countries V4, because they are connected with the Slovak Republic by their location, business relations and by their similar requests of the customers. The cooperation of the countries relates with the membership of the European Union.

The activity of the bank sector is connected with the risk. There are many kinds of the risk, for instance the risk of liquidity, solvency etc. In the present, the management of the banks should have more cautious behaviour about the world crisis; it should consider all the steps, which are realized, well. It is very important to target the external analysis of the environment and to monitor the relevant indicators, which can coordinate it in the next development of the bank, in detail. Very important aspect is to monitor the economic indices, for example liquidity, solvency, ROA, ROE, ROI etc, in short interval.

The bank sector in the countries V4 is developed very well. It is acknowledged by our calculated values of HHI. All the countries were middle-concentrated at the end of the monitored period.

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MEASURING THE LEVEL OF COMPETENCES OF UNIVERSITY STUDENTS IN KNOWLEDGE SOCIETY

MERANIE ÚROVNE KOMPETENCIÍ VYSOKOŠKOLSKÝCH ŠTUDENTOV V ZNALOSTNEJ SPOLOČNOSTI

František MESÁROŠ – Pavol PURCZ

Abstract

This study is focused on key competences for lifelong learning for the knowledge society. The aim of study is to propose the model of measuring the level of key competencies using the AHP (Analytic Hierarchy Process) method, currently considered as an appropriate methodology for a sophisticated decision analysis. We employed this method for the measurement of competences defined in European framework. Finally, authors present the evaluation algorithm for competence assessment of two levels of subcriteria.

Keywords: key competences measurement, AHP (Analytic Hierarchy Process), evaluation criteria, evaluation model

Abstrakt

Príspevok pojednáva o kľúčových kompetenciách pre celoživotné vzdelávanie v prostredí znalostnej spoločnosti. Cieľom štúdie je navrhnúť model pre meranie úrovne kľúčových kompetencií, a to prostredníctvom metódy AHP (Analytic Hierarchy Process), ktorá môže byť v súčasnosti považovaná za vhodnú metodiku pre sofistikované rozhodovacie analýzy. Túto metódu autori využili pre meraní ôsmich kľúčových kompetencií, ktoré sú definované v európskom rámci. V závere príspevku autori prezentujú návrh algoritmu použitého pre hodnotenie kompetencií v rozsahu dvoch úrovní subkritérií.

Kľúčové slová: merania kľúčových kompetencií, AHP (Analytic Hierarchy Process) metóda, hodnotiace kritéria, hodnotiaci model

Introduction

Status of implementation of reforms, which are based on key competencies, is positive in many countries, where an adaptation of curricula exists. Reserves are in education and training, including universities, which should be more open and more adaptable to the needs of the labor market and society as a whole. University performs in a knowledge society three major functions in relation to knowledge: 1. production of knowledge, 2. knowledge transfer, 3. dissemination of knowledge. First function, knowledge production is achieved by higher education institutions through research. The second task – knowledge transfer – is realized through education and training of experts. Finally, the dissemination of knowledge is performed using information and communication technologies and media.

Creating the competence – education output – is formulated in terms of competences, which are considered valuable in a knowledge society and

economy. The emphasis is on education and research, but not as two separate functions, rather than closely linked to each other.

For the purpose of our research we define the competence as a complex operational capacity resulting from the integration, mobilization and disposition of a set of capacities and abilities (of a cognitive, affective, psychomotor or social order) and of knowledge (declarative knowledge) used in an efficient manner in certain situations.

1. Key competences

The European framework for key competences for lifelong learning has been used in many EU countries as a reference point for reforming national education and training systems. It has contributed to the move towards a more competence-based teaching and learning approach. Progress has been significant on school curricula and in giving transversal key competences a more prominent part therein.

Key competences represent a summary of the knowledge, skills, abilities, attitudes and values essential for personal development and involvement of every member of society. Key competencies are seen as a transferable and multifunctional set of knowledge, skills, attitudes and values needed by each individual for personal fulfillment and development, to participate in society and a successful future employability.

