sciendo

Online ISSN 2424-6166. EKONOMIKA 2018 Vol. 97(2)
DOI: https://doi.org/10.15388/Ekon.2018.1.11789

THE INFLUENCE OF INTELLECTUAL CAPITAL AND KNOWLEDGE MANAGEMENT ON ORGANIZATIONAL PERFORMANCE IN LITHUANIAN SOFTWARE COMPANIES

Zenona Atkočiūnienė*, Greta Praspaliauskytė
Vilnius University, Lithuania

Abstract. *In the contemporary information and knowledge society, it is important to evaluate the intangible organizational resources that generate long-term value for organizations. Among others, these include intellectual capital and management of knowledge. The research fields of intellectual capital and knowledge management address such issues as (but not limited to) the abilities of employees to create and accumulate knowledge, share and apply it in everyday activities, develop new, sustainable and long-term relationships with various stakeholders. During the last decade, there has been a shift in research toward linking these two previously separate fields of activity in order to demonstrate their interrelations and influence on organizational performance. However, this is problematic due to the difficulties of expressing the value of intellectual capital and knowledge management in a tangible form. The aim of this article is to analyze and define the influence of intellectual capital and knowledge management on organizational performance. For this task, we built a conceptual model for assessing the influence of intellectual capital and knowledge management on organizational performance, which was applied in a study conducted in IT companies operating in Lithuania.*

Keywords: *intellectual capital, knowledge management, organizational performance, financial performance.*

Introduction

Due to the fast development of information technologies, an organization's size, number of employees and other tangible, measurable indicators cease to be the key foundation of organizational performance. Intellectual capital and knowledge have become the more important factors. For a long time, intellectual capital and knowledge management were treated as separate fields of study. In the last decade, more researchers emphasize the importance of studying the interrelationship between intellectual capital and knowledge management; however, there is still a lack of studies that analyze and define the influence of this interrelationship on organizational performance. Such is the main issue that companies face when trying to understand the potential benefits of investing in intellectual capital and knowledge management.

* *Corresponding author:*
Department of Information and Knowledge Management, Faculty of Communication, Vilnius University, Saulėtekio Ave. 9, LT-10222 Vilnius, Lithuania.
Email: zenona.atkociuniene@kf.vu.lt

In Lithuania, too, the influence of intangible resources on organizational performance is understudied, and any relevant studies often address intellectual capital and knowledge management as separate elements (e.g., Atkočiūnienė 2016; Palumickaitė, Matuzevičiūtė 2007; Rudytė, Bužinskienė 2012). As an example of a different approach, Kučinskienė and Broniukaitis (2017) have focused on the integration of intellectual capital and knowledge management and their influence on organizational strategy at the conceptual level. In contrast, in other countries, this issue is studied quite widely (see, for example, Marr, Schiuma, Neely 2004; Bontis 1998; Seleim, Khalil 2007; Bhatti, Zaheer 2014; Kianto, Hurmelinna-Laukkanen, Ritala 2010; Inkinen 2016). The influence of intellectual capital and knowledge management on organizational performance was studied by Wang Z., Wang N., Cao, Ye (2016) and Inkinen (2016).

The aim of this article is to analyze and determine the influence of intellectual capital and knowledge management on organizational performance. This article analyzes the definitions, characteristics and measurement methods of intellectual capital and knowledge management. An analysis of theoretical concepts was used to reveal the influence of these two constructs on organizational performance. An empirical study was conducted to determine the influence of intellectual capital and knowledge management on financial and other indicators of organizational performance in Lithuanian software companies.

Intellectual Capital and Knowledge Management in Organizations

An organization's value in the contemporary, knowledge-based economy is created through innovations, the source of which are the organization's employees (Bhatti, Zaheer 2014). It is the employees, their knowledge and competencies that constitute the intellectual assets of an organization. Although the concept of intellectual capital has been used already for some time, organizations still have difficulties in measuring it because of a variety of measurement methods, none of which are universally applicable. The first attempt to define the concept of intellectual capital is attributed to Stewart (1998) who said that intellectual capital consists of talents, the skills of individuals and groups, technological and social networks, software and the culture that unites all of these elements. Intellectual capital also comprises intellectual material – intellectual property, methods, and procedures – everything that can be used to create value for an organization yet is intangible and hard to measure (Stewart 1998).

