

# Possibilities of Implementation of Knowledge Management in Practice of Companies in Slovakia

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**Abstract** This study focuses on the analysis of present situation of application of knowledge management in companies in selected sector of industry (construction) in Slovakia. Based on practical experience, main conditions and problems by implementation of these processes are analyzed through empirical survey. Necessity of utilization of information and communication technologies, managerial information systems, innovation and lifelong education in companies are considered. Further possibilities of application and expected economic effects and benefits on growth and international competitiveness of companies in many fields are outlined in the end of this article.

**Keywords** – Knowledge Management. Empirical survey. Managerial information system. Economic effects.

## I. INTRODUCTION

One of the main roles of current management is to build and maintain a competitive advantage based on knowledge, specifically on company knowledge. Company knowledge captures the best methods and practice utilized by the company as well as knowledge that represents the current advances in the company's field of activities [1]. At present, companies are attempting to implement novel information system, so-called knowledge management systems [2]. These systems promise to offer methods to increase flexibility, improve the company's ability to adapt to new market conditions, new innovations as well as improvements in firm's decision making process, productivity and competitiveness. The current study presents an analysis of current implementation and utilization state of knowledge management systems within the field of construction industry in Slovak Republic through an empirical survey completed by an academic institution [3].

## II. SURVEY OF KNOWLEDGE MANAGEMENT UTILIZATION BY FIRMS

The survey information can be categorized as both primary and secondary information:

- Primary – information collected for the first time, tailored to answer a given research question obtained through a survey methodology
- Secondary – previously obtained information, collected for other purpose (review articles and relevant statistics).

The survey questions were focused on the knowledge management and on systems of knowledge management. The survey attempted to gather the opinions of construction

industry on knowledge management and its returns as well as the readiness of information technology for the implementation of knowledge management. Construction industry was chosen since it represents a significant fraction of total economic activity in the Slovak Republic and European Union. This survey was conducted in 2006 in Slovakia through a distribution of 267 questionnaires, of which 140 (52%) were completed. The sample contained 43% small enterprises, 30% microenterprises, 24% medium enterprises and 3% large enterprises. The majority (38%) of respondents came from the production and technology segment and occupied a top management position (e.g. executive officer, manager, board member, general manager). Additional 16% of respondents held positions in marketing and sales, 5% were economists, and 3% held a different position. Analysis and synthesis of information was applied to the obtained data with the focus on key areas considered to be essential to implementation of knowledge management systems.

## III. APPROACHES TO KNOWLEDGE MANAGEMENT IN SELECTED COMPANIES – SURVEY RESULTS

Many specific steps are needed for the implementation of the intricacies associated with knowledge management supported by novel information technologies. Modernization of information technologies represents only a first step, followed by the need to establish an appropriate business culture within a company: one that encourages exchange of knowledge and focuses on knowledge-based processes. The purpose of the research was to evaluate the readiness of the companies for the implementation and utilization of knowledge management, and assess the requirements for its implementation.

First area of research represents an analysis of the theoretical readiness of construction company managers for handling the concept of knowledge management. Answers to questions about knowledge management were used to assess the understanding of knowledge management. These answers were further categorized: 43% of respondents associated knowledge management with management and utilization of knowledge and experience to company's benefit. 26% of respondents associated the term with information acquisition as well as ongoing education. Additional 11% associated the term with educated workers, specialists and experts or educational institutions. No answer to the question was given by 20% of respondents. We can conclude that 69% of respondents provided a qualitatively suitable description of knowledge management, which represents a positive finding given that awareness and understanding of the concept are the

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first step towards implementation of knowledge management systems. Further examination looked at the theoretical aspects, the knowledge of knowledge management terminology, as well as the actual concept of knowledge management as perceived by the managers of Slovak construction companies. Most respondents expressed an interest in the detailed functioning of knowledge management, i.e. what the practical application of the term to construction industry are and where can they obtain further theoretical and practical information. Another group of closely linked questions examined organizational aspects of knowledge management, e.g. personnel, rights and responsibilities of the workers, as well as financial outlook. The respondents expressed interest in returns offered by knowledge management, such as effects on productivity and competitiveness of the firm. These findings were interesting as they show a considerable curiosity regarding the use of intellectual capital and its effects on any business entity. Furthermore, a significant fraction of the managers expressed interest in concrete projects of knowledge management implementation. The most interest was found in large and medium enterprises, followed by small and microenterprises. The medium enterprises, which formed a bulk of the sample, expressed the most interest in the functioning of knowledge management, followed by the interest in the implementation and returns. The least interest was expressed towards organizational aspects and the responsibilities associated with the knowledge management of the company.

