

# IMPROVING THE QUALITY OF PROCESSES BY USING KNOWLEDGE CONTINUITY ENSURING

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**Abstract:** *In the current knowledge economy the workers are the key competitive advantage and their knowledge is the most important asset in the various business processes. If people leave the organization they will take their knowledge with them and it can jeopardize the quality of the processes. This paper focuses on the topic of the ensuring the knowledge continuity as a tool for fluent improvement of processes in organizations. The processes and the areas were identified within the organization by means of induction. The processes are improved by using the knowledge continuity management. The benefits of the processes were measured by quantitative research, by using the questionnaire survey in organizations in the Czech Republic. One of the conclusions of the paper is that with correct knowledge continuity the quality of the processes in the organization can be increased together with the performance.*

**Keywords:** *Knowledge, Knowledge continuity, Quality, Process, Benefits, Quantitative survey.*

**JEL Classification:** *J24.*

## Introduction

The aim of organizations is achieving the organization's performance with the application of efficient management. The means for achieving organizations' aims is the right and efficient functioning of individual processes in which the organization's employees who are the carriers of knowledge take part [19]; [9]. The right management of processes requires to cope with managerial functions, such as correct and timely decision-making and the selection of suitable procedures. The process of decision-making is based not only on analyses and experience, but also on knowledge [3]; [5]; [6].

## 1 Statement of a problem

The objective of the article is to identify the benefits from process arising from the application of knowledge continuity management in organizations. The identification is based on analysis of results of the quantitative survey. A sub-objectives is to make a comparative analysis of the benefits achieved from using the knowledge continuity in organizations according to size (i.e. by number of employees) and to test whether there are statistically significant differences in the various categories of processes and size of organization and to identify the importance to ensure the knowledge continuity for quality processes and decision making.

### 1.1 Theoretical background of the work

Processes in organizations consist of an order or sequence of activities arranged logically whose output represents a benefit for the customer [16]. [17] adds that it is

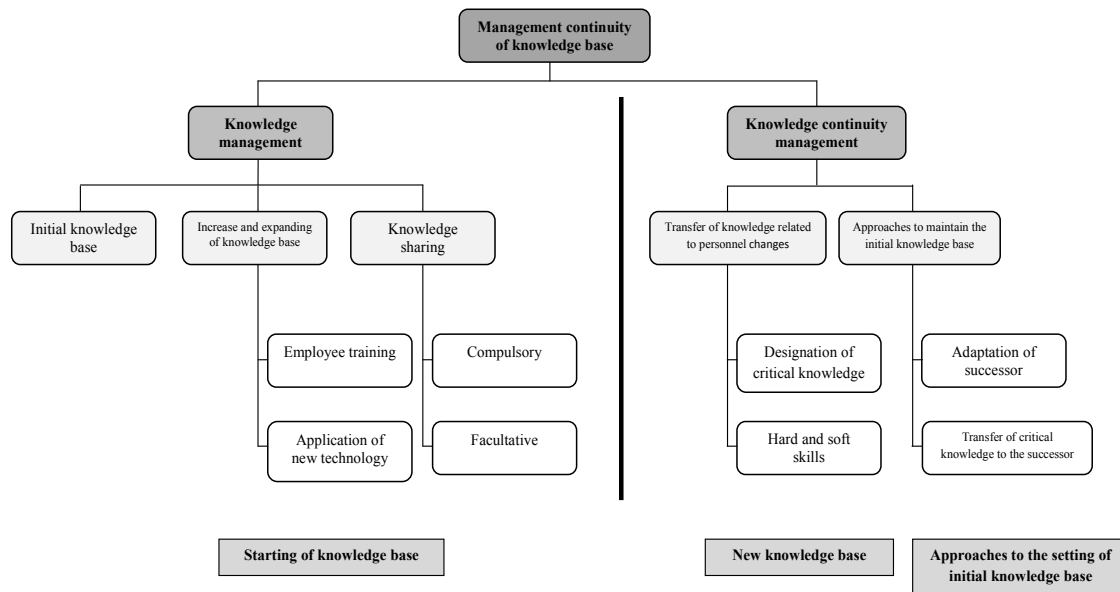
a set of one or more interconnected activities that collectively contribute to the achievement of the goal, usually in relation to the organizational structure that defines functional roles and relationships. Processes exist in each and every organization and significantly influence its performance [16]. The improvement of processes is based on targeted management of processes by the organization's management. In other words, based on the understanding of critical problems, their causes, connections and the determination of their so-called "constraints" (Theory of Constraints – TOC). It is a new management approach based on the location of constraints in processes whose improvement (elimination) leads to the enhancement and ongoing improvement of processes in an organization [8]. Knowledge continuity may also be defined as the so-called process "constraint". The key idea of TOC is that if a system is free of constraints, the flow would, without any time limitation, continue to grow. In other words, it is possible to say that in the case of ensuring knowledge continuity between a leaving employee and his/her successor it will mean the elimination of a constraint limiting the efficiency of individual processes.