Eight key competences

This framework defines eight key competences and describes the essential knowledge, skills and attitudes related to each of these. These key competences are (Education Council, 2006):

1. **Communication in the mother tongue** which is the ability to express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form (listening, speaking, reading and writing), and to interact linguistically in an appropriate and creative way in a full range of societal and cultural contexts.
2. **Communication in foreign languages** which involves, in addition to the main skill dimensions of communication in the mother tongue, mediation and intercultural understanding. The level of proficiency depends on several factors and the capacity for listening, speaking, reading and writing.
3. **Mathematical competence and basic competences in science and technology.** Mathematical competence is the ability to develop and apply mathematical thinking in order to solve a range of problems in everyday situations, with the emphasis being placed on process, activity and knowledge. Basic competences in science and technology refer to the

mastery, use and application of knowledge and methodologies which explain the natural world. These involve an understanding of the changes caused by human activity and the responsibility of each individual as a citizen.

4. **Digital competence** involves the confident and critical use of information society technology and thus basic skills in information and communication technology.
5. **Learning to learn** is related to learning, the ability to pursue and organise one's own learning, either individually or in groups, in accordance with one's own needs, and awareness of methods and opportunities.
6. **Social and civic competences.** Social competence refers to personal, interpersonal and intercultural competence and all forms of behaviour that equip individuals to participate in an effective and constructive way in social and working life. It is linked to personal and social well-being. An understanding of codes of conduct and customs in the different environments in which individuals operate is essential. Civic competence, and particularly knowledge of social and political concepts and structures (democracy, justice, equality, citizenship and civil rights) equips individuals to engage in active and democratic participation.
7. **Sense of initiative and entrepreneurship** is the ability to turn ideas into action. It involves creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. The individual is aware of the context of their work and is able to seize opportunities which arise. It is the foundation for acquiring more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance.
8. **Cultural awareness and expression** which involves appreciation of the importance of the creative expression of ideas, experiences and emotions in a range of media (music, performing arts, literature, and the visual arts).

These key competences are all interdependent, and the emphasis in each case is on critical thinking, creativity, initiative, problem solving, risk assessment, decision taking, and constructive management of feelings (Education Council, 2006).

A model for assessing key competences to be developed and improved at all levels of higher education in Slovakia needs to implement an extensive research focused mainly on finding the most important knowledge, skills and abilities, attitude of the value system of students, which require key competences.

2. Current research

In this article we highlight the importance of measuring the level of competence of students in preparation for the knowledge society. We suggest one possible appropriate method of assessing the level of competence of future graduates for the knowledge society.

In our simplified example we describe one of the ways to determine the level of competence of future graduates for the knowledge society. For our example we chose the criteria and subcriteria as well as the appropriate computational method Analytic Hierarchy Process (AHP) to determine the level of competence of future graduates for the knowledge society. AHP method is currently considered an appropriate methodology for a sophisticated decision analysis. AHP, developed by Thomas L. Saaty, is continuously being refined and used in various decision situations.

Proposed model of identifying the key competences of future graduates for in knowledge society

For our example we chose the following eight process steps:

1. Determination of criteria and subcriteria for assessing the competence.
2. Creating the comparative matrix of criteria.
3. Determining the weights.
4. Establishing concourse of comment.
5. Establishing evaluation matrix.
6. Proceeding to multilevel fuzzy comprehensive evaluation.
7. Calculating comprehensive evaluation concourse of target layer.
8. Calculating comprehensive evaluation worth.

1. Step: Establishing the criteria and subcriteria for competence assessment

The starting point for the establishing the criteria and subcriteria for the competence assessment of future university graduates was the brief specification of eight key competences for lifelong learning (Education Council, 2006). For our example we chose the following criteria:

A. Criterion - Communication in the mother tongue

Criterion A includes the following subcriteria:

- A.1 - the ability to express and explain
- A.2 - the ability to listen, speak, read and write
- A.3 - the ability to interpret concepts, thoughts, feelings, facts and opinions orally and in writing

A 4 - the ability to linguistically interact in appropriate and creative way in a range of social and cultural contexts

B. Criterion - Communication in foreign languages

Criterion 2 contains the following sub criteria:

