Andrea Lukács

The knowledge management systems of Hungarian small and medium-sized enterprises, their impact on competitiveness and efficiency, with particular regard to the possibilities inherent in networked operations.

Thesis Booklet

Doctoral School of Education/Andragogy program

Head of the Doctoral School: Prof. Dr. Zsolnai Anikó

Head of the Doctoral Program: Dr. Habil. Dorner Helga

Supervisor: Dr. Habil. Dorner Helga – ELTE PPK

DOI: 10.15476/ELTE.2023.061

BUDAPEST

2023

Content

1. Introduction 2
2. The actuality of the topic and the research problem 4
3. Theoretical background and conceptual framework of the study 8
   2.1. Theoretical frameworks to be emphasized from the point of view of the research. 8
   2.2. Comparative analysis of the international knowledge management models 8
   2.3. Adult learning, organizational learning, knowledge management in a corporate context 10
   2.4. Development of the organization's learning ability and networked learning 12
   2.5. Concepts of innovation and competitiveness 13
4. The methodology of empirical research 15
5. Results of the empirical study, answers to the research questions 18
6. Discussion 22
7. Conclusion 27
8. Literature 30
9. Publications 34

1. Introduction

The basis of the knowledge economy is the learning organization (*Nonaka and Takeuchi*, 1995). In a learning organization, the willingness to learn is the source of competitiveness, the maximum profit cannot be measured in absolute money, but in the knowledge inherent in the organization, and thinking is the task of each person, and is realized at all levels of implementation and decision-making (Senge, 1994). An effective and value-creating knowledge management system – i.e. the transmission, collection, cataloguing, flow and efficient use of knowledge – can create additional value for the organization and is a key factor in the life of learning organizations. The concept of knowledge management consists of two components, these components are related to the concept of management on the one hand, and knowledge on the other. According to Fayol (2002), management itself is a well-defined process that includes forecasting, planning, organizing, implementing, coordinating, and controlling the activities of others. Among the many definitions of knowledge, I would highlight the definition of Davenport and Prusak (2000), which defines three separate levels - the level of data, information, and knowledge - of which only knowledge has a contextualized, complex content that is born in the human mind. Many pedagogical paradigms deal with the issue of knowledge acquisition, most of them are based on the study of information processing. Mead and Durkheim emphasize the importance of communication, the social environment and activities based on cooperation (*Mead*, 1973), and the necessity of social processes essential for thinking and communication. The theory of connectivism, which appeared in the early 2000s, clearly placed the process of knowledge construction in the framework of cooperation, interactions, and group processes between people, where the network character is more important than the content itself (*Downes*, 2008). New technologies enable interactive, feedback and reflective learning. According to Pierre Lévy's (2001) collective intelligence theory, the "collective brain" can be formed with the help of technology, which can also democratize the areas of economy, politics, and social organization. László Ropolyi (2006) regards the network as an effective carrier of collective memory, which can also be a new source of integration for learning and work.

The change in education is also an important issue, since for a long time this field was characterized by formalized, disciplinary knowledge, and the relevant knowledge of scientific fields could be acquired within the framework of formal education. However, the economy increasingly requires knowledge that can be used immediately and is organized according to the nature of tasks, which has also changed the development of education. In the organization

of the knowledge base, much more emphasis is placed on practical usability, and the actors of economic life formulate their expectations regarding education more and more decisively. When defining valuable, valid and usable knowledge, competence, expertise and education came into focus (*Csapó*, 2009).

In the knowledge economy, innovation and competence-based theories place great emphasis on the creation, transfer, and usability of knowledge in the market. When we look at knowledge as capital, the focus is inevitably on knowledge transfer, its place, time, and manner, as well as people. A key question in the life of learning organizations is how to put knowledge into a form that makes the flow easier. An overview of the differences between types of knowledge and the definition of the role of learning, teaching, and training can help answer this question. When we talk about knowledge-related operations, we can also talk about conscious and random activities between individuals and groups, inherent in networks. However, in the case of knowledge management, planned, organized and process-oriented activities related to knowledge are in the background, since in the absence of the latter, the only possible use, transfer, acceptance and exploitation of knowledge can take place. This can only provide a small part of the benefits it can provide. According to Nonaka and Takeuchi (1995), the main goal of knowledge management is to make personal knowledge accessible to everyone, so the knowledge management system can be interpreted as a process deeply embedded in the mental structures of individuals and groups (*Ling-Hsing and Tung-Ching Lin*, 2015). According to Davenport and Prusak (2000), the 3 main goals of knowledge management systems are to make knowledge and its role visible to the entire organization, to create a knowledge-intensive culture within the organization, and finally to organize an infrastructure around the processes that creates connections between people.