In scientific literature, intellectual capital is often defined as a sum of three interrelated and mutually supporting components: human capital, structural capital (sometimes called organizational capital), and relational capital (or customer capital). When analyzing intellectual capital and its components, it must be noted that intellectual capital is intangible and difficult to measure; therefore, there is no measurement model that could be applied without distinction to all organizations (Marr, Schiuma, Neely 2004). Models for measuring intellectual capital are not universal; most of them were developed for a

concrete company, taking into account the specific nature of its operations, its size and other factors. As an example, certain models were developed for such companies as Skandia (a Swedish-owned insurance company), Cisco Systems (services in information technologies) and Ernst & Young (audit and consulting services) (Rudytė, Bužinskienė 2012). Scientific literature often refers to the *Skandia* model and the VAIC (Value Added Intellectual Capital) model, since they are the most often used as a basis for creating new models of intellectual capital measurement.

The intellectual capital model, described by Skandia's intellectual capital director Leif Edvinsson and Michael S. Malone, was one of the first attempts to develop and apply this kind of model for an organization. The model is called Skandia Navigator and uses five focus areas to analyze the intellectual capital of an organization: financial, customer, process, renewal and development focuses, while at the centre of the model lies the human focus, which supports the operation of the whole model (Starovic, Marr 2003). Another popular intellectual capital measurement model, falling under the category of ROA (Return on Assets) models, is VAIC – the Value Added Intellectual Coefficient model, presented by professor Ante Pulic in 1998. Pulic aimed to create a model that could be used by any company regardless of its operational principles, position in the market or geographic location (Svanadze, Kowalevska 2015). This model defines two key resources that create value in companies: Intellectual Capital and Capital Employed. Capital employed includes physical and financial capital, whereas intellectual capital consists of human and structural capital. The measurement includes three types of intellectual capital: human capital, structural capital and capital employed. Human capital can be expressed by employee expenses, structural capital is the difference between produced value and employee expenses, and capital employed equals the company's book value (Stahle P., Stahle S., Aho 2011).

Despite the unanimous opinion among the majority of intellectual capital researchers that the measurement of intellectual capital in organizations is difficult and that such a measurement cannot be precise (e.g., Palumickaitė, Matuzevičiūtė 2007; Stahle P., Stahle S., Aho 2011; Bontis 1998; Williams 2001; Rudytė, Bužinskienė 2012; Inkinen 2016), it must be emphasized that the measurement is important not only to organizations themselves, but also to other stakeholders – investors, for example. Large intellectual capital of a company may lead to the decision to invest into this company as a potential future success (Williams 2001). Investors' interest in the value of intellectual capital is indicated by the fact that in some countries, e.g., Denmark, UK, Canada, Austria, financial reports are being supplemented by intellectual capital reports (Rudytė, Bužinskienė 2012). Therefore, it is not surprising that attempts to create intellectual capital measurement models (although criticized) began relatively early. Nevertheless, such components of intellectual capital as, for example, existing knowledge or a knowledge sharing culture, are very difficult to express in monetary terms; therefore, other measure-

ment methods must be employed. According to Debowski (2006), effective knowledge management in an organization contributes to work efficiency, lower costs, higher productivity, higher quality and increased customer satisfaction. In a long-term perspective, all these factors bring financial gain. Thus, it could be stated that knowledge management in an organization is a tool for creating value, improveing performance, increasing customer and employee satisfaction. Accordingly, knowledge management is considered not as an option but as a prerequisite for good organizational performance (Zack, McKeen, Singh 2009). In a long-term perspective, all knowledge management processes can contribute to goal achievement and increase organizational performance (Valmohammadi, Ahmadi 2015). Evidence is provided by numerous studies, which demonstrate the influence of knowledge management on organizational performance from both the customers' and employees' perspective (Valmohammadi, Ahmadi 2015), on financial performance (Tarniverdi 2005), innovation (Forcadell, Guadamillas 2002) or productivity (Lapre, Wassenhove 2001).

The Relationship between Intellectual Capital and Knowledge Management and their Influence on Organizational Performance

Intellectual capital and knowledge management are closely interrelated, since they both comprise activities that require intellectual effort, starting with knowledge creation and ending with knowledge measurement (Huang, Wu 2010). Besides, these two areas affect each other and produce strong interactive effects on organizational performance and success (Hsu, Sabherwal 2012). The last decade saw a growth of research on the interaction of these two dimensions. Many of these studies focused on the interactive effects of intellectual capital and knowledge management on organizational performance. Studies on this topic could be classified into several groups:

1. Studies that show the increasing importance of knowledge management and intellectual capital in organizations (Nahapiet, Ghosal 1998; Bontis 1998);
2. Studies that address the interactive effects of knowledge management and intellectual capital on organizational performance (Ho 2009; Youndt, Snell 2004 and others);
3. Studies that analyze the relationship between knowledge management and intellectual capital (Curado 2008; Huang, Wu 2010; Shih, Chang, Lin 2010).