The protection of organizational sources is a part of an organization's business continuity [19]. Organizational sources also include people as a production factor without which organizations cannot operate. They are the carriers of knowledge [14], and therefore the protection of knowledge (as a production source) and of employees as knowledge carriers should be one of organizations' priorities [12]. Ensuring business and process continuity enhances organizations' productivity [13] by maintaining current competitive advantages or gaining of a new competitive advantage through the implementation and utilization of new opportunities. Knowledge continuity is part of organizations' operation continuity [4]; [7]; [19].

Knowledge continuity is an area associated with knowledge management and defines the ratio of knowledge retained by the organization when a knowledge employee leaves the organization and the knowledge leaving together with the knowledge employee. Knowledge continuity management is a branch of knowledge management (see Fig. 1). While knowledge management focuses on the capturing and sharing of know-how important for colleagues who have similar tasks in the organization, knowledge continuity management is targeted at the transfer of critical knowledge (minimum knowledge base, knowledge decrease below this level leads to the knowledge discontinuity) from departing employees to their successors [1]; [2].

If the leaving of an employee does not lead to changes in the original knowledge base, the successor will take over all critical knowledge of the leaving employee. In other words, the aim of knowledge continuity is to maintain the original knowledge base of the leaving employee.

**Fig. 1: Management of knowledge base continuity**



*Source: Author*

Without a suitable process for retaining this knowledge and its transfer to the successor, this knowledge is lost for the organization and thus the performance of the organization is endangered. Performance means an ability to achieve personal, procedural, team and organizational goals. As a result, newcomers who replace leaving employees spend more time to start working as important findings and information of their predecessors is lost. The problem of unsecured transfer leads to time and material losses in the quality of process management. This paralyzes organizations' abilities to act flexibly and keep track [18].

The above implies that managers have to pay attention to ensure knowledge continuity and make this activity part of managerial roles in order to achieve an optimal level of business continuity as without knowledge employees holding knowledge critical for the organization it is impossible to ensure business continuity.

## 2 Methods

The first part of the article is focused on the theoretical approaches to knowledge continuity management and increasing the efficiency of business processes. The second part analyses the outcomes of the survey carried out among managers of organizations in the Czech Republic. The article has been processed based on the analysis of secondary sources, outcome synthesis and the evaluation of results of a questionnaire survey.

The questionnaire consisted of 7 questions from the area of assessment of the benefits associated with the implementation of knowledge processes, knowledge management and knowledge continuity management. For evaluation surveys and for purposes of comparative analysis tools descriptive statistics (absolute frequency) and non-parametric testing were used. The nonparametric Mann - Whitney U test was used at the significance level of 0.1. Selected non-parametric test tested whether the

differences between the averages of the answers of respondents from each organization according to size are statistically significant.

The data for the evaluation of the processes where the quality is improved by the application of the knowledge continuity management, has been gathered through a quantitative survey, i.e. a questionnaire survey, in which 148 higher and middle management managers from various organizations took part. The questionnaire was distributed to 814 respondents from 580 organizations. The overall questionnaire return was 18.18%, i.e. 148 respondents took part. The selected group of organizations included in the survey has been chosen by means of quota random sampling among organizations situated in the Czech Republic and presented on the Internet and their managers were contacted. The selection criteria for the survey have been set in a way to roughly reflect the proportional representation of organizations according to the sector of economy, organizations' size and middle and top managers' genders in compliance with the figures published by the Czech Statistical Office:

- 15% (85 organizations) from the primary, 15% (85 organizations) from the secondary, and 70% (410 organizations) from the tertiary sector;
- according to the organizations' size (number of employees): 65% (377 organizations) from small, 20% (116 organizations) from middle-sized, and 15% (87 organizations) from large organizations;
- according to the middle and top managers' gender: male 77.5% (654 managers) and female 22.5% (160 managers).