Knowledge management is also related to research and development activities and innovation. And in the 90s and 2000s, many empirical studies (*Nonaka and Peltokorpi*, 2006; *North et. al*, 2004; *Sandhawalia and Dalcher*, 2011; *Wang et al*, 2014; *Wu*, 2008) sought answers to questions such as do knowledge management systems have strategic effects on companies, is it related to financial performance, what is the relationship between the operated system and the chosen competitive strategies, how does it contribute to innovations, the creation of new knowledge, what are the factors necessary for the operation of the knowledge management system or exactly what obstacles arise during its implementation, and what is the key to a successful knowledge management system. Domestic research has touched this issue to a small extent (*Stéber and Kereszty*, 2015; *Tóbiás*, 2016; *Klimkó*, 2001), therefore the case

study series of my research among small and medium-sized enterprises in Hungary - which seeks answers to similar questions - brings new results to this area to contribute.

2. *The actuality of the topic and the research problem*

The concept of small and medium-sized enterprises is diverse in both domestic and international practice. According to Welsh and White (1981), a small company is not the same as a smaller large company. Because of its characteristics it can often be at a disadvantage compared to large companies, but at the same time these characteristics make it viable and are important from both a social and economic point of view. From a researcher's point of view, it is difficult to precisely define the specifics, since a small company can be a garage shop, but it can also be an export-capable company dealing with innovation and development. Its intimate "family" atmosphere can be the basis of creativity and innovation, but it can also be the result of inflexibility, risk avoidance and the inability to renew. The resources of small companies are limited, they operate fewer processes and activities, their product range can be narrower, and at the same time the organizational structure is flatter, which enables more effective communication and faster decision-making. Close and informal working relationships are characteristic, less formalized operation and employee satisfaction with work can be higher. These allow for greater flexibility, adaptive responses and to meet the needs of segments with special, unique needs. Flexibility also helps in innovation processes; small companies often incubate new ideas that are useful for large companies. Thus, the interdependence of small and large companies is also understandable (*Rideg*, 2017). Among small and medium-sized enterprises, companies with higher-than-average market potential emerge, but at the same time, this sector finds it more difficult to obtain development funds, which is why it has become a priority target of European economic policies that prioritize growth, the main goal of which is to increase competitiveness. A diverse range of subsidies has been developed to support the SME sector, but the most obvious problem is still the low efficiency of the programs; the changes generated were not permanent, the programs could only be continued by maintaining or increasing the income transfer, but serious cases of corruption were not rare either (*Lengyel*, 2003). The goal described in the government's strategy for the development of Hungarian SMEs (2019-2030) is to transform the Hungarian economy into one with high technological development and leading innovation capacities (*ITM*, 2019). Among the numerical objectives is that the added value of domestically owned enterprises within the total added value should

increase from the current 48.8 percent to 65 percent by 2030 (*ITM*, 2019). Hungarian SMEs employ 50-75 percent of employees and generate 50-60% of GDP (*KSH*, 2016). The Regional Innovation and Entrepreneurship Research Centre described in its 2019 report that although national competitiveness tests are widespread, company-level research can be considered a neglected area (*Rideg,* 2017). In its research conducted between 2016-2019, the Centre examined 633 companies using cluster analysis, representing approximately 73,400 SMEs. The results of the research relevant to this thesis include that

- as the size of the company increases, the competitiveness also increases,
- the Hungarian SME sector is heterogeneous,
- 40 percent of companies do not cooperate with anyone,
- 40 percent of companies have no foreign customers,
- in 30 percent of companies, the managers are not able to support internationalization with language skills,
- 40 percent of the organizations do not have any kind of reward/incentive system,
- 68.9 percent of companies do not have a management and/or quality assurance system,
- in 37 percent of the companies, decisions are still made by a narrow circle of owners (and managers at the same time), without consulting anyone,
- 44.4 percent typically receive advice from external sources. at the same time, more than 90 percent use some source of information for decision-making (financial report, internet research, interviewing customers/suppliers),
- 44 percent of managers overestimate their own entrepreneurial qualities,
- one-sixth of the companies employing 5 to 249 people have a very weak competitiveness, in all respects.