There are still only a few studies that investigate the influence of intellectual capital components on the knowledge management processes and vice versa. Research (Mehralian, Nazari, Akhavan, Rasekh 2014; Schiuma, Lerro 2008) mostly focuses on the influence of one component (of intellectual capital or knowledge management) on the whole construct (intellectual capital or knowledge management). For example, studies on the Iranian pharmaceutical sector and the US banking industry revealed a strong correlation (Pearson correlation values 0.7–0.8) between knowledge creation and the components

of intellectual capital (human, structural and relational) (Mehralian, Nazari, Akhavan, Rasekh 2014; Shih, Chang, Lin 2010).

However, as was mentioned earlier, there are a few researches that examine the mutual relationship between knowledge management processes and the intellectual capital dimensions. Such studies require particularly deep theoretical knowledge, a strong research tool and the ability to properly analyze the data received. Despite these reasons, such a kind of study was carried out in 38 Egyptian software development organizations. The authors of the study formed two hypotheses: (1) that knowledge management processes have a positive impact on the dimensions of intellectual capital and (2) that the dimensions of intellectual capital have a positive impact on knowledge management processes (Seleim, Khalil 2011). Both research hypotheses have been confirmed, and the results of the research have shown that intellectual capital affects knowledge management in each of its dimensions: structural, human and customer. Customer capital facilitates knowledge management, as interpersonal communication enables the utilization and integration of knowledge (Grant 1996) through knowledge sharing both within and outside an organization. Human capital enables knowledge management through the development of knowledge management processes developed by individuals (Argote et al. 2003). Also, employees can use their knowledge to improve knowledge management in the organization. Finally, structural capital, as an intellectual capital component, affects knowledge management through infrastructure elements: databases, systems, processes. The Impact of Knowledge Management on Intellectual Capital is another point of view. It is noteworthy that practically all knowledge management processes influence structural capital, human capital influences the use of knowledge, and the sharing of knowledge influences communication capital.

The analyzed research results show a relationship between intellectual capital and knowledge management, but the main goal for organizations is to accumulate as much capital as possible, to operate on a growing market share and to achieve profit; so, it is important to analyze the impact of this connection on the performance of an organization.

When seeking the answer to the question of what constitutes the influence of that intellectual capital and knowledge management, as interrelated constructs, have on organizational performance, it became apparent that there is no clear algorithm or model on how to proceed and what to pay the most attention to. Every organization, depending on its employees, management style, the nature of its activities and many other factors, chooses the most suitable model of intellectual capital and knowledge management. Nevertheless, an analysis of the influence of intellectual capital and knowledge management on organizational performance pays more attention to non-financial performance than the traditional financial results. An evaluation of financial results provides the necessary information to the company's founders, investors, lenders and all others involved

in strategic decisions (Jiambalvo 2004). This kind of performance measurement is very important, since a consistent measurement allows for a comparison across periods of time – an analysis of the "evolution" of a company. However, an evaluation of organizational performance should not be limited to financial results only. First of all, superior financial performance for a given period does not indicate sustainability and does not guarantee that the performance will remain the same in the future (Santos, Brito 2012). Second, in the recent time, increasingly more attention is given to intangible assets: intellectual capital and its components, knowledge, information, ability to innovate etc. It is argued that these are the intangible assets that define a company's financial performance (Chiarello et al. 2014; Bontis 1998; Kapelko 2009) and that they should be considered first.

In research literature, the commonly used criteria for measuring intangible performance are employee satisfaction, productivity, operational efficiency, customer satisfaction and an increased number of customers (Suliyanto, Rahab 2012; Lin, Peng, Kao 2008; Wang et al. 2016).

In conclusion, the research literature provides many different methods for measuring organizational performance. Nevertheless, the organizations themselves have to make the decision of which of those to actually use and which of those are best suited when taking into account the characteristics of a company. Financial performance measures have been used for a long time – all for-profit organizations measure profit, sales, income, costs etc. – whereas non-financial, intangible assets, such as employee knowledge, their productivity and customer satisfaction, are much harder to measure. However, when organizations measure their profit, return on investment, or sales increase and look for ways to improve these indicators, they inevitably have to measure employee and customer satisfaction, productivity, efficiency, innovation ability and other similar factors. This is the reason why in the last decade, the measurements of organizational performance started to include intangible assets right next to the measurements of success in financial terms (Berzkalne, Zelgalve 2014).

The Influence of Intellectual Capital and Knowledge Management on Organizational Performance

In order to identify the influence of intellectual capital and knowledge management as interrelated constructs, we conducted a quantitative, survey-based research. The research included leaders of software companies operating in Lithuania. *The aim of the study* was to determine the influence of intellectual capital and knowledge management on financial and other performance indicators in IT companies operating in Lithuania. The researched was carried out in 2017. Eighty-six companies participated in the survey, which equals to a 70.49% response rate and is considered as sufficient for the study.