The selected sample chosen from the basic group is a characteristic sample in all respects and proportionally represents the groups of organizations as selected from the basic group. 55.1% holds a senior management position, 68.9% have university education, 45.5% are in the age group 46-62 years, 70.1% are employees of Czech organizations, 51.5% work in tertiary sector and 38.9% work in the primary sector. 76.6% of respondents were male.

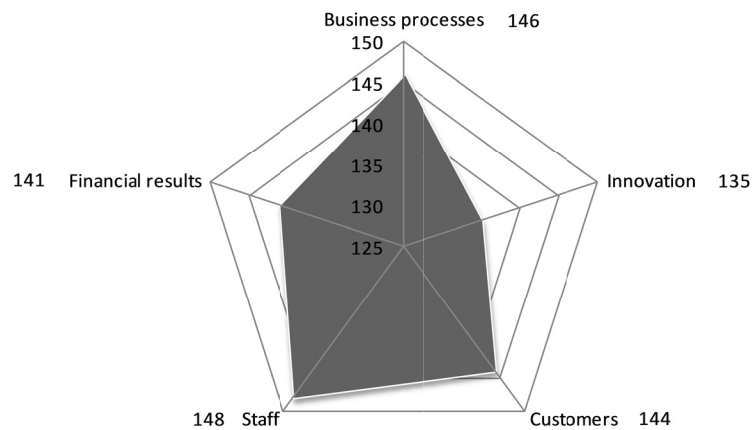
The data have been processed by means of the LimeSurvey application, SPSS 17.0 and the MS Excel 2007 software.

### **3 Problem solving**

Based on the above said it is possible to say that organizational processes represent a complex sequence of activities that are directed at an unambiguously defined goal, that involve at least one employee and that follow certain methodological instructions and procedures. At the same time it is possible to state that organizational processes are areas that organizations need to work on actively.

A survey carried out among managers of organizations at the level of middle and higher management identified areas in which knowledge continuity ensuring will manifest. Based on the data obtained the figures graphically represent benefits arising from the implementation of processes in an organization (Fig. 2) and benefits for individual organizational processes (Fig. 3).

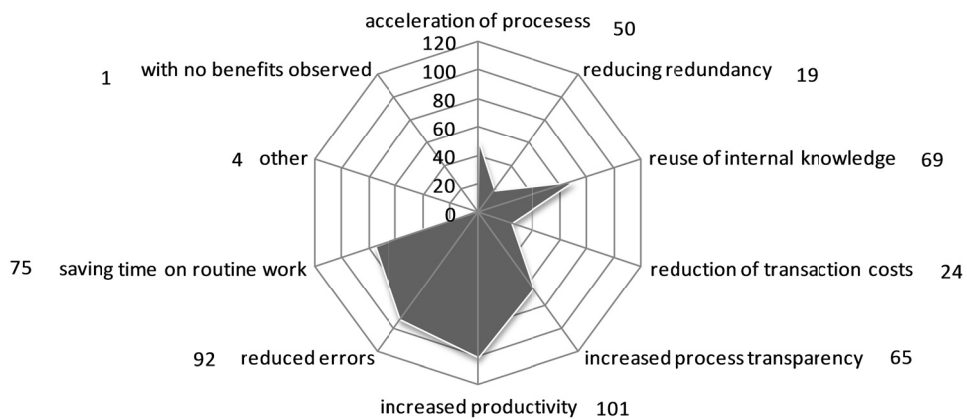
**Fig. 2: Benefits arising from the application of knowledge continuity management in organizations**



Source: [Author's survey]

In the category of organizational processes, respondents see the major benefits in higher productivity (101 respondents) and the lowering of error rates in processes (92 respondents). A large number of respondents also mentioned the category of further utilization of internal knowledge (69 respondents) and higher process transparency (65 respondents). Respondents who ticked the option “other” did not specify their choice. Only one respondent mentioned that there were no benefits tracked in the category of organizational processes. A more detailed list of benefits is shown in Figure 3.