The survey also examined the actual methods of knowledge exchanged, where the following categories were used: exchange of knowledge based on the executive orders, based on voluntary contribution, based on work relationships or on personal and collegial relationships. Since it was possible to select more than one category, the fractions of answers will not sum to 100%, which was the case with multiple questions. The following findings were obtained: most often the respondents selected the exchange of information based on work relationships (71%), or personal and collegial relationships (41%). The principle of voluntary exchange appeared in 31% of respondents. The exchange of knowledge on the bases of executive orders was found in only 14% of cases. The fact that majority of the exchange of information takes place on the basis of work relationships is important for the future.

### III.1. Information and communication technologies in Slovak companies

Implementation of knowledge management system requires not only a business culture, which supports efficient treatment of knowledge, but also technical infrastructure. Introduction of information technology should never be confounded with the introduction of knowledge management. Knowledge management is company-wide strategic concept, while information and communication technology are only a tool to support knowledge management. Nevertheless, the survey also examined the existence of information and communication technology in the construction companies as well as the existence of technological infrastructure and applications in the individual companies. For example, local

area network, access to internet, company intranet, and other platforms that support communication within and between companies comprise technical infrastructure. Applications can be defined as managerial information system consisting of interconnected modules, specialized information systems as well as applications that support communication process, transfer of data and their appropriate storage (e.g. data and knowledge-based database systems).

The evaluation of technological infrastructure from the standpoint of the company is illustrated on Figure 1.

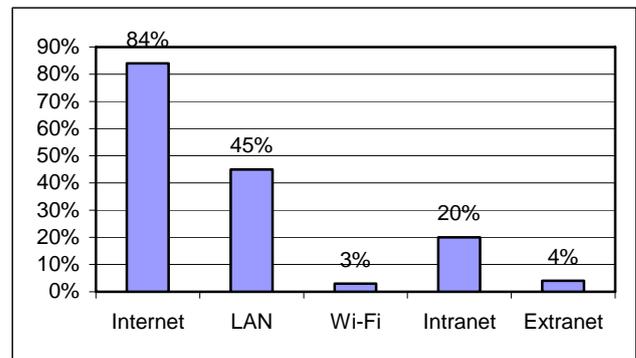


Fig. 1 Technological infrastructure in the companies

Another positive finding was the fact that almost 84% of companies provided access to internet, which undoubtedly provides the most information that can be transformed into knowledge. A local area network (LAN) that incorporates all necessary components (cable outlets, data links, active network components etc.) was found in 45% of companies. These findings demonstrate that nearly half of the companies already used the infrastructure required for the implementation of knowledge management system. On the other hand, only 3% of companies provided a wireless network (Wi-Fi), which remains one of the newest trends in computer networking. Today, available operation systems provide all users with an easy wireless access capability. Company intranet was found in 20% of companies and 4% reported the use of extranet for communication.

The existence of knowledge database in company

Knowledge represents a source of important economic value, which must be not only acquired, but also developed and utilized. It is possible to categorize knowledge in such a way that would allow explicitly increase its utility to anyone, who needs it. Knowledge can be expressed in many forms, such as written in a company archive, digital as an electronic document, or structured database system. It was discovered that most business does not utilize the possibility of storing knowledge and experience in any of the above-mentioned formats. Only 39% of respondents reported that they attempt to preserve knowledge in a written format in a physical archive. A digital archive was used only by 16% and additional 4% reported the use of a knowledge database, which was part of a different application used to facilitate work with stored information or knowledge.

**Applications used by surveyed companies**

Further, applications used to manage the information and communication technologies were examined. The number of companies that possess a managerial information system or other information systems was examined. Additionally, the companies were assessed on the basis of the extent to which exchange of information is supported and enhanced by the use of applications for electronic communication within and between companies.

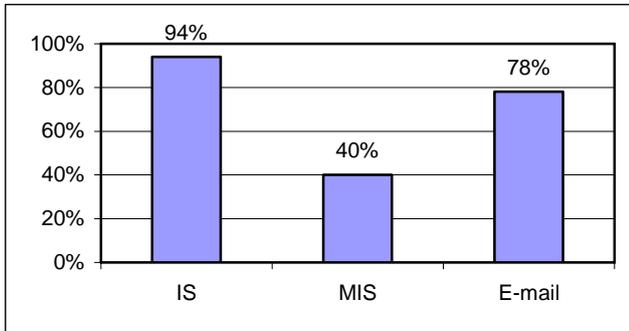


Fig. 2 Applications equipment in companies

As can be seen on Figure 2, the most common application systems were functional information systems (IS) that can be used for a multitude of purposes depending on the current requirements. Over 94% of companies reported use of such applications. This category mostly included varied computer software used to perform specific tasks (e.g. accounting and tax oversight, salary recording, technical documents preparation, evaluation of production, price calculation, drawing and planning). Managerial information systems (MIS), which bridge multiple functional areas and supply the management with various information, were used by 40% of companies. E-mail, an efficient tool enabling quick, flexible, cost-less and comfortable communication within and between companies was used by 78% of respondents. This was a positive finding, since use of this type of communication can significantly enhance one of the processes of knowledge management – exchange and expansion of knowledge.