Methodologically, the research is based on three components (Figure 1):

- Intellectual capital and its components (human capital, structural capital, relational capital);
- Knowledge management processes (knowledge acquisition, retention, sharing, creation and application);
- Financial performance indicators (profit, market share, return on investment and sales) compared with the previous year;
- Other performance indicators (customer and employee satisfaction, change of the number of customers, and work productivity) as compared with the previous year.

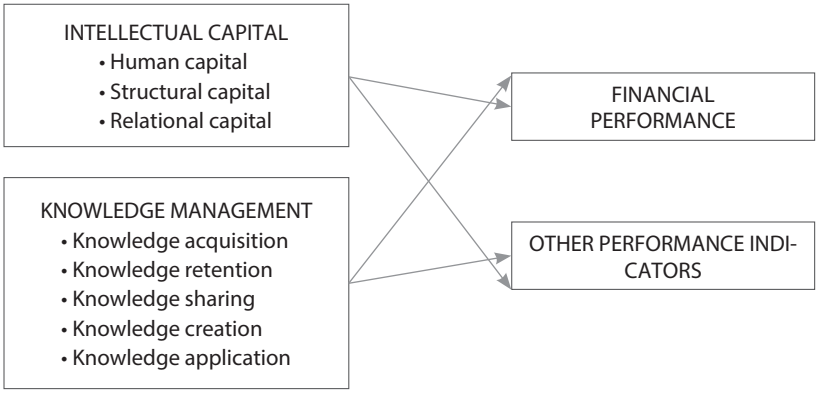

FIGURE 1. **Research model.**
Compiled by the authors.

A quantitative survey questionnaire was used as the research instrument. It was designed on the basis of a research model (Figure 1) and included evaluative statements corresponding to the structural parts of the model, used in previous studies and reported in literature. The questionnaire included 48 statements with the Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To ensure the reliability of the research instrument, the correct wording, comprehensiveness and concreteness of questions, the questionnaire was tested in a pilot research with a small sample of 26 respondents. These respondents were specialists and leaders from companies in various sectors. After the pilot study, five items that were found to decrease the value of Kronbach alpha were removed from the questionnaire, which means that the research instrument had become more reliable.

To achieve the research objectives, four hypotheses were formulated:

H1: Knowledge management has a big influence on a company's financial performance.

H2: Knowledge management has a big influence on other company performance indicators.

H3: Intellectual capital has a big influence on a company's financial performance.

H4: Intellectual capital has a big influence on other company performance indicators.

To identify the relationship between the dependent and independent variables and to test the hypotheses, the determination coefficient R^2 was calculated. In this case, the independent variables are intellectual capital and knowledge management, and the dependent variables are indicators of financial and other types of performance.

The research showed that intellectual capital and knowledge management are directly and positively correlated with both financial and other indicators of organizational performance; thus, all hypotheses were confirmed. Research data also allowed for a more detailed examination of the influence of different components of intellectual capital and the processes of knowledge management on organizational performance.

Figure 2 presents the influence of all knowledge management processes on the financial performance of IT companies included in the study. However, the processes that exert the strongest influence on performance are knowledge creation and knowledge application. It could be explained by the specific sector of the companies, which requires innovations, new ideas and insights, fast responses to market changes and adaptability – in other words, knowledge creation. This sector also requires data bases, infrastructure, and teamwork – everything that constitutes the process of knowledge application. Knowledge sharing has the least influence on financial performance (the reasons for that will be discussed later in the article).

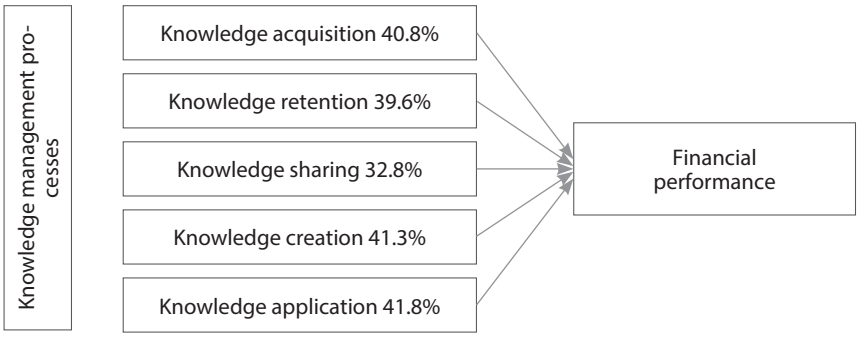

FIGURE 2. **The influence of knowledge management processes on a company's financial performance.**

Compiled by the authors based on research data.