**Fig. 3: Benefits in classification of business processes**

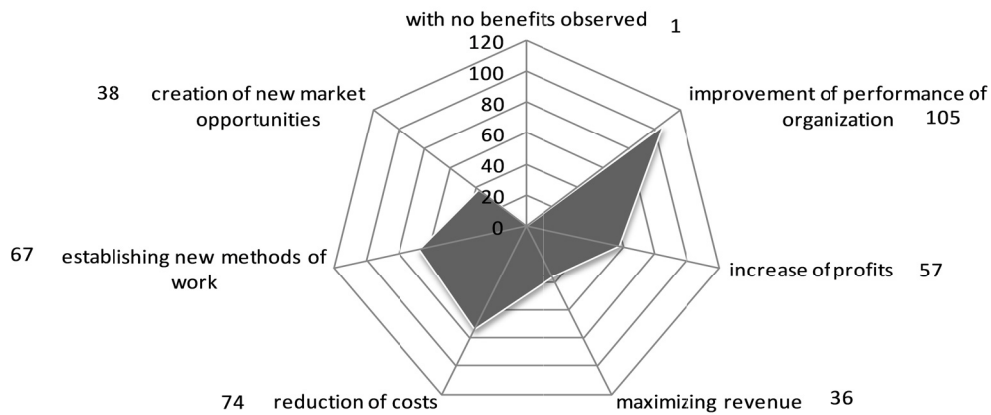


Source: [Author's survey]

In the area of benefits associated with the fundamental business objectives of organizations the research revealed that a total of 105 respondents stated that the biggest benefit lies in the improvement of the organization’s performance, 74 respondents found that it was beneficial in terms of cost lowering, 67 respondents

mentioned the introduction of new methods of work and 57 the increase of profit (Fig. 4).

**Fig. 4: Benefits associated with primary commercial targets of organization**



Source: [Author's survey]

Organizations are aware of the fact, that effective knowledge transfer helps in improving of processes and enhancing the competitiveness of the organization. Based on the above, it is also possible to agree with the conclusion of the surveys by [15] that the benefits of knowledge management depend in particular on the manner of acceptance of this conception, its application and adherence by the organization. If an organization applies knowledge continuity management intentionally, if it realises that their employees' knowledge is the greatest asset and efficiently supports knowledge sharing and transfer among current employees, it can expect benefits not only in the area of knowledge utilization and team work, but consequently also in the improved performance of the entire organization, lowering of costs and increasing the productivity including economic and non-economic aspects.

In conclusion the application of the knowledge continuity management contributes to achieving the standard objectives associated with development of organizations. The efficient management, extension, sharing and preservation of employees' knowledge can ensure not only deeper individual, but also the so-called organizational knowledge. In general, the introduction of knowledge processes improves the performance and productivity of the entire organization. The advantages are evident also from the long-term perspective, as there are activities where knowledge, experience and skills transfer takes longer.

### **3.1 The benefits of knowledge continuity ensuring in small and large organizations**

To verify the results and support the conclusions of the article sums calculated responses of the respondents (see Table 1) in the survey took place in each category (business processes, innovation, customers, employees, financial results and the underlying business objectives). Using these sums dependencies between the frequency response in different categories and sizes of organizations were tested using

the Mann - Whitney U non-parametric test (see Table 2) on null hypothesis  $H_0$ : difference between means is statistically significant and the alternative hypothesis  $H_1$ : the difference between means is statistically significant.

**Tab. 1: The sum of responses for each category**

	Size of organizations	Number	Mean	Sum
Business processes	Up to 19 employees	41	38,84	1592,50
	Over 250 employees	46	48,60	2235,50
	Total	87		
Innovation	Up to 19 employees	41	41,61	1706,00
	Over 250 employees	46	46,13	2122,00
	Total	87		
Customers	Up to 19 employees	41	44,13	1809,50
	Over 250 employees	46	43,88	2018,50
	Total	87		
Staff	Up to 19 employees	41	38,77	1589,50
	Over 250 employees	46	48,66	2238,50
	Total	87		
Financial results	Up to 19 employees	41	43,68	1791,00
	Over 250 employees	46	44,28	2037,00
	Total	87		
Basic business objectives	Up to 19 employees	41	40,83	1674,00
	Over 250 employees	46	46,83	2154,00
	Total	87		

Source: [Author's survey]

**Tab. 2: Non-parametric tests depending on the benefits of individual processes and organization size (up to 19 and over 250 employees)**

	Business processes	Innovation	Customers	Staff	Financial results	Basic business objectives
Mann-Whitney U	731,500	845,000	937,500	728,500	930,000	813,000
p - value	,068	,377	,962	,064	,908	,258

Source: [Author's survey]

Comparison in the contribution was made over the category of small organizations up to 19 employees and large organizations of 250 employees (division according to the CSO), where the non-parametric test (for two independent samples) at a significance level  $\alpha = 0.1$  were tested benefits in each category processes. The aim of the comparison was to determine whether the benefits achieved will vary in different categories according to size of organization processes. The results of these two groups of sizes of organizations are presented in the paper due to the fact that in these two categories were identified greatest statistical differences.

