

KNOWLEDGE MANAGEMENT AS THE FOUNDATION OF BUSINESS PROCESS MANAGEMENT – AN OVERVIEW OF THE RELEVANT LITERATURE

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Abstract: The aim of this paper is to highlight the importance knowledge management and business processes management has in the modern economy. The paper reflects on the impact of knowledge management on business processes and on the improvement of the management thereof, on the basis of the relevant literature. The related research shows a mutual connection between these two concepts and points to the potential benefits of their successful integration. This paper is a framework overview of all the positive effects of knowledge management on business process management in the organization, which allows for better understanding and use of knowledge for more effective business process management.

Keywords: *Knowledge Management, Business Process Management, KM-BPM modes*

1. Introduction

The economic success of a country primarily relies on human capital – knowledge, skills, competences and personal characteristics that allow people to contribute to their personal well-being and that of society, thereby helping their respective country thrive.

The global economy is undoubtedly changing. The key trend is developing the knowledge economy, as well as the

concept of investing in people in response to economic changes. The knowledge economy contributes to these changes and it creates them in all segments of business organizations. Intellectual capital is a modern form of capital that affects the development of business processes within organizations and the management of these processes.

Knowledge management and business process management has a significant role in the modern economy and an impact on business processes and the more effective management thereof. In view of the lack of an overview of the literature that connects the aforementioned two concepts for the purpose of improving the business of the organization, this paper is precisely about this topic. It is a framework overview of all the positive effects of knowledge management on business process management, which may be useful to various stakeholders to better identify, understand and use knowledge for better business process management.

As we proceed, after specifying the relevant methodology, we will first look at the concepts of knowledge management and business process management. Furthermore, through sections 4 and 5, we will try to respond to research questions addressed in the paper, after which we will present the concluding remarks.

2. Methodology

The research methodology is based on an overview of the Web of Science index base, which was searched according to keywords using advanced search. The search subsequently narrowed on studies from the categories of management and business, as well as the on works written in English language and hence the authors want to indicate certain limitations of this paper.

After identifying its main topic and problem, authors pinpointed the following issues they wanted to address in this paper:

RQ1: Which knowledge management elements have positive effects on business process management?

RQ2: What are the benefits of the successful integration of knowledge management and business process management from the perspective of business improvement?

3. Knowledge management and business process management

Knowledge management (Barth, 2002) represents the maximization of the advantages of company knowledge, recognition of information, the wisdom and strengthening of abilities (human and digital). There is still no consensus on the definition of knowledge management in literature, since knowledge can be observed from many different angles, and consensus on the definition requires a multidisciplinary approach. Observed from the standpoint of epistemology, where

knowledge can appear in a tacit form (in the minds of people) and in an explicit, articulated form, the definition of knowledge management could be the following: "Knowledge management is the transformation of individual knowledge of employees in the organization into collective, organizational knowledge, which would be available at the right time and in the right way to all members of the organization, at all levels." It represents a business model, which focuses on knowledge within the organization and the movement thereof through five phases: creation, ownership, storage, sharing and practical application (Djordjevic-Boljanovic, 2009). Knowledge is not only processed information, but a combination of experience, context, interpretation and reflection (Brajer-Marczak, 2016). Today, knowledge is referred to as an asset that should be exchanged in order to be multiplied (Allee, 2002). This implies a completely different approach. Knowledge management is akin to the creation, storage and transfer of knowledge in organizations (Argote et al., 2003).

Increased global competition and development of information and communication technologies have made knowledge and technology very important assets of the organization (Hlupic, 2002). One of the main advantages of the modern organization lies precisely in the knowledge it harbors, in the speed and efficiency of acquiring and using new knowledge and in the effective implementation of existing knowledge (Djordjevic-Boljanovic, 2009). In order for organizations to be competitive and successful on the global market, they must properly administer knowledge to improve business processes.