Knowledge management processes also have big influence on other indicators of organizational performance, since 37.3% of other indicators are explained by knowledge management (Figure 3). Knowledge application has the strongest influence on other indicators of performance. It means that employee and customer satisfaction and work efficiency are most affected by teamwork, accumulated knowledge, experience and regular market analysis. Similarly, as in the case of financial performance, knowledge sharing has the least influence on other indicators of performance.

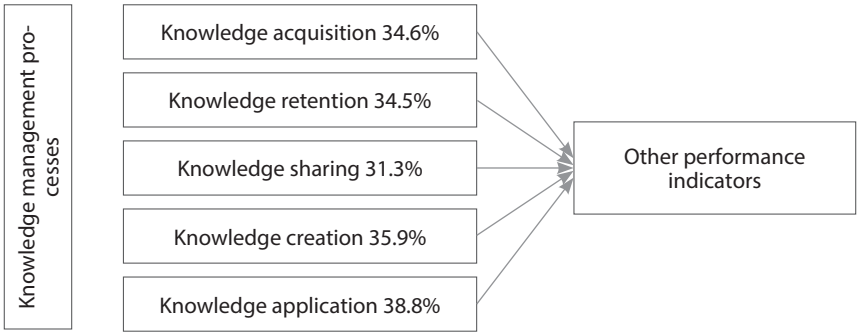

FIGURE 3. **The influence of knowledge management processes on other indicators of company performance.**

Compiled by the authors based on research data.

To summarize, we can state that the research data on the influence of knowledge management processes on organizational performance show that knowledge management has more influence on the financial performance of a company rather than on other performance indicators, although the difference is not that big. It means that effective knowledge management in an organization may increase its profit, market share, sales and return on investment; on the other hand, too little attention to knowledge management may contribute to a decrease in financial performance. Also, it has been noted that in comparing all knowledge management processes, knowledge sharing has the least influence on organizational performance. A positive, direct correlation between these two variables shows that there is influence, but knowledge sharing is least significant compared with other knowledge processes. Paghalel et al. (2011) propose that knowledge sharing is less common in this type of organizations as they employ professionals who have little motivation and desire to share their knowledge with others. Nevertheless, in such situations, more emphasis should be put not on knowledge sharing between individuals, but on doing so in teams (Paghalel et al. 2011). This idea is confirmed by our study, since knowledge creation and application were shown to have the biggest influence on the performance of these companies. Evaluations of these knowledge processes provided in the questionnaires indicated that teamwork and inclusive decision-making in multidisciplinary teams were the strengths of the companies included in our study.

An analysis of data on intellectual capital revealed that all components of intellectual capital have a similarly strong influence on financial performance, although the indicator for structural capital was the highest (39.7%) (Figure 4). It means that IT companies pay much attention to infrastructure development and maintenance: this includes information and knowledge systems, operational support and an organizational environment conducive to mutual help. It is important to note that knowledge sharing, as stated earlier, had least influence on the financial performance of organizations, although an environment were employees can freely share their knowledge and help each other in teams

was evaluated as a strength of these companies. Nevertheless, the evaluation of structural capital revealed a stronger emphasis on infrastructure and operational management, which are particularly important in software companies because it denotes a possibility to use strong company infrastructure for smooth operations.

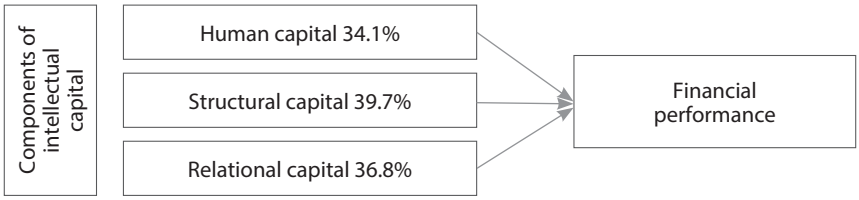

FIGURE 4. **Influence of components of intellectual capital on financial performance.**
Compiled by the authors based on research data.

It is also important to note that human capital had least influence on the financial performance of the companies, although in the research literature and empirical studies, this indicator is often interpreted and found as the most important when compared with other components of intellectual capital. It could be explained by the fact that the questionnaire items on human capital in the company included a question on whether the company's employees are creative, which is a less relevant and important characteristic in IT companies as opposed to companies in other sectors. Also, not many organizations gave a high score for the statement that their employees suggest and develop new ideas. Such an evaluation might be influenced by the fact that a high number of the employees in these companies perform mechanical duties on software maintenance and do not have many chances to exercise creativity.