The test criterion was established on the basis of calculated p-values (see Table 2), on the basis of which conclusions can be made (evaluation) by a Mann - Whitney U

test. The observed p-value was compared with a specified level of significance. P - value was found to be less than the significance level ( $\alpha = 0.1$ ) in the category of business processes and employees. Therefore in these categories the null hypothesis is rejected.

Based on the Mann - Whitney U test, it can be said that in the category of business processes and categories of employees, there are statistically significant differences in small and large organizations.

Differences in benefits between small and medium sized organizations and between medium and large organizations have been demonstrated, since the p-value was higher than the level of significance.

To substantiate the results there can be mentioned articles and findings of other authors involved in similar researches aimed at benefits of the introduction of knowledge management and knowledge continuity management, for example [10]; [11]; [15].

#### **4 Discussion**

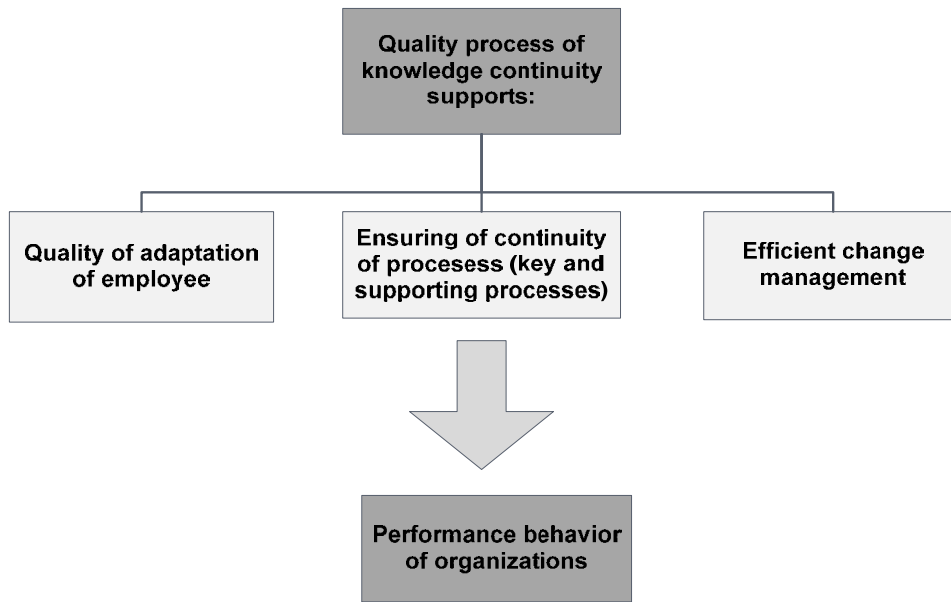
To ensure higher quality of processes, it is essential to ensure knowledge continuity in organizations especially for the following reasons:

- Each employee in an organization is involved in its processes and requires knowledge for his/her activities => in an organization knowledge transfer should be governed by the process of knowledge continuity ensuring.
- By ensuring the maximum level of knowledge continuity it is possible to eliminate the negative consequences of loss of knowledge (for reasons of personnel changes) and maintaining of the quality of processes.
- Knowledge continuity ensuring enhances the quality of decision-making, the quality of the management process and contributes to a better quality of processes (in particular of processes utilizing knowledge) and thus ensures operation of the entire organization.
- It enables the organization to retain knowledge even after the employee who was the holder of the critical knowledge leaves.
- It improves and speeds up the process of initial training of newcomers.

The above reasons are depicted in Figure 5, which shows the progress of individual process steps of ensuring of knowledge continuity leading to the higher performance of organizations.