According to resource theories, among other things, knowledge sharing shapes the dynamics of industry competitiveness (*Bell and Alben*, 1999; *Pawitt* 1984; *Rothwell*, 1992), and the task of company managers is to search for rare and valuable, hard-to-substitute and copyable resources, which the organization then uses on the system exploits and harmonizes with external factors through (*Barney*, 1991). And knowledge is a primary resource, especially in companies

with a knowledge management approach. Knowledge sharing has become of critical importance in the life of companies, it is the basis of their efficient operation, they are looking for ways and tools to develop, share, "catalogue" the knowledge inherent in the company's employees and exploit the possibilities of use. Knowledge management undoubtedly influences increasing productivity, innovativeness, learning within the organization, and contributes to reducing the complexity of tasks. It is especially important for organizations where the market environment is dynamic, customer expectations are high, and (often technological) changes follow each other quickly (*Israilidis et al*, 2015). The knowledge management approach offers many advantages to companies, such as better results achieved with less labour, reduction of infrastructure costs, creation of a more satisfied customer base, increased efficiency, and innovation.

Some of the problems of small companies arise from their internal operations, which is often because the owners (also managers) focus on the short-term survival of the company, thus lacking a long-term and strategic approach to the way of operation. The top managers are often overburdened, the middle management level is more specialized, which leads to a lack of cooperation, because the conflicts of interest arising along the resource distribution activities of the top manager make it impossible. Performance reserves are necessarily formed, to avoid this, the functional organization is coordinated with more person-oriented tools. The internal division of work is narrow, there is a lack of specialized positions, and an employee must understand several areas at a given level. Since the senior manager is overloaded with operational tasks, he does not get enough time and attention for issues aimed at strategic or organizational development, which would affect future operations. Due to the lack of financial resources, they often fall into the trap of growth, which necessarily increases uncompetitiveness (*Rideg*, 2017). The small size could be well offset by network operation, yet there is enormous resistance in this area, especially in terms of trust and information to open systems. Porter's diamond model (1990) (one of the defining tools for measuring competitiveness at the national level) highlights the positive effects at the regional level, in which actors can benefit from agglomeration advantages resulting from short distances. In the case of such clusters, companies that cooperate and share knowledge have a strong effect. Another problem is the lack of management/managerial knowledge in the financial, marketing, or technological fields, and by that, not only modern but also classical knowledge is understood (*Rideg*, 2017).

It is important to emphasize that the competitiveness of SMEs has been and is being measured by few studies, so there is limited knowledge available about the companies that make up the large segment of the knowledge economy, there is no information on how they can turn

from a small company to a large one, and managers, employees and owners of smaller companies do not have access to information about the real state of their company's competitiveness, so they don't know how to improve it. In the circle of small entrepreneurs, it is common to overestimate one's own results and to assume that the situation is better than the real one. Investigations are also made more difficult by the heterogeneous environment, radically different practices compared to large companies, and the fact that companies mainly compete on the local market, where competitiveness is affected by the lack of resources - especially human resources - thus networking and effective knowledge sharing methods and the application possibilities are more valuable (*Csengődi*, 2013). Without research-based analyses, it is difficult to decide which area development should focus on, where there are gaps, strengths, reserves or even bottlenecks. Examining the processes related to the collection, sharing, flow and reuse of knowledge and the establishment and operation of the appropriate knowledge management system can also provide support for defining the foundations of development, thus significantly contributing to improving competitiveness and innovation skills.

My study aims to map the knowledge management systems of three Hungarian SMEs, to get an idea of the sector's knowledge and experiences related to knowledge management, existing strategies, and their perception related to lifelong learning, based on the practices implemented here. Based on the problems outlined above, it is advisable to study what kind of knowledge management systems work for the actors of the sector, how they are operated, what is considered useful knowledge, how knowledge flows to and from the direction of large companies operating in close relation with the SME sector (networking) and to what extent they can be utilized in general. The study of knowledge management systems provides an opportunity to assess the existing system of tools, resources, the awareness and processes underlying the operation of the system, and based on this to formulate recommendations for development.

3. *Theoretical background and conceptual framework of the study*

2.1. Theoretical frameworks to be emphasized from the point of view of the research.

Knowledge management, a process-oriented activity that includes the collection, evaluation, cataloguing, storage, and reuse of knowledge from different sources, as well as providing access to knowledge and removing outdated knowledge (*Gamble and Blackwell*, 2001).