B.1 - the ability to express and explain

B.2 - the ability to listen, speak, read and write

B.3 - the ability to interpret concepts, thoughts, feelings, facts and opinions orally and in writing

B.4 - mediation and intercultural understanding

C. Criterion - Mathematical competence and basic competences in science and technology

Criterion 3 includes the following sub criteria:

C.1 - the ability to develop and apply mathematical thinking to solve various problems in everyday situations, with emphasis on process, activity and knowledge

C.2 - basic skills in science and technology

C.3 - use of scientific knowledge and methods, explaining the natural world

C.4 - understanding changes caused by human activity and responsibility each individual as a citizen

D. Criterion - Working with digital technology

Criterion 2 contains the following subcriteria:

D. 1 - basic skills in information and communication technologies (ICT)

D. 2 - use of information society technologies (IST)

E. Criterion - The ability to learn

Criterion 5 contains the following subcriteria:

E. 1 - ability to track and organize their own learning

E. 2 - learning style

E. 3 - achievement motivation

E. 4 - self-control

F. Criterion - social and civic skills

Criterion 6 contains the following subcriteria:

F. 1 - personal, interpersonal and intercultural competence and all forms of behavior

F. 2 - ability to understand ethical codes in various environments in which individuals operate

F. 3 - knowledge of social and political concepts and structures

F. 4 - democracy, justice, equality, citizenship and civil rights

F. 5 - active and democratic participation in public affairs

G. Criterion - Sense of initiative and entrepreneurship

Criterion 7 contains the following subcriteria:

- G. 1 - creativity
- G. 2 - ability to plan and manage projects in order to achieve objectives
- G. 3 - ability to take risk and risk assessment
- G. 4 - decision making and control of feelings
- G. 5 – problem solving
- G. 6 - transfer ideas into practice
- G. 7 - able to seize opportunities that arise
- G. 8 - initiative
- G. 9 - awareness of ethical values

H. Criterion - Cultural awareness

Criterion 8 contains the following subcriteria:

- H. 1 - creative expression of ideas through music
- H. 2 - creative expression of ideas through the performing arts
- H. 3 - creative expression of ideas through literature
- H. 4 - creative expression of ideas through art

2. Step: Creating a comparative matrix of criteria

Concourse of evaluation factors are as following:

$A = \{A_1, A_2, \dots, A_n\}$, where n is the number of evaluation factors;

$A_i = \{A_{i1}, A_{i2}, \dots, A_{in_i}\}$, where n_i is the number of evaluation subfactors for each factor A_i , $i = 1, 2, \dots, n$.

$A_{ij} = \{A_{ij1}, A_{ij2}, \dots, A_{ijn_{ij}}\}$, where n_{ij} is the number of evaluation subsubfactors for each subfactor A_{ij} , $j = 1, 2, \dots, n_i; i = 1, 2, \dots, n$.

3. Step: Determination of weights

Weight (W) of each criterion is calculated using the method of analytical hierarchy process (AHP):

The weight W_A [$W_{A_i}, i = 1, \dots, n$] [$W_{A_{ij}}, j = 1, \dots, n_i; i = 1, \dots, n$] of each of the factors $A_i \in A$, $i = 1, 2, \dots, n$ [subfactors $A_{ij} \in A_i, j = 1, \dots, n_i$, $i = 1, 2, \dots, n$], [[subsubfactors $A_{ijk} \in A_{ij}, k = 1, \dots, n_{ij}; j = 1, \dots, n_i; i = 1, 2, \dots, n$]], is calculated using Analytic Hierarchy Process (AHP), where $W_A = (a_1, a_2, \dots, a_n)$, [$W_{A_i} = (a_{i1}, a_{i2}, \dots, a_{in_i})$, $i = 1, 2, \dots, n$], [[$W_{A_{ij}} = (a_{ij1}, a_{ij2}, \dots, a_{ijn_{ij}})$, $j = 1, 2, \dots, n_i; i = 1, 2, \dots, n$]].

