European Journal of Science and Theology, October 2014, Vol.10, Suppl.1, 121-129

EFFECTS OF KNOWLEDGE MANAGEMENT IMPLEMENTATION IN THE ICT SECTOR

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(Received 16 June 2014)

Abstract

In this paper the author aims at analysing activities of governance of enterprise IT (GEIT) in the ICT sector in Slovakia, in context of their character. This is determined by the ability of employees to learn to perform the activity and by its tacitness. In this work, both formal and informal objects of information exchange are assessed, including topics like free time plans, hobbies or belief issues that can form the knowledge sharing culture and increase employees' loyalty as the end effect. Based on results of structured depth interviews with top managers of selected companies in the ICT sector, KIP model by McIver was applied to determine the character of GEIT processes and categorize them into 4 quadrants. Furthermore, primary effects of implementation of knowledge management into the GEIT were assessed and the prioritisation of these effects was introduced. These results enhance the theory of knowledge management implementation effects by tangible results from the evaluated sector and create a framework for application of results into the everyday managerial practice of organisations and companies, regardless of their core business.

Keywords: competitive advantage, GEIT, knowledge management, implementation, effects

1. Introduction

Nowadays, companies and organizations all over the world tend to implement knowledge management into their managerial processes. The adoption of these principles brings many benefits to organizations and creates the framework for increasing value of human capital within the company. This opens new avenues for raising the value of the whole company as the end effect. In this article we aim at identifying the major effects that the implementation of knowledge management brings to the company. This will be shown by looking at the results of the survey, which was realized by the means of depth interviews with top managers of 25 companies in the ICT sector in the Slovak Republic.

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2. Knowledge management context and relationships

The importance of knowledge management (KM) has increased over the past few years. The reason for this is the fact that companies and organizations have started to realize that the value of their business depends on the quality and outputs of their employees. This critical dependency has been observed by many scientists and more and more companies have realized that they need to obey the principles of KM to create and further increase the value of their business. Knowledge of key employees has many times such a high value that cannot meet directly financially values. Thus, managers of the company are aware of the importance of building this knowledge, trying to capture it, share it and reinforce the learned knowledge in the minds of instructed personnel.

Knowledge management can be defined as a systematic process of identifying knowledge, capturing, transforming, storing, redistributing and applying knowledge in business decision making and common operations. KM is interconnected with human resource management. Four key concepts are typically interconnected [1]:

- Intellectual capital management,
- Human resources management,
- Knowledge management,
- Organisational learning.

Knowledge management is closely connected to people, as they are the object of this managerial discipline. Knowledge is being generated in the minds of employees and owners and its flow depends solely on the decision of people. This aspect needs to be stressed when looking for correct implementation principles into the company processes. Interpersonal relationships and communication play an important role in knowledge management as well. Communication is an essential part of a person's life activity and creates a clear distinction with one's natural environment [2]. Within this context other relevant question should be addressed too: shall the company create the environment for sharing information and knowledge connected directly to job issues or should it focus on promoting the exchange of non-formal information that are more of a personal character as well? Many companies realize that the second part of human interaction is critical when building loyalty of their employees. Thus, the KM infrastructure in a company could cover both levels of human interaction and information exchange, including work related topics and personal issues. This semi-formal or non-formal socializing platform could include exchange of information regarding personal interests, free time plans, organization of common activities or faith issues. Other view on the relationship between faith and KM is the implementation of KM principles in so called faith-based or Christian organizations. Many global organizations, including faith-based non-profit organizations (NPOs), face the challenge of improving their communication procedures with the implementation of KM into their internal processes. In her work, Simmank has dealt with the challenges of knowledge management in these organizations – global faith-based NPOs. She explains

knowledge management and its elements and identifies problems for global faith-based NPOs during the development of a concept for its own knowledge system [3].

Companies or organizations that have been successful in adopting knowledge management had to realize the importance of people and their contribution to the final outcomes of the company firstly [4]. They incorporated principles of intellectual capital management, being aware of the fact that intellectual capital is the key area that acts as a precursor to company growth and value creation.

3. Introducing knowledge management principles into the company

Implementation of KM into an organization is a systematic process. There are several aspects regarding people that need to be fulfilled in order to be able to succeed with the inclusion process. We identified these major prerequisites:

- People need to be aware, what knowledge is;
- People have to be trained on various methods of knowledge capture, transformation, storing and sharing;
- People need to be motivated to support knowledge management initiatives.

The first important factor is the ability of personnel to identify knowledge that can be beneficial to other people – team members, department leaders, top management, owners/investors or project stakeholders. Thus, definition of knowledge and sharing this definition to employees is a prerequisite of successful implementation process. Knowledge, in this context, can be defined as anything that helps the employee or other team members to perform their operational tasks more efficiently, to remove obstacles within work or to achieve goals more quickly.