The importance and correlations of the presence of knowledge management systems with corporate and competitive strategies, performance, and the learning organization, as well as its possible effects on increasing productivity, innovativeness, learning within the organization, and reducing the complexity of tasks.

The *concept of the learning organization*, according to which the subject of the learning organization is the organization itself and such important activities as shaping the common vision of the future, personal control, joint learning, thinking in a system, transforming thought patterns (*Halász*, 2007), organizational culture plays a significant role. jut (*Watkins & Marsick*, 1995).

The importance of *lifelong learning*, during which the learning of individuals can take place in the most different places and forms throughout the entire life course (*Delors*, 1996), is the shift in emphasis from the acquisition of predefined knowledge to the acquisition of the ability to learn independently, and the importance of workplace learning.

The *correlation between competitiveness and knowledge management*, which determines the long-term performance of the economy.

2.2. Comparative analysis of the international knowledge management models

The key element of the theoretical background is the presentation and comparative analysis of the theoretical frameworks of five internationally recognized knowledge management models, by studying them I tried to map the practical usefulness of the models. The three main aspects of the selection of the models were that they (1) cover the processes of the knowledge management system, (2) serve as a basis for the development of the dimensions of later empirical research, and (3) be adaptable based on the results obtained from the

evaluation of the empirical data – according to the given level of development during development in practice. I also reviewed the learning of adults, the factors of organizational learning and the concept of knowledge management in a corporate context, as well as the development of the organization's learning ability and the examination of the possibilities of networked learning. The theoretical background revolves around the concepts of innovation and competitiveness, with particular regard to their relationship with knowledge management.

The models are: Learning organization model (*Watkins and Marsick*, 1993; *Marsick and Watkins*, 2003), Spiral model (*Nonaka and Takeuchi*, 1995), Epistemological model of organizations (*Von Krogh, Roos and Slocum*, 1994), Knowledge construction and model of its use (*Wiig*, 1993), and the Knowledge Management framework (*Bukowitz and Williams*, 1999). They have been implemented and tested in the past for reliability and validity, although the extent of their practical application varies. The examined models describe knowledge, the flow of knowledge and the systems operating around them, all of them have a holistic approach. The similarities found in the theoretical models highlight the deeper analysis and development of which elements and processes of knowledge management within an organization can lead to success during the implementation and development of a knowledge management system. The knowledge management pillars identified from the models: *knowledge, processes, organizational culture, and technology* dimensions.

The first of the models describes the zeroth, diagnostic step of the system introduction, which can provide organizations with data regarding their current situation in the process of becoming a learning organization. The other models basically focus on the phases of construction, covering the topic of knowledge management from the interpretation of knowledge and its role in the organization, through the place occupied by knowledge in decisions and the way knowledge flows, to the construction of the strategic framework. In the models in which the technological factor appears, its place and role in the system are precisely defined. The models view knowledge management in its complexity, identify the guardians of knowledge, the organizational environment and the knowledge sharing network as the blood circulation of the organization. In terms of processes, processes related to the creation, flow, storage and reuse of knowledge appear in all models, although the emphasis is on different elements and approaches for each model, such as sequences, synergies and networks, the effects of the external environment on knowledge creation, strategic thinking, decision making or problem solving processes. Three of the models deal in detail with the topic of strategy creation, Nonaka and Takeuchi's (1995) model differs radically from the Watkins and Marsick (1993)

and Bukowitz and Williams (1999) models in terms of their understanding of strategy. In terms of strategy, Watkins and Marsick's model (1995) emphasizes the importance of building an organizational culture, creating a common vision and strategic leadership, and the role of managers (role model, leadership) in accordance with the learning organizational goals. In their view, the planning process is a top-down approach, but in an organizational atmosphere where managers have the skills to listen to others, encourage teamwork and group learning. The model of Bukowitz and Williams (1999) basically puts the strategy in the centre, so they see knowledge management as a plan-like, precisely structured, analysis-based activity, for which there is a responsibility within the organization, the when and why aspects are important during its planning and execution, and its tactical steps are learning and contribution phases. All models regard organizational culture as a key factor, the most important factors are: communication, loyalty, employee attitudes, the role of human resources, interactions, cooperation and managerial responsibility.