An examination of the last hypothesis showed that human capital has the biggest influence on other performance indicators, while it had the least influence on financial performance (Figure 5). It means that it is the company's employees that mainly influence employee and customer satisfaction, work efficiency and an increased number of customers, not the company's infrastructure or its relationships with stakeholders. In the analysis of the influence of intellectual capital on financial performance, an assumption was made that the low indicator for the influence of human capital might be explained by a low need for creativity in this type of companies due to the mechanical nature of work conducted there. Here we can note that, at the end of the day, creativity and professionalism have influence on other company performance indicators. Thus, those IT companies that want to increase their customer satisfaction, their number of customers, work efficiency and employee satisfaction should pay most attention to their employees – toward the development of their professionalism and creativity and the encouragement of new ideas.

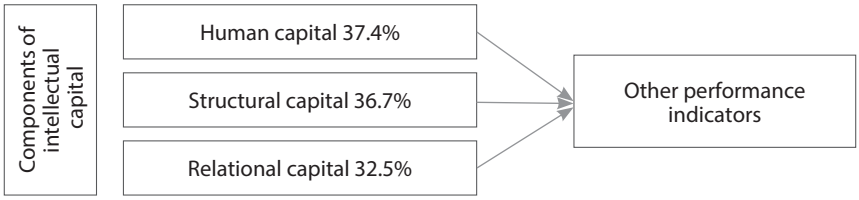

FIGURE 5. **The influence of the components of intellectual capital on other indicators of company performance.**

Compiled by the authors based on research data.

A survey of ours directed at 86 computer software developers in Lithuania gave us the results that allowed us to achieve our research goal, solve the issue of our study and confirm the set hypotheses. After analyzing the results of the survey, based on the correlation and regression calculation methodology with SPSS, the obtained results confirmed the theories earlier described in this paper – those which argued that intellectual capital and knowledge management have a significant influence on an organization's performance results. Based on the research model, the relationships between the four model blocks – intellectual capital (hereinafter referred to as "IC"), financial results ("FR") and other indicators of performance ("OI") – were analyzed in detail; we also analyzed the relationship between knowledge management (hereinafter – KM) and FR and OR. First, the calculated Pearson correlation coefficients led to the conclusion that there is a strong, positive and direct relationship between the investigated blocks: IC – FR (63.4%) IC – OI (60.4%), KM – FR (64.8%) and KM – OR (61%). Based on these indicators, a strong correlation was established, but for the purpose of the study, it was necessary to calculate the regression coefficients that would allow us to determine how the independent variables (IC and KM) affect the dependents (FR and OI).

TABLE 5. **A matrix of study results.**

	Financial results	**Hypothesis**	**Other indicators of performance**	**Hypothesis**
Knowledge management	$R^2 = 0.420$	H1 – approved	$R^2 = 0.373$	H2 – approved
Intellectual capital	$R^2 = 0.394$	H3 – approved	$R^2 = 0.365$	H4 – approved

Compiled by the authors based on research data.

Based on the results of the research presented in Table 1, it can be said that the financial results of the organization are mostly influenced by knowledge management. From the knowledge management processes, knowledge creation and application have the greatest impact on an organization's performance. This means that attentiveness to innovations, new ideas and insights, responsiveness and adaptiveness to market changes add value to IT companies, drive sales growth, increase customer satisfaction, improve work

efficiency, among other perks. Knowledge sharing has the smallest impact on financial results. However, with a closer look at the results of the survey, it has been observed that the core of these organizations operate is in teamwork and decision-making when all employees are involved. This means that the focus should be on knowledge sharing within a team, not on an interpersonal level. For other performance results, such as employee satisfaction, customer growth, work efficiency and customer satisfaction with the products or services that are being developed, both intellectual capital and knowledge management are almost equally affected. Of all the components of intellectual capital, structural capital has the greatest impact, while human capital has the smallest impact. These results suggest that more attention is paid to operations and infrastructure rather than the creativity of the employees and them sharing new ideas and insights. The reason for this may be the specifics of the activities of the organizations being investigated: the development of computer software requires more mechanical rather than creative work. This requires an appropriate infrastructure and operational flexibility.

The results of our study of IT companies operating in Lithuania proved that both intellectual capital and knowledge management have big influence on organizational performance. The calculated determination coefficients were very similar, which means that, with a view to higher organizational performance, all knowledge processes and all components of intellectual capital should be given equal attention.