4. Step: Establishing concourse of comment

Comment is qualitative description on good or bad of evaluation object. It becomes nonfigurative data to evaluation language that people know well. Concourse of comment is consistent to each layer of index. Let's denote (formally) the set P as a set of characters $P = \{Z_1, Z_2, \dots, Z_m\}$, where m is the number of the using evaluation language data and each of Z_i , $i = 1, 2, \dots, m$ represents one of the evaluation language data. Next, the corresponding concourse of comment power coefficient matrix is $G = (g_1, g_2, \dots, g_m)$; $g_1 > g_2 > \dots > g_m$. Most frequently $m = 5$, then the set P is normally given as $P = \{\text{very good, good, general, bad, badly}\}$ and the corresponding concourse of comment power coefficient matrix is normally coded as $G = (9, 7, 5, 3, 1)$.

5. Step: Establishing evaluation matrix

Evaluation matrix is fuzzy matrix result from fuzzy mapping. It means a comprehensive result that experts investigate. Let's denote this matrix as $R_{ij} : n_{ij} \times m$ (it means, R_{ij} is a matrix, consist from n_{ij} lines and m rows), $j = 1, 2, \dots, n_i$; $i = 1, 2, \dots, n$.

6. Step: Proceeding to multilevel fuzzy comprehensive evaluation

Fuzzy comprehensive evaluation matrix $E_i : n_i \times m$, $i = 1, 2, \dots, n$ is constructed. Beginning from the top level, proceeding to comprehensive evaluation to each layer every kind of index, i.e. each row of matrix $E_i : E_{ij} = W_{A_{ij}} \times R_{ij}$; $(E_{ij} : 1 \times m)$, $j = 1, 2, \dots, n_i$. Next, fuzzy comprehensive evaluation matrix $F : n \times m$ is constructed (similarly). Each row of matrix $F : F_i = W_{A_i} \times E_i$; $(F_i : 1 \times m)$, $i = 1, 2, \dots, n$.

7. Step: Calculating comprehensive evaluation concourse of target layer

Fuzzy comprehensive evaluation target matrix B is constructed as a product W_A of the weight concourse of target A and the fuzzy comprehensive evaluation matrix F , i.e.: $B = W_A \times F$; $(B : 1 \times m)$

8. Step: Calculating comprehensive evaluation worth

$X = B \times G^T$. If $X \geq g_1$, then enterprise key competence correspond to the best evaluation language data Z_1 ; if $g_{i+1} \leq X \leq g_i$, $i = 1, 2, \dots, m-1$; then organization key

READ (g(i)) – the numerical representation of the identification's
 Character Z(i)
ENDFOR

STEP 3: establishing evaluation matrix

FOR i:=1 TO n DO
 FOR j:= 1 TO n(i) DO
 FOR u:= 1 TO n(i,j) DO
 FOR t:=1 to m DO
 READ R(i,j,u,t) – the element (u,t) of the evaluation
 matrix of the subfactor A(i,j)
 ENDFOR
 ENDFOR
 ENDFOR
ENDFOR

STEP 4: calculating comprehensive evaluation matrix E

FOR i:=1 TO n DO
 FOR j:= 1 TO n(i) DO
 FOR t:=1 to m DO
 E(i,j,t):=0
 FOR u:= 1 TO n(i,j) DO
 E(i,j,t):= E(i,j,t)+a(i,j,u)*R(i,j,u,t)
 ENDFOR
 ENDFOR
 ENDFOR
ENDFOR

STEP 5: calculating comprehensive evaluation matrix F

FOR i:=1 TO n DO
 FOR t:= 1 TO m DO
 F(i,t):=0
 FOR u:= 1 TO n(i) DO
 F(i,t):= F(i,t)+a(i,u)*E(i,u,t)
 ENDFOR
 ENDFOR
ENDFOR

STEP 6: calculating comprehensive evaluation target matrix B

FOR t:=1 TO m DO
 B(t):=0
 FOR u:= 1 TO n DO
 B(t):= B(t)+a(u)*F(u,t)

```
    ENDFOR
ENDFOR
```