Models discuss knowledge from a wide variety of perspectives. Watkins and Marsick (1995) emphasize the principled differences between organizational learning and the learning organization, the importance of mutual learning and dialogue, which can contribute to the creation of constantly renewed, community knowledge. The SECI model (*Nonaka & Takeuchi*, 1995) emphasizes the importance of subjectivity and places the individual and the flow of knowledge between individuals at the centre of knowledge creation and management (cf. *Nonaka & Peltokorpi*, 2006). Wiig (1993), focuses on the organization of knowledge, while Von Krogh, Roos and Slocum (1994) draw a dividing line between individual and community knowledge. Community knowledge is considered a representation of networks, and this element counts to the most important in the field of knowledge management. The Bukowitz and Williams (1999) model takes into account the obsolescence of knowledge and draws attention to the importance of managing such knowledge.

2.3.Adult learning, organizational learning, knowledge management in a corporate context

Adult learning is a social process, the essential condition of it is the motivation of adult students (*Courtney,* 1992; *Wlodkowski*, 2008), and adult students are generally more characterized by internal motivation, problem solving and self-direction. Today, adult education has become differentiated and diversified at the same time, and in recent decades, learning in the workplace has acquired a fundamental role, partly due to the very rapid and all-encompassing social and technological changes, and partly thanks to the fact that it was

increasingly recognized that there is no such knowledge and skill acquired during the school years that accompany individuals throughout their lives. In the learning organization, the concepts of work and learning are not separated from each other, but efficiency has a central role, and the managerial approach to learning has been fundamentally re-evaluated, since it has become obvious that learning does not take time away from productivity, but becomes a central element of productivity, becomes a hit. Zuboff puts it this way: "learning is a new form of work" (*Zuboff*, 1988, p. 395). This type of learning takes place on the one hand through planned workplace training and development programs, but a large part of it is through random, exploratory experience gathering. Individuals who want to develop themselves actively look for new learning opportunities, constantly examine their environment, to be able to predict what changes will occur around them. This type of learning is called "generative" or "anticipatory" learning, which is sharply distinguished from the "reactive" or "maintenance" learning processes of the past (*Botkin et al.*, 1979). All of this also means that the learning ability of adults has become a key competence, this kind of strategic approach to human resources can make an organization successful (*Candy and Matthews*, 2003). From the point of view of the organization, an important aspect of knowledge management is the feedback based on experiences and the integration of knowledge into the organization's memory, in such a way as to enable the realization of double-loop learning. This means that the organization and the individual constantly reflect and "question" the practices and processes that have already been introduced (*Gamble and Blackwell*, 2001). According to Senge (1994), this approach requires personal mastery, a concept integrated into the lives of individuals, where the individual constantly clarifies what is important to him/her while learning to see reality more clearly (*Senge*, 1994). Based on the concept of the learning organization, work is complex and always changing, so individuals must be prepared much more to deal with complexity and to understand the principles governing their work than to learn standard processes and routines. In other words, work and learning are integrated in order to create new knowledge (*Nonaka et al*. 1995).

According to Davenport and Prusak (2000), factors that slow down and hinder the flow of knowledge can occur, friction can be caused by lack of trust, cultural differences, differences in reference frames, lack of time and place, the lack of determining the reward of those who possess knowledge, intolerance of mistakes or resistance resulting from "we didn't invent it" behaviour. Organizations can bridge these with well-defined techniques, actions, and programs, of course, if they are aware of their presence (*Davenport and Prusak*, 2000). Adult learning at

work often takes place in different networks, where it is essential to establish a connection between the learning of individuals and organizations. Important features of networked learning are that the existing knowledge is present in network nodes and the learning process is present in different activities, which requires a high degree of autonomy of adult learners and the ability to filter information. One of the most important factors is the maintenance of dialogue within the organization, which for most companies is the binding agent defined by the community, present in any communication (informal and formal) and form (between individuals or groups), and the best way to capture tacit knowledge (*Hirschhorn and Gilmore*, 1992). Channelling tacit knowledge is a complex task but making it explicit is not impossible if the incentives are strong enough. According to Cowan, it is necessary to accept the fact that tacit knowledge can only become explicit to a certain level, the competences built into individuals and organizations can only be documented to a certain degree. That is why it is necessary to consider how much effort is worth investing in the codification of knowledge, but at the same time it is inevitable for companies on the market, since from the point of view of business survival (*Cowan et al*, 1998).