Processes are a network of activities that create a value for users and achieve the objectives of the company. Managing business processes involves the synchronization of the activities of organizational units through bilateral contacts and sharing knowledge for the purpose of improving these units. The improvement of the process can be strategic (adapting the process to the company's development strategy) and operational (focusing on eliminating the identified function in the management system) (Brajer-Marczak, 2016). Process management is a methodology for operationalizing the strategy through defining the business processes, and knowledge management is integrated in order to facilitate these operational tasks (Vivas et al., 2014). People need to create new knowledge using experience and then suggest the relevant changes and introduce improvements in the processes. The execution of the processes then creates new knowledge for the management and the employees and becomes a platform for creating new knowledge that needs to be codified (Brajer–Marczak, 2016). Organizations should learn from previous achievements and failures, detect and correct errors, implement experiments and use opportunities, and well as continuously innovate and adapt to the changing environment (Vivas et al., 2014).

The factors of success that will be decisive in the future of the organization are: quality, innovation and creativity (Djordjevic-Boljanovic, 2009) and all three factors are greatly dependent on knowledge. (Huang, 2006) emphasizes innovation as one of the basic elements of competitive advantage, growth and profitability of the organization. In order to

create a sustainable competitive advantage for the company, they must be able to learn faster than the competition (Lewis, 2013) and the philosophy of process management must be fact-based, customer-oriented and applicable in the company (Lee et al., 2009).

4. Knowledge management approaches and elements relevant for business processes

By reflecting about the organization from the aspect of a customer-based approach and a set of activities that create value - the business processes - the new assessment enables a better understanding of the business. Business processes are at the core of the functioning of an organization. Managing a business system means managing its business processes (McCormack and Johnson, 2001). Deming, Porter, Davenport, Short, Hammer, Byrne, Imai, Drucker, Rummler-Brache and Melan defined what they see as a new model of the organization. This "new way of thinking" and "reflecting" about the organization is explained as an orientation towards business processes (McCormack and Johnson, 2001).

A specific group of authors dealt with the promotion of the organization's processes by using knowledge in various practical examples: in the field of medicine and software development (Slavicek, 2011), in a Polish IT Company (Jurczuyk-Bunkowska and Junkowski, 2012) for the needs of a financial supervisory organization (Feher et al., 2017), a high-performance sports center (Vivas et al., 2014), construction companies (Szelagowski, 2016), Real Time Enterprise model (Yim and Choi, 2005) and Chinese power systems (Lee et al., 2009).

Taking into account all the elements and factors of knowledge management that different authors have cited as relevant in managing business processes in different areas, a list of significant factors affecting the advancement of business in response to RQ1 was made:

1. **Creating a knowledge warehouse;**

For the purpose of effective and efficient knowledge management in the organization, a data warehouse needs to be built, where data is stored and interface needs to be provided to access such data (Wang and Pan, 2006). The organization should code as much knowledge as possible and preserve previous experiences, process instances and even discarded knowledge, which didn't seem suitable, because the ideas for innovation may sometimes be a combination of old ideas. Knowledge must be presented and preserved in a uniform manner, with the possibility to be accessed and used by those employees who need it at any given moment (Brajer-Marczak, 2016). A database may be used where knowledge areas will be presented in organizational structures and ontology¹ will be used in order to avoid overlapping and duplication. By having the same language used by all participants, one avoids the problem of duplication of knowledge areas. Meanwhile, since knowledge is kept in a structured form, it may be accessed and precisely located (Feher et al., 2007). It is necessary to attend to the degree of knowledge

formalization, so as not to reduce the exchange of internal knowledge and slow the process down (Brajer-Marczak, 2016).

2. **Create a knowledge map** that aims at facilitating the availability and access to the necessary information (Feher et al., 2007), as well as **creating a process map** that can help having an overview and analysis of the process. The phases of the process must be clearly defined. There is no ideal process map and the standard process is modelled so as to support dynamic job formatting, according to the best practices (Szelagowski, 2016).
3. **The use of a workflow management system** through which organizational units and processes are connected and their integration with collaborative software that allows web discussions, comments and FAQ about the instances of the process to be reused in the future (Slavicek, 2011). In order to enable the use of knowledge, the organization must see its existence through processes, rather than through organizational units, i.e. it must be transformed, from an organization based on the management of functions into one that is based on process management (Cepelova and Bernatik, 2013).
4. **The use of information and communication technologies (including groupware systems) and creating web portals;** the impact of information technologies in knowledge management are only relevant if observed in the context of people and processes (Djordjevic-Boljanovic, 2009). (Lee et al. 2009) says that there are no generic IT measures that will correspond to all organizations.