*III.II. Evaluation of opinions regarding use and returns offered by knowledge management*

Furthermore, the anticipated returns associated with the knowledge management in individual functional areas of the companies were examined. The overview of the opinions regarding the possible use of knowledge management can be found on Figure 3.

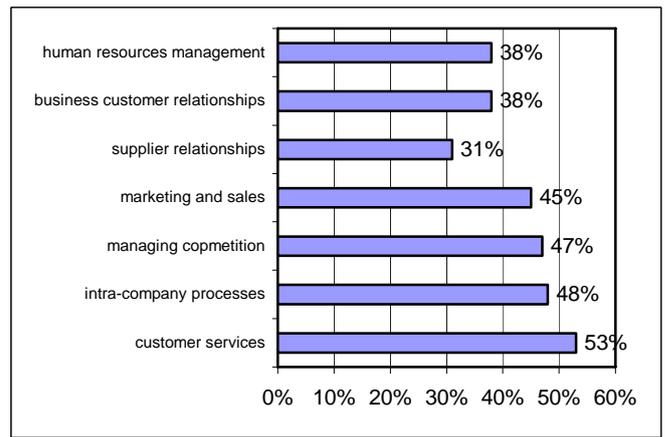


Fig. 3 Opinions regarding use and returns offered by knowledge management

Interestingly more than half (53%) of respondents were considered the concept of knowledge management useful for customer services. It can be assumed, however, that most of these companies are customer-oriented and thus see the most improvement in providing higher quality customer service. The additional customers brought in by higher quality services can ensure further growth. 48% of companies considered knowledge management useful for intra-company processes and managing competition (47%). Improvements in intra-company processes are closely related to the ability of the firm to succeed in competitive environment. Moreover, 45% of companies envisioned the knowledge management concept as a tool in marketing and sales. 38% considered knowledge management useful in the context of human resources and business customer relationships. 31% saw potential in supplier relationships. This question also permitted multiple answers, thus the percentages do not add to 100.

**Expected benefits from knowledge management implementation**

This segment of the survey was aimed at identifying the opinions regarding concrete benefits expected by the managers. Multiple answers were also possible. The findings are presented on Figure 4.

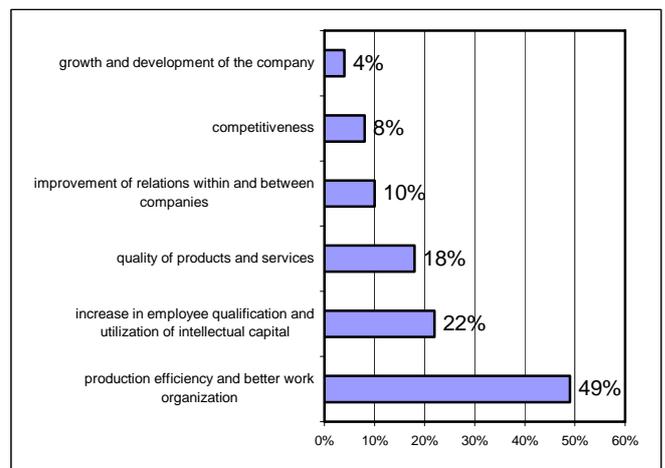


Fig. 4 Expected benefits from knowledge management implementation

Most respondents (49%) saw a benefit of knowledge management implementation in increases production efficiency and better work organization. 22% opined that the benefits would be in continuous increase in employee qualifications and utilization of intellectual capital. 18% of the companies find promise in increase quality of products and services and 10% in improvement of relations within and between companies. 8% expect increased competitiveness of the company and 4 % see growth and development of the company as a result of focus on knowledge.

#### IV. CONCLUSION

The results of the survey were positive and promising, especially from the standpoint of possible implementation of knowledge management concept supported by progressive technologies, comparable with international surveys [4]. Most companies in the construction sector possessed the basic technological infrastructure and thus fulfilled one of the requirements for knowledge management systems. Medium, but especially small, enterprises have shortcomings when it comes to the investment into information technology and longlife education of human resources within information technology departments, which can lead to lower competitiveness especially when compared to other companies within EU. Some further shortcomings were seen in the building of knowledge culture and in understanding of the benefits of knowledge management. Continuous development of information and communication technology, their increasing price feasibility and ongoing implementation in the companies together with the move towards knowledge-based economy further emphasizes the need for knowledge management system implementation [5]. Currently, automated management of company knowledge represents an efficient solution, which offers economic returns. In the near future, knowledge management will become not only a tool to increase the ability of the company to compete, but also a basic requirement for survival in knowledge-based economy [6].

Further possibilities of implementation of knowledge management in practice can be suggested in many fields: field of communication, field of efficiency of investments, education and human resources, field of finance, field of marketing.

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