2.4.Development of the organization's learning ability and networked learning

The development of the organization's learning capabilities is increasingly coming to the forefront, as is the management of learning. The continuous development of ICT technologies has modified the way, tools, storage, organization and sharing of information. In recent years, several studies have examined the role of ICT in organizational learning (*Kane and Alavi*, 2007; *Ferincz and Hortoványi*, 2014; *Argote*, 2015; *Aboelmaged* 2018; *Qi and Chau*, 2018), which found that information technology can be considered a facilitator of knowledge management, accelerates and clearly promotes organizational learning, increases the organization's ability to make more informed decisions, and increases its performance and competitiveness. At the same time, organizational learning also plays a key role in the implementation of information technology systems, especially with regard to enterprise management systems (ERP) and customer relationship systems (CRM), for example by helping the organization to use technology effectively (*Malik et al*. 2018). An organization learns faster and can perform better if it has an organizational memory supported by information technology (*Argote*, 2015), and decision support systems support faster learning and quick adaptation to changes (*Calvard*, 2015; *Erickson and Rothberg*, 2014). The use of ICT tools also makes room for the connectivist learning theory, which is one of the latest educational trends. Learning in networks presupposes the use of new skills and the growth of knowledge in networks is almost unstoppable. Technical

tools have also opened new paths in the field of knowledge management, and the rapid growth of information requires effective management of the knowledge present within the organization.

The global COVID-19 epidemic that started in 2019 had a serious impact on business activities around the world, according to McKinsey's 2020 report, one of the most affected areas was the transformation of workplace learning. Almost all organizations have moved the learning activity into the virtual space, creating new training programs and platforms. In addition to tactical steps, new strategic goals were set, such as building alternative digital learning strategies. The planning and construction of strategies and tactical steps called for strong cooperation between different functional teams, so the different functional groups had to define communication techniques and tools together and support each other and decide whether to launch centralized or decentralized programs. Finally, the epidemic accelerated digital learning, so that all this became necessary not because of cost considerations, but because of the preservation of workers' health, which also facilitated the promotion of learning on virtual platforms (*Kshirsagar et al*, 2020).

2.5. Concepts of innovation and competitiveness

The concepts of innovation and competitiveness began to receive special emphasis from the 2000s, associated with the concepts of globalization and market adaptation, which are probably the most frequently used terms in economic life even today. The foundation of the concept is linked to the name of the Austrian economist Schumpeter (1939), who closely linked innovation with economic development and entrepreneurship. Main point of his interpretation is if an economy only reproduces itself (sells the same product, is present in the same markets, produces the same technologies, etc) then it can be considered a static economy, even if otherwise the indicators indicate a quantitative expansion. The essence of development is innovation, that is, the emergence and introduction of new things (*Schumpeter*, 1939). In Europe, the Oslo Manual's definition of innovation is most widely used, which includes marketing and organizational as well as service-type innovation (*Oslo Manual*, 2006). In the new approach of innovation research in economics, the central actor of innovation processes is the employee and mutual learning processes (*Lundvall*, 2013), according to Ellström and Nilsen's approach, hidden innovation processes take place during daily work (*Ellström and Nilsen*, 2012).

The concept of competitiveness is not uniform, it is unclear from a scientific point of view, and there is no uniformly accepted definition in the literature. Sometimes it is used as a

synonym for modernity, other times as a characteristic of the general level of development of an economy or company, but it also means market performance, business success, and economic growth. There is also no agreement on the level at which competitiveness can be interpreted (*Somogyi*, 2009). According to the OECD definition, competitiveness shows how well a country can produce goods and services that can be sold on international markets under free market conditions, while maintaining and increasing the standard of living of the population in the long term. An important element of the definition is the ability to produce goods and services that can be sold on international markets (*OECD*, 1997). Aiginger (1995) defines competitiveness as the ability to maintain market share. This definition also includes the criterion of sustainability, which presupposes longer-term thinking (*Somogyi*, 2009). Based on the SME typologies of the domestic literature, we can distinguish fast-growing SMEs (e.g. start-up companies), supplier SMEs (e.g. automotive suppliers), corner market SMEs (niche markets), self-employed SMEs without employees and organizations of the sector boundary. Competitiveness can be captured in the complexity of multi-factor indicators (e.g. production, technology, innovation, online presence, marketing, etc.), however, the existence of resources and capabilities is not enough, organizational capabilities and strategies are also necessary (*Rideg et al*., 2019). A systematically developed knowledge management system based on strategic foundations can significantly contribute to the innovation and competitiveness of organizations, therefore it is important to clarify which components of the two concepts are given a key role during the investigation. Knowledge management is an essential condition for the knowledge created about the customers and provided to them in relation to competitors, as it contributes to increasing business results, improving customer services, and innovation (*Dotsika and Patrick*, 2013). According to Bose and Sugumaran (2003), a well-functioning Customer Relationship Management (CRM) system can only be achieved through integration with the knowledge management system, McEvily and Marcus (2005) believed that information sharing and joint problem solving with customers can lead to a new kind of competitiveness, basically via increasing trust. According to Chen and Paulraj (2004), customer communication and long-term relationship building also have a critical impact on supply chain management. It is important to emphasize the bidirectionality here, that is, the task is not only to store and continuously maintain knowledge acquired about customer needs and behaviour, but also to be able to integrate this knowledge into the operation of the organization in such a way that, through processes developed on the basis of experience, it improves performance and thus it serves to achieve a better market position compared to competitors (*Ozgener and Iraz*, 2006). Effective knowledge sharing processes between business partners also promote the