¹ A tool that defines the concepts, identifies the links and creates a defined structure among them.

However, interviews with experts have been singled out as one of the most important factors. A significant element in knowledge management in the organization is the existence of a web portal that provides access to organizational knowledge through the web page, while the use groupware applications strengthens the communication between employees in the organization and facilitates the flow of data and information (Feher et al., 2007). (Brajer-Marczak, 2016) highlights the importance of building an expert network for business meetings, because sometimes experiences and innovative ideas cannot be easily structured in order to be saved.

5. **Effective working environment, organizational culture and human abilities**; It is necessary to have a Knowledge Management System channel to exchange tacit and explicit knowledge (Jurczyk – Bunkowska, 2012). Artificial intelligence and expert systems should secure the right information to be provided to the right person at the right time and the further use of this information will be influenced by the cognitive maps of individuals, because even when the same information is extracted, people may interpret it in different ways (Yim and Choi, 2005). The mindset of employees should be in sync with the big data culture and the new business approach to managing knowledge in the processes (Rialti et. al, 2018). It is important that employees are informed about the benefits of knowledge management and their contribution to the organization (Brajer-Marczak, 2016) and that they feel appreciated; that their skills,

knowledge and talents are respected and that they are adequately remunerated by combining salaries with non-financial rewards, such as opportunities for professional development and advancement in the organization (Djordjevic-Boljanovic, 2009).

6. **Management and cooperation among teams**; It is necessary to have co-operation among employees in the organization and there must exist cross-functional teams (Rialti et al., 2018). The exchange of experiences among the project groups significantly increases the effectiveness of their work, resulting in the reduction of time for job execution in the project (Jurczyk–Bunkowska and Jungowski, 2012). The success of management depends on the depth of cooperation among people and on their implicit knowledge (Yim and Choi, 2005) as well as on the organizational culture that supports the sharing of knowledge in the organization (Djordjevic–Boljanovic, 2009). Management must provide for education and development at all levels, which will benefit both the organization and the users. The proper application of KM in the organization includes: activities, knowledge, knowledge assets and educational processes. The organization should create mechanisms through which the knowledge assets will become part of the organization's educational processes (Cepelova and Bernatik, 2013). (Slavicek 2011) suggests that decision-making in process management should become an external component where advanced analytical tools and expert advice can be used.

7. Constant monitoring and evaluation of process performance (Slavicek, 2011) is necessary for adequate process and knowledge management, as well as for the rapid improvement of products/services in accordance with the requirements of the user, based on the analyzed patterns of their behavior and identified preferences (Rialti et al., 2018). To ensure that processes are performed in accordance with the strategy, mission and vision of the organization, it is necessary to establish control over these processes. Process control requires the monitoring, evaluation, measurement and improvement of activities in the organization, with the aim of taking corrective measures in case there are discrepancies from the planned objectives, tasks and standards of the organization. Quality control should be dosed, because it is said to be “like poison – while in small quantities it can be good for you, a lot of it will kill you” (Djordjevic-Boljanovic, 2009).

5. The benefits of successful integration of knowledge management and business process management

(Slavicek, 2011) has demonstrated, on practical examples of improved business processes based on knowledge, the improvements in business processes in the field of medicine and software development. The benefits of the integration of the concept of knowledge management and process management in this field are visible in the overall connection, automation and facilitation of processes by phases, which result in facilitating the work for doctors, acceleration and increased quality of service for the patient and the possibilities for controlling the quality of the process and better management thereof.

The improvement of processes in software development companies is possible through improving the sharing of knowledge by using benchmarking activities (measuring how many of the workers contribute to the overall knowledge in the organization, examples of past problem resolution, etc.) and using Semantic Web to find answers more easily by using query language. These possibilities result in the following benefits for an organization: easier finding of key information and knowledge, better business decisions, the appropriate evaluation of employee knowledge and their contribution to business improvement (Slavicek, 2011).