Capturing knowledge includes various forms and methods of knowledge identification. It is crucial that people are vigilant when dealing with their work or project issues, because in many situations, interesting knowledge may be generated. Knowledge can be in an implicit form, which means that it has to be externalized, to be captured and transformed to an explicit form, to be stored in an information system. Here, codification plays an important role. As Kotlarsky states, where knowledge can be codified, the effect is to reduce the need for close, reciprocal interactions between different individuals and groups as they are able to follow the same defined procedures, apply shared tools, and draw on the same centralized knowledge stores [5]. Not only saved/stored knowledge can be shared; the company has to motivate knowledge sharing in the tacit form as well. However, companies in the ICT sector, being used to work with various information systems and infrastructure, tend to prefer working with explicit knowledge. Thus, they try to incorporate the KM implementation practices to define, build, test and deploy information systems that support knowledge systemisation, storage and sharing between different employees and user groups. Finally, the aspect of motivation is crucial for the functionality of the adopted process. If people lack motivation, the effectiveness of knowledge management

will suffer dramatically. Following this look, we can state that implementing KM into a company has to follow a given, systematic process. This process has to be in-line with business strategy and aligned to business goals. Process management play an important role in the success of KM implementation and adoption. We can agree with Toth, who identified the first benefit of process management as the help in gaining deeper knowledge of mechanisms of management effects. It initiates the need for rethinking processes, identifying their weaknesses, rationalising them and continuously monitoring their performance [6]. This systematic approach is crucial when implementing KM principles into any organisation or company to guarantee the sustainability of this initiative.

4. Categorization of activities according to their characteristics

There are numerous research studies published that explain how knowledge management results in desired outcomes. An interesting approach has been created by McIver, who points out the importance of knowledge structures. As he argues, different kinds of work have different kinds of underlying knowledge structures. An effective KM depends on understanding these knowledge structures and aligning knowledge management initiatives with the kind of knowledge that is needed to get the work done. He argues that adopting knowledge management activities to fit the underlying knowledge structure of particular work practices leads to desired performance. That means that organizations are more likely to achieve their desired performance outcomes when they understand their work from what we call a knowledge-in-practice (KIP) perspective and adopt knowledge management initiatives that support the underlying KIP characteristics [7].

In our study, we use the McIver's KIP model as a basis for the proposed categorization of activities within the governance of enterprise IT (GEIT) activities in the ICT companies in Slovakia. The model is shown at the Figure 1. It divides activities into 4 sectors based on the means of learning to realize the activity and the tacit character of the activity. McIver refers at four practice types to these four quadrants:

1. Enacted information (high learnability, low tacitness);
2. Accumulated information (low learnability, low tacitness);
3. Apprenticed know-how (high learnability, high tacitness);
4. Talent and intuitive know-how (low learnability, high tacitness).

As he further notes, these four KIP work types differ not only in their underlying KIP characteristics but also in the intended performance and the ways in which performance outcomes are achieved. These KIP distinctions offer a valuable way of theorizing and are used here to distinguish work settings [7]. Understanding the roots of learning performing of each activity in the GEIT and its level of tacitness plays an important role in the ability of companies to adopt and successfully implement knowledge management practices. In case they are not aware of the character of activities and work performed, there is no right

support, motivation and drive for the personnel in increasing the added value and knowledge generation within the regular work activities.

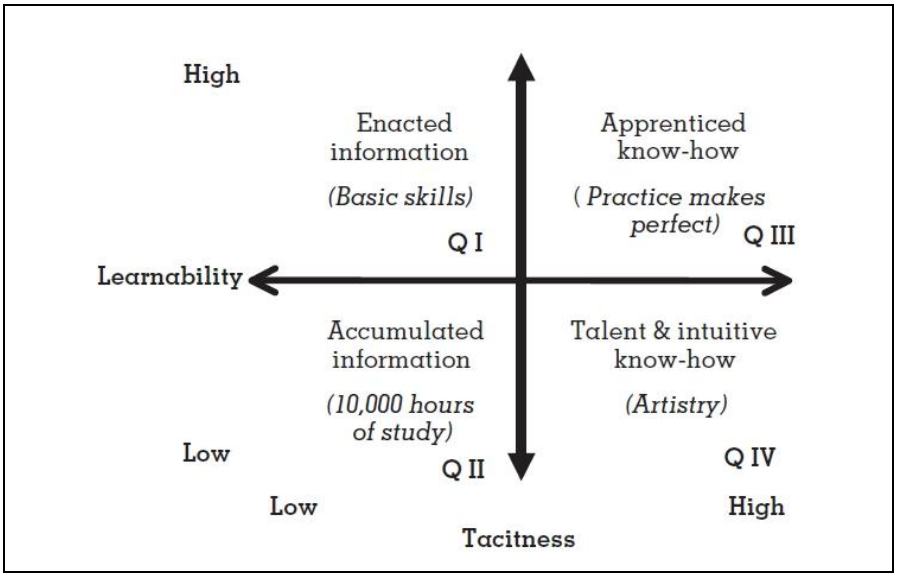

Figure 1. Knowledge-in-practice model [7].