Conclusions

Intellectual capital and knowledge management are very important, intangible assets of various organizations, which, if managed adequately, create value in a long-term perspective. Their significance and contribution to creating value have been studied for some time already. However, an analysis of previous research showed that intellectual capital and knowledge management are often analyzed as two separate components. There are not many theoretically based studies demonstrating the influence of intellectual capital and knowledge management as interrelated constructs on organizational performance.

Scientific literature does not provide many universal models for measuring intellectual capital and knowledge management that could be used by companies for performance assessments. The issue here is that the value created by intellectual capital and knowledge management is often being measured as a return on investment and accumulated profit. However, these organizational assets are unique in that they are intangible; therefore, any attempts to create methods for measure the value they create can be criticized as inadequate and imprecise.

Organizations that carry out intellectual capital and knowledge management measurements and present them in reports are more stable and less risky for investors, since in such cases not only the financial situation but also the future potential of a given company is evaluated. The benefits of intellectual capital and knowledge management are

impossible to express in monetary terms, but such an assessment is extremely important for understanding the real value of a company as well as its potential to innovate.

Traditionally, organizational performance has been measured only in financial terms. Nevertheless, performance evaluation should distinguish between financial and other, intangible performance indicators, because the intangible assets in particular bring profits in a long-term perspective. It is thus important to evaluate them separately. In this article, the evaluation of financial performance addressed the question of whether an adequate management of intellectual capital and knowledge processes has influence on an organization's profit, sales, return on investment and market share. On the other hand, indicators of performance were used to capture the aspects that do not bring financial benefits directly but are nevertheless very important in the long-term – the satisfaction of employees and customers, an increased number of customers and work productivity.

The influence of intellectual capital and knowledge management on organizational performance was studied empirically in 86 software companies operating in Lithuania. This study proved that both intellectual capital and knowledge management have big influence on organizational performance.

REFERENCES

Atkočiūnienė, Z. (2016). Žinių valdymo situacija Lietuvos verslo įmonėse: atvejo tyrimas. Informacijos mokslai / Vilniaus universitetas. Vilnius : Vilniaus universiteto leidykla. 2016, t. 76, p. 111-122. ISSN 1392-0561.

Berzkalne, I.; Zelgalve, E. (2014). Intellectual capital and company value. Procedia – Social and Behavioral Sciences, Vol.110 , p. 887-896.

Bhatti, A.; Zaheer, A. (2014). The Role of Intellectual Capital in Creating and Adding Value to Organizational Performance: A Conceptual Analysis. The Electronic Journal of Knowledge Management, Vol. 12, Issue 3, p. 190.

Bontis, N., (1998). Intellectual capital: an exporatory study that develops measures and models, Management Decision 36/2, 1998, ISSN 0025-1747.

Curado, C. (2008). Perceptions of knowledge management and intellectaul capital in the banking industry. Journal of Knowledge Management, Vol 12, Issue 3, p. 141-151.

Debowski, S., Knowledge Management (2006). National Library of Australia, p. 16-19, 280-283 p. ISBN – 13 978 0 470 805381.

Forcadell, F. J.; Guadamillas, F.,(2002). A case study on the Implementation of knowledge management strategy oriented to innovation. Knowledge and Process Management, Vol. 9, Nr. 3, p. 163-170.

Ho, C.–T.,(2009). The relationship between knowledge management enablers and performance. Industrial Management and Data Systems, Vol. 109, Issue 1, p. 98-117,

Hsu, I-C.; Sabherwal, R., (2012). Relationship between Intellectual Capital and Knowledge Management: An Emprical Investigation. Decision Sciences Institute, p. 489.

Huang, Y.-C.; Wu, Y.-C. J., (2010). Intellectual capital and knowledge productivity: The Taiwan biotech insudtry. Management Decision, p. 2, 21.

Inkinen, H., (2016). Intellectual capital, knowledge management practises an firm performance, ISBN 978-952-265-951-4, p. 15,34,35.

Youndt, M.; Snell, S., (2004). Human resource configurations, intellectual capital, and organizational performance. Journal of Management Issues, Vol. 16, Nr. 3. [interaktyvus], Prieiga per internetą: (http://www.freepatentsonline.com/article/Journal-Managerial-Issues/124419547.html).

Jiambalvo, J.,(2004). Managerial Accounting., University of Washington, 512 p.

Kapelko, M. M., (2009). Intangible assets and firm efficiency. International analysis in the textile and apparel industry. Dissertation, 2009, p. 39,[interaktyvus], prieiga per internetą: (http://tdx.cat/bitstream/handle/10803/3972/mmk1de1.pdf?sequence=1).