development of one of the main competitiveness components, innovation (*Connell et al*, 2014), among other things because the motivation of workers in such a system to share tacit knowledge contributes to both product and process innovations (*Yang et al*, 2017).

4. The methodology of empirical research

The analysis of previous tests and test results sheds light on the relationship between knowledge sharing and accumulation within the learning organization, the use of diversified knowledge, putting knowledge at the service of development and market competitiveness, and tries to reveal the factors that hinder and help knowledge management in the life of an organization. The questions of my research topic mostly seek answers to the questions "what", "how" and "why", so that the investigated problem area can be fully understood. Although the subject of research is difficult to quantify, certain parts of it, such as the frequency of system use or the number of existing systems, can be measured. At the same time, the context plays an important role, which is why I chose a mixed research methodology, which includes a questionnaire survey and company case studies, including interviews and document analysis. During the case study, the aim is to explore and analyse the knowledge management systems and practices used in companies in a complex manner, followed by an illustrative presentation, which I implemented by using both qualitative and quantitative research methods.

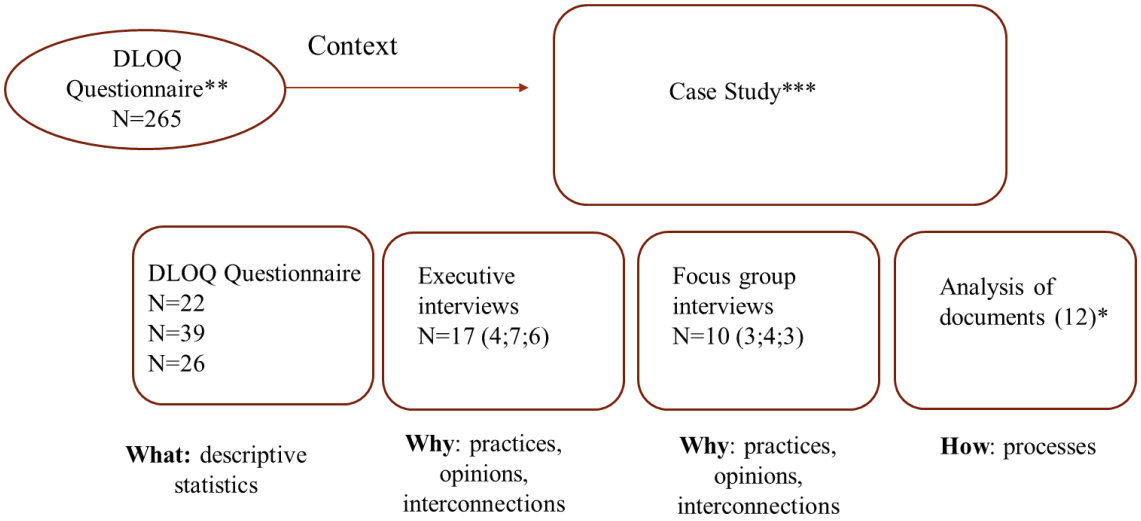
The selected cases are based on the knowledge management systems of organizations connected to other organizations (partners, customers, higher education institutions, professional organizations) and their use, which I examined in their uniqueness and context. My study approaches the post-positivist position, because it is based on prior knowledge and a priori theories, follows a logical order by searching for cause-and-effect relationships, and tries to increase the validity of the data obtained from different participants by presenting several mutually reinforcing and opposing practices. The external relations of the examined organization have an important connection with the dimension of being a learning organization, they show the organization's ability to think in a system. By studying the systems and the attitude and behaviour towards the systems, I searched for an answer to the operation and development possibilities of the knowledge management systems. The case study presents the knowledge management systems and practices in their entirety and with their examination during operation, a complex investigation of the topic can be ensured through causal