In our research we asked top management members to determine the character of 37 main GEIT activities performed and discussed the ability of the top management member to identify the commitment and support from top management for realization of this activity based on continual improvement and knowledge generation. We analysed results and prepared a matrix of activities – their assignment to four quadrants according to McIver's model. As we hope, this can be a significant contribution to the theoretical basis of governing the IT activities from the knowledge perspective on one hand and, a practical tool for companies trying to improve their KM and GEIT managerial processes on the second hand. Firstly, we list our main findings from this part of our research:

- Top managers are generally not aware of the importance of systematic approach to GEIT;
- Owners, top managers and other important stakeholders do not support the initiative of systematic KM application sufficiently;
- Top managers were not able to determine correctly the work character in some cases.

In the Table 1 we show the results of our categorization of GEIT activities, according to the analysis of our research material. We used the processes map according to COBIT 5 categorisation [8]. COBIT 5 defines 37 processing covering the GEIT activities. They are categorised into 5 main domains:

1. Evaluate, Direct and Monitor (EDM),
2. Align, Plan and Organise (APO),

3. Build, Acquire and Implement (BAI),
4. Deliver, Service and Support (DSS),
5. Monitor, Evaluate and Assess (MEA).

Table 1. Categorization of GEIT activities according to KIP model.

Q I – Enacted information	**Q III – Apprenticed know-how**
APO01 Manage the IT Management Framework	EDM01 Ensure Governance Framework Setting and Maintenance
APO03 Manage Enterprise Architecture	EDM02 Ensure Benefits Delivery
APO06 Manage Budget and Costs	EDM03 Ensure Risk Optimisation
APO09 Manage Service Agreements	EDM04 Ensure Resource Optimisation
BAI02 Manage Requirements Definition	EDM05 Ensure Stakeholder Transparency
BAI04 Manage Availability and Capacity	APO02 Manage Strategy
BAI10 Manage Configuration	APO05 Manage Portfolio
DSS01 Manage Operations	APO07 Manage Human Resources
DSS02 Manage Service Requests and Incidents	APO08 Manage Relationships
	APO10 Manage Suppliers
	APO11 Manage Quality
	APO12 Manage Risk
	APO13 Manage Security
	BAI01 Manage Programmes and Projects
	BAI03 Manage Solutions Identification and Build
	BAI05 Manage Organisational Change Enablement
	BAI06 Manage Changes
	BAI07 Manage Change Acceptance and Transitioning
	BAI08 Manage Knowledge
	BAI09 Manage Assets
	DSS03 Manage Problems
	DSS04 Manage Continuity
	DSS05 Manage Security Services
	DSS06 Manage Business Process Controls
	MEA01 Monitor, Evaluate and Assess Performance and Conformance
	MEA02 Monitor, Evaluate and Assess the System of Internal Control
Q II – Accumulated information	**Q IV – Talent & intuitive know-how**
MEA03 Monitor, Evaluate and Assess Compliance With External Requirements	APO04 Manage Innovation

5. Effects of knowledge management adoption in the ICT sector in Slovakia

Furthermore, many authors stress the importance of knowledge management for the creation of a competitive advantage within the company [8-17]. This benefit was expected to be confirmed in our research as well. Moreover, we aimed at identifying the subfactors in the area of application of KM principles into the governance of enterprise IT that can serve as a trigger for competitive advantage creation. We list 7 effects that were identified as most significant by top management members (Table 2).

Table 2. Identification of main benefits of application of KM into GEIT.