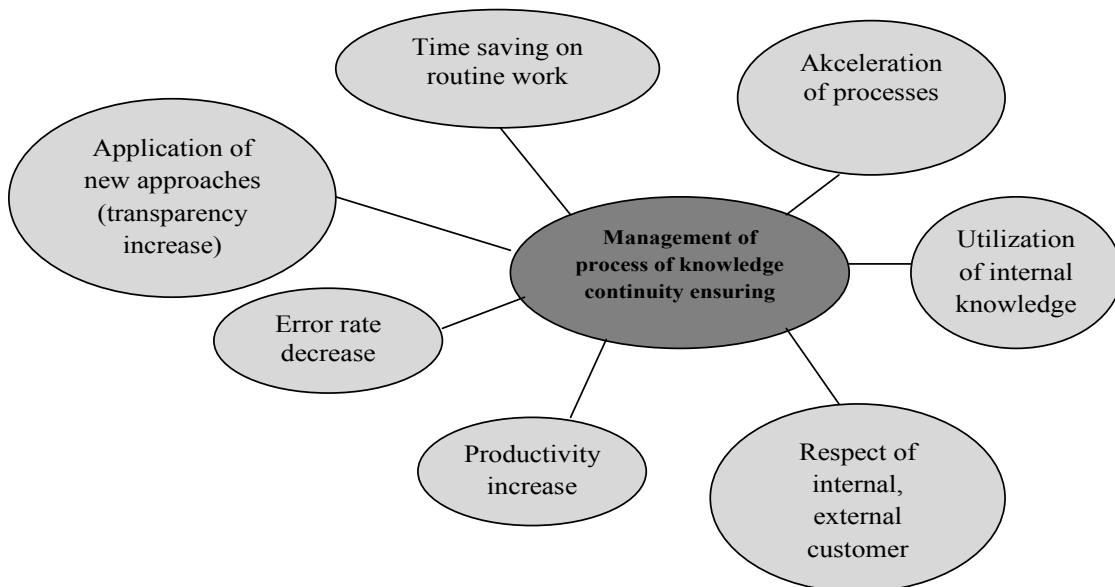
**Fig. 5: The progress of the individual process steps of knowledge continuity leading to the higher performance of organizations**



*Source: Author*

Finally, it is important to realize that targeted sharing of critical knowledge translates into a more rapid process of individual and organizational learning (better and faster training of new employees) and innovation by developing superior products and thus into the increase of the organization’s performance. Benefits in the area of organization processes arising from knowledge continuity ensuring the quality adaptation of worker are further shown in Figure 6).

**Fig. 6: Benefits arising from the ensuring of knowledge continuity management in business processes the quality adaptation of worker**



*Source: Author*

The enhancement of quality of processes by means of ensuring knowledge continuity can be achieved by organizations in the following ways:

- By identifying key employees with critical knowledge pursuant to decision-making situations (transfer of structured knowledge followed by the transfer of critical knowledge, which will project in the quality of decision-making)
- By a suitable personnel policy; it is in particular important to make sure that employees who are carriers of critical knowledge do not leave before they transfer the critical knowledge to a suitable successor (at the time when the employee leaves, the organization should already have a successor who has the same critical knowledge necessary for his work as his predecessor)
- By continuous transfer of knowledge that must be ensured during the professional history of employees and not only at the time when they are about to leave the organization
- By developing a high-quality organizational culture in terms of natural knowledge sharing and transfer and idea brainstorming => the necessity of anchoring the area of knowledge continuity ensuring in the organizational culture of codes of conduct that have to be binding on an organization's employee and into the system of shared values (integration values) that maintain, strengthen and improve the compactness of the organization and its processes (ensure integrity), improve process efficiency as they shorten links (distances) between individual elements
- By creating systems of gradual enhancement of quality of processes
- By deliberate establishment of a suitable organizational climate
- By setting a suitable organizational structure encouraging communication among employees; the personality of the manager responsible at the given level for adequate adherence to efficient measures of knowledge continuity ensuring.

=> in case the conditions leading to knowledge continuity ensuring are not met, it will lead to the raising of barriers to knowledge sharing and transfer and the key processes in organizations will not work appropriately.

## **Conclusion**

Based on the results it is possible to state that knowledge continuity ensuring has a significant meaning for and impact on the quality of processes and the quality of operational, tactical and strategic decision-making based on timely, precise and complex knowledge of the matter in question. The importance of knowledge continuity ensuring also follows from the fact that a leaving employee in an organization where knowledge continuity is not ensured will carry away not only the know-how, but also relationships s/he has established with his/her collaborators in the organization. Where knowledge continuity is ensured, if an employee with critical knowledge decides to leave, the organization will not lose the knowledge since it has been transferred to a different employee. Also the quality of organizational processes

will be preserved. Systematic knowledge continuity ensuring is therefore aimed at the continuity of decision-making and an organization's development.

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