Kianto, A.; Hurmelinna-Laukkanen, P.; Ritala, P., (2010). Intellectual captital in service - and product - oriented companies. Journal of Intellectual Capital, Vol. 11, Issue 3, 2010, p. 309,

Kučinskienė, M.; Broniukaitis, R. (2017) Intelektinis kapitalas ir strateginiai sprendimai: integralus požiūris. Informacijos mokslai. 2017, 78. P. 53-65.

Lapre, A.M.; Van Wassenhove, L. N.,(2001). Creating and Transfering Knowledge for Productivity Improvement in Factories. Management Science Vol. 47, Nr. 10, ISSN 1526-5501, p. 1311-1325.

Lin, C.-H.; Peng, C.-H.; Kao, D. T., (2008). The innovativeness effect of market orientation and learning orientation on business performance. International Journal of Manpower, Vol. 29, Issue 8, p. 770.

Marr, B.; Schiuma, G.; Neely, A. (2004). Intellectual capital – defining key performance indicators for organizational knowledge asstes. Business Process Management Journal, Vol. 10 Issue 5, p. 552, 555.

Mehralian, G.; Nazari, J. A; Akhavan, P.; Rasekh, H.R.,(2014). Exploring the relationship between the knowledge creation process and intellectual capital in the pharmaceutical industry. The Learning Organization. Vol. 21, Issue 4, p. 260-269.

Nahapiet, J.; Ghoshal, S.,(1998). Social Capital, Intellectual Capital and the Organizational Advantage. The Academy of Management Review, Vol. 23, Nr. 2, p. 242-262.

Paghalel, M. J.; Shafiezadeh, E.; Mohammadi, M., (2011). Information Technology and its Deficience in Sharing Organizational Knowledge. International Journal of Business and Social Science, Vol. 2, Nr. 8, p. 197-198.

Palumickaitė, J.; Matuzevičiūtė, K., (2007).Intelektinis kapitalas ir vertės kūrimas: teorinis aspektas. Ekonomika ir vadyba: aktualijos ir perspektyvos. 2007.1 (8) 206-211. ISSN 1648-9098.

Rudytė, D.; Bužinskienė, R. (2012). Nematerialiųjų išteklių vertinimo metodai organizacijos išteklių apskaitoje, iš Ekonomika ir vadyba: aktualijos ir perspektyvos, ISSN 1648-9098, p. 104,105.

Schiuma, G.; Lerro, A.; (2008). Intellectual capital and company‘s performance improvement. Measuring Business Excellence, Vol. 12, Issue 2, p. 4.

Seleim, A.; Khalil, O.,(2007). Knowledge Management and Organizational Performance in the Egyptian Software Firms. Journal of Knowledge Management, Vol. 3, Issue 4, p. 37-66.

Stahle, P.; Stahle, S.; Aho, S. (2011). Value Added Intellectual Coefficient (VAIC): a critical analysis. Journal of Intellectual Capital, p. 4,5, 11.

Starovic, D.; Marr, B. (2003). Understanding corporate value: managing and reporting intellectual capital, p. 11,12.

Stewart, T. A. (1998). Intellectual capital: The new wealth of organizations, [interaktyvus], Article in Performance Improvement, p. 1, Prieiga per internetą: https://www.researchgate.net/publication/229643636_Intellectual_capital_The_new_wealth_of_organizations

Suliyanto S.; Rahab R.,(2012). The Role of Market Orientation and Learning Orientation in improving Innovativeness and Performance of Small and Medium Enterprises. Asian Social Science, Vol. 8, Nr. 1, p. 142.

Svanadze, S.; Kowalewska, M. (2015). The measurement of intellectual capital by VAIC method – example of WIG20. Online Journal of Applied Knowledge Management, Volume 3, Issue 2, p. 38-40.

Tarniverdi, H., (2005). Information technology relatedness, knowledge management capability, and performance of multibusiness firms. MIS Quarterly, Vol. 29, Nr. 2, p. 324.

Valmohammadi, C.; Ahmadi, M., (2015). The impact of knowledge management practises on organizational performance: A balanced scorecard approach. Journal of Enterprise Information Management, Vol. 28, Issue 1, p. 132.

Wang, Z.; Wang, N.; Cao, J.; Ye, X. (2016). The impact of intellectual capital – knowledge management strategy fit on firm performance. Management Decision, Vol. 54, Issue 8, p. 1865-1876, 1884.

Williams, S. M.,(2001). Is intellectual capital performance and disclosure practises related?. Journal of Intellectual Capital, Vol. 2, Issue 3, p. 194.

Zack, M.; McKeen, J.; Singh, S. (2009). Knowledge management and organizational performance: an exploratory analysis. Journal of Knowledge Management, Vol. 13, Issue 6, p. 392-393.

Received *April, 2018*
Revised *May, 2018*
Accepted *May, 2018*