STEP 7: calculating comprehensive evaluation worth

```
X:=0
FOR t:=1 TO m DO
    X:= X+g(t)*B(t)
ENDFOR

IF X>=g(1) THEN WRITE(Z(1))
    ELSE FOR i:=1 TO m-1 DO
        IF X>=g(i+1) THEN WRITE(Z(i+1),Z(i))
    ENDFOR
ENDIF
IF X<=g(m) THEN WRITE (Z(m))
END
```

Conclusion

Detection of the level of skills may help colleges and universities in Slovakia to know their strengths and weaknesses. This will allow better use of their available resources and improve their competitiveness in higher education. Defining key competences enables measurement of the level of activity, what is for the success of schools very important. Determination of key competences to be developed and improved at all levels and types of schools in Slovakia, as well as lifelong learning requires extensive research carried out mainly to reveal the most important knowledge, skills and abilities, attitudes and value systems, which create the basis for key competences.

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Annex 1: Software output for programmed algorithm in Microsoft Visual Studio

Analyza hierarchických procesov AHP

Možnosti

Počet hodnotiacich stĺpcov : 5

Body stĺpcov 1. 9 2. 7 3. 5 4. 3 5. 1

Celkový počet subkritérií : 4

Podsubkritériá :

1. 1
2. 2
3. 4
4. 9

Váhy 4

	1	2	3	4	5	6	7	8	9	Súčet
5 1.	0.3166	0.0922	0.0492	0.4208	0.1212					1
4 2.	0.55	0.083	0.118	0.249						1
4 3.	0.055	0.13	0.252	0.563						1
6 4.	0.064	0.331	0.18	0.219	0.134	0.072				1
5 5.	0.058	0.121	0.088	0.477	0.256					1
5 6.	0.165	0.119	0.06	0.281	0.375					1
4 7.	0.144	0.505	0.264	0.087						1
4 8.	0.088	0.482	0.158	0.272						1
5 9.	0.145	0.093	0.064	0.441	0.257					1

Hodnotiace matice :

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

Hodnotiacia matica 1

	1	2	3	4	5	6	7	8	9	Súčet
1.	0.1	0.2	0.5	0.2	0					1
2.	0.1	0.4	0.4	0.1	0					1
3.	0.1	0.4	0.4	0.1	0					1
4.	0.2	0.3	0.4	0.1	0					1
5.	0.1	0.2	0.4	0.3	0					1
6.										
7.										
8.										
9.										

Vypočítaj

Celková známka: 5,35204712

Source: own work

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Instructions for authors:

TITLE OF THE PAPER IN ENGLISH (TIMES NEW ROMAN, 16 pt, CAPITAL BOLD)

TITLE OF THE PAPER IN SLOVAK (TIMES NEW ROMAN, VEĽKOSŤ 14 pt, CAPITAL BOLD)

Name SURNAME (Times new roman, italic, 14 pt)

Abstract (Times new roman, 12 pt, bold)

Abstract in English – max. 10 lines. (Times new roman, 12 pt).

Keywords: 5 – 8 key words in English

Abstrakt (Times new roman, 12 pt, bold)

Abstract in Slovak – max. 10 lines. (Times new roman, 12 pt).

Kľúčové slová: 5 – 8 key words in Slovak

Introduction (Times new roman, 14 pt, bold)

The editors of the journal welcome empirically (experimentally) founded studies, survey studies, contributions to “Discussion” (personal views and attitudes on controversial issues in economics as science, as a professional practice, etc.). Integrative studies documented by relevant data from central and east European regions and member countries of European Union are specially welcomed. Naturally, all contributions should be original. The publishing of the article is free of charge.

The editors accept only contributions written in English (grammatically correct). The manuscript should be no longer than 15 pages, single-space typed, basic text using font Times New Roman 14 pt. Illustrations, i.e. tables, diagrams, black & white pictures; text should mention their placement, numbering and titling. With all figures borrowed from other authors, the authors' names should be listed in figure legends. Please use the following format of the paper in MS Word. Page size A4 (21 cm x 29,7 cm), single spacing, all margins at 2,5 cm.

Table 1 (Times new roman, 12 pt)

Title of the table (Times new roman, 12 pt, bold)

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