(Feher et al. 2007) proposed, in his paper, a complex solution for improving business processes using knowledge management on the example of a financial supervisory organization that wanted to develop KM practice due to changed circumstances in the environment and problems identified in its business processes. The outcome of the study emphasizes the need for knowledge management in the organization, since only with the appropriate use of KM significant improvements can be achieved, such as:

- better connectivity between business units, so that they are familiar with the processes that occur in other units, thereby contributing to the integrity of the management approach;
- inspiring employees to share knowledge owing to the appropriate conduct of management, along with the creation of a single base of knowledge in the organization and facilitated localization of knowledge when needed.

Inefficiency in processes, neglected niches or emerging niches can be identified using Big Data Analysis and business process management integrated systems, enabling timely response and use of market opportunities (Rialti et al., 2018).

(Vivas et al., 2014) has been used knowledge management to improve the business of a high-performance sports center to simplify business processes, with the aim of addressing deviations in information more effectively, as well as exceptions emerging in practice, in order to gather knowledge about management decisions and avoid the process of deadlocking. By solving these issues, structured work has been created and business processes have been systematized. The estimated areas of potential improvements have been detected as follows: reduction of costs and prices for users, promoting physical activity, increased sports practice in the country and the satisfaction of national and foreign users.

In view of the the proposed examples of improved business processes in practice and the extracted elements and factors in work, which improve business processes by the adequate use of knowledge in the organization, we can specify some of the following benefits in response to RQ2:

By creating a knowledge warehouse, the business process is improved through using the ability to preserve knowledge in structured form, as well as instances of the process that may be useful when making a decision at some point in the future. Some of the benefits of using the workflow management system are: enabling process automation, better efficiency and

productivity, identifying bottlenecks in the processes and reducing business errors. Information and communication technologies facilitate the formalization and storage of information, as well as their easier localization, but cannot be regarded as a standalone element that contributes to business; they must be taken into consideration together with the people working in the organization and using technology and knowledge to improve business processes. The automation and systematization of processes in the organization has enabled better process quality control, allowing, in turn, for the better management thereof.

Creating a process map brings benefits in terms of connecting business units so that they are familiar with the processes that occur in other units. This contributes to the integrity of the approach to management, more comprehensive connectivity and facilitation of processes in stages. Creating a knowledge map enables one to know which employee of the organization possesses which specific knowledge, so that the function of business process organization can become more effective, since knowledge is available to everyone, and the creator of specific knowledge in the organization can be easily located as needed. Knowledge maps help managers to adequately value and reward employees who contribute to creating and sharing knowledge in the organization. This, in turn, encourages the culture of knowledge sharing and creating a single knowledge base in the organization. By creating a web portal, it is easier to access knowledge in the organization and find key information in real time, which enables better business decisions.

6. Conclusion

Knowledge management has a significant impact on managing business processes in the organization and positively influences business decisions in business systems. The authors have established - considering it the main contribution of this paper - that in order to successfully implement knowledge management in business processes, it is necessary to establish the appropriate infrastructure (technological and organizational), the proper management and organizational culture (which facilitates the acquisition, sharing and preservation of knowledge) and the information technologies that can properly support it. They also identified the constructs of successful integration of KM and BPM models and the significant effects thereof on business, such as: full connectivity and facilitation of processes in phases, process automation, better efficiency and productivity, adequate process control, as well as a better evaluation of employees and their contribution to the organization. This brings competitive advantage through the integration of the knowledge of people, processes and technology.

This paper is a unique platform and a framework overview of all the positive effects of knowledge management on business process management, which could be useful to the participants in business processes to identify, understand, and better use these effects to better manage the processes in the organization. While each organization creates a unique approach to knowledge management according to its own needs, we believe that sharing information about architectures and experiences is useful for organizations

that have opted for process management in this manner, i.e. through the implementation of knowledge. This paper also has a certain limitation, as it is based only on an overview of literature on the subject of knowledge management in business processes in modern business, which could be supported by appropriate future empirical research.

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