Level	Benefit	Reasoning
1	Alignment of IT and business strategy	Thanks to KM, companies are able to align their strategies and performances to business strategy. All business knowledge is systematically organized and a platform exists to confront business and IT goals.
2	Enhanced security	Thanks to KM, companies experienced great improvement in security. This is the result of systematic approach, documentation, sharing, motivation and continual learning, seminars and workshops, which help to get the guidelines and procedures into everyday practice of all employees.
3	Increased loyalty of employees	All employees know exactly what is expected from them. Moreover, they have access to all relevant and up-to-date information and institutional tools to require support or solve problems. This opens new avenues for personal growth and reduces fluctuation significantly.
4	Reduced outages	Thanks to KM we have all directives and guidelines accessible to all competent personnel and regularly updated, shared and discussed within the team. This helps to concentrate on regular updates, monitoring and applying correct procedures in case of an event.
5	New ideas	People interact together within the same department and across departments as well. The introduced system creates the possibility for generating new ideas.
6	IT agility	IT became more agile and responsive to the needs of business and internal/external changes. People are more skilled, able to predict future needs, changes and challenges that will be confronted during their work in the close future.
7	Adequate use of applications, information and technology solutions	KM improved the intensity and efficiency of IT usage and application. Manuals, reviews and best practices are helpful thanks to sharing explicit knowledge in the expert field. Focus groups and workshops enhance the creation and exchange of tacit knowledge and their application in practice.

6. Conclusions

We can see a clear disparity in the first part of presented research results (Table 1). The majority of activities connected with GEIT was identified as having high learnability and being tacit in their nature. This means that constructing a functional GEIT framework in an organisation requires systematic approach, top management commitment, continual learning and a lot of opportunities to exchange knowledge. There is no possibility of learning the managerial process just from books or materials (explicit information). However, the good news is that many activities are learnable and there is a chance of seeing results when investing into this field. In the first quadrant, 9 of the 37 activities could be assigned. This means that these activities can be learned from studying materials and the generated knowledge has a more of explicit character. Only one activity/process was assigned in the Q II – Accumulated information, because of its character which requires continual study of laws, regulations and other documents from the external environment. Despite of its position in the matrix, this activity has some components which have to be learned by experience and are of tacit nature as well. In the fourth quadrant only one activity can be positioned as well – the manage innovation process. We can agree that this activity requires highly sophisticated knowledge and a lot of talent, intuition and know-how, especially in tasks connected to generation of new business and technological ideas for potential innovations.

Top managers interviewed are aware of many positive effects which are brought to GEIT by KM implementation. They can see added value in many fields, positioning the alignment of IT and business strategy on the first place. As 'business first' is one of the main principles of effective GEIT, it is positive that further improvement in achieving this goal can be observed thanks to KM. Several other areas were valued high and finally our research question was confirmed. Through these identified effects/benefit of KM application in the GEIT, top managers claimed that their competitive advantage can be positively influenced or strengthened. At the very least, by systematic implementation of KM principles into IT management and operations the market position can be stabilized if not directly improved, which was also positively evaluated by many managers.

References

[1] P. Harazin and K. Pádár, International Journal of Management Cases, **4** (2013) 37.
[2] M. Solík, J. Višňovský and J. Laluhová, Eur. J. Sci. Theol., **9(6)** (2013) 71.
[3] S. Simmank, *Challenges of Knowledge Management in Global Faith-Based NPOs*, Trainerverlag, Cologne, 2012, 68.
[4] M. Mikušová and V. Janečková, Proceedings of World Academy of Science, Engineering and Technology, **66** (2010) 983.
[5] J. Kotlarsky, H. Scarbrough and I. Oshri, MIS Quarterly, **2** (2014) 607.
[6] E. Toth, Communication Today, **3(2)** (2012) 40.

[7] D. McIver, C.A. Lengnick-Hall, M.L. Lengnick-Hall and I. Ramachandran, Academy of Management Review, **4** (2013) 597.
[8] ***, *COBIT 5 - A Business Framework for the Governance and Management of Enterprise IT*, ISACA, Rolling Meadows, 2012, 94.
[9] M. Ramezan, International Journal of Information Management, **1** (2011) 88.
[10] A. Miklošík, E. Hvizdová and Š. Žák, Ekonomický časopis: časopis pre ekonomickú teóriu, hospodársku politiku, spoločensko-ekonomické prognózovanie, **10** (2012) 1041.
[11] C. Gowthorpe, Critical Perspectives on Accounting, **20** (2009) 823.
[12] M. Alavi and D. E. Leidner, MIS Quarterly: Management Information Systems, **1** (2001) 107.
[13] E.K. Chew and P. Gottschalk, *Knowledge driven service innovation and management: IT strategies for business alignment and value creation*, Business Science Reference, Hershey, 2012, 536.
[14] S. Aujirapongpan, P. Vadhanasindhu, A. Chandrachai and P. Cooparat, VINE, **2** (2010) 183.
[15] H.H.J.K. Li, Y.J. Shi, M. Gregory and K.H. Tan, Int. J. Prod. Res., **10** (2014) 2999.
[16] Y.L. Lai, M.S. Hsu, F.J. Lin, Y.M. Chen and Y.H. Lin, Journal of Business Research, **5** (2014) 734.
[17] A. Ahmad, R. Bosua and R. Scheepers, Comput. Secur., **42** (2014) 27.