relationships between the various aspects of the cases. The prior knowledge and theories are derived from the study of literature models and adult learning in the workplace context, and the identification of the 4 knowledge management pillars obtained through the analysis and comparison of the models serves as the central element of the analyses during the research. Data collection using several methods increases the validity of the study. An overview of the theoretical background, the selection of appropriate methods and data providers, their detailed description and documentation, the statistical analysis applied during the quantitative method and the development of the structure of the research (problems, questions, assumptions, data collection, results, conclusions) serve to increase reliability. When describing the results of the research, I strive for an integrated, holistic approach

To obtain an objective result, I worked with multiple data sources, so the interviews with managers and employees, as well as the analysis of documents, were also part of the collection work. During the interviews, I tried to obtain facts about the elements, systems, and processes of the knowledge management system, through which the applied system becomes understandable, presentable and comparable. On the other hand, I obtained information about the interviewed person's relationship to the system, his own authentic and subjective experiences. Based on all of this, according to Silverman's (2001) categorization, the followed methodology can be placed on the border between the objectivist and emotionalist interpretative framework (*Silverman*, 2001, *cited by Szokolszky*, 2004). From a content point of view, the interview can be classified as a thematic qualitative interview, that is, I collected experiences and data related to the topic in a personal tone, but not related to a personal topic. Putting the specific topic in the centre, I used semi-structured interviews, according to pre-thought-out aspects, with repetitive questions, but giving the interviewee the opportunity to explain his own aspects and, based on this, spontaneously touch on other areas related to the topic. I audio-recorded the interviews, then wrote them down and extracted them according to the framework of the dissertation in preparation for the analytical work. During the document analysis, I interpreted and analysed the documents related to the knowledge management system and processes. Since I reached a narrower, limited circle of employees in the companies with the methods of the case study, for the sake of quantification I used an adapted version of Watkins and Marsick's DLOQ questionnaire (*Marsick and Watkins*, 2003) among the quantitative methods in the examined organizations, and for the sake of quantification and comparability out of the 265 people also in a survey conducted on a stationary sample. The sample cannot be considered representative, but within the limited circle of companies it shows certain

correlations regarding the dimensions of being a learning organization. The purpose of the survey conducted with the questionnaire was to understand and interpret the information coded behind the variables and their connections, as well as to delimit the questions related to the structured interviews of the case study. Qualitative methods used together with a quantitative tool (questionnaire) can highlight, for example, how much of a difference there is between the written company recommendations, regulations, and daily practices.

4-1. diagram. Schematic diagram of the methodology of the empirical research. Source: own editing



Limitations

The case studies are not representative, and although I worked with companies similar in size during the case studies, there are differences between them in terms of scope of activity and geographic location. Thus, the result cannot be generalized to the SME sector or its sub-segments, but at the same time, the study of the theory supplemented with empirical research can contribute to identifying the values and shortcomings of organizational learning, the learning opportunities inherent in the network, as well as the reserves and bottlenecks in the in examined organizations. The times of recording the interviews also differ - depending on the availability of the companies - so there are companies that have not been affected by the effects of COVID-19 at all, while other companies have already been affected to a limited or greater extent. The interpretation of the interviews is situational, it depended, for example, on the available time frame, on the workload the interviewee was dealing with at a given moment, and I was forced to conduct some interviews online instead of in person (due to the distance and/or the virus situation). The interviews were coded by two people, the coding scheme was agreed upon, but there may be subjective elements in the methodology. The performance-related limit of the used DLOQ questionnaire is also a limiting factor (*Marsick and Watkins*, 2003).

Regarding the questionnaire, the data collection was completed before the appearance of COVID-19, so the results appearing there were not affected by the changed situation (e.g., working from home, training and communication moving online, etc.).

5. *Results of the empirical study, answers to the research questions*

Based on the case studies, the basic similarity of the three examined companies is that there is no coherent system for managing knowledge. There are also many similarities between the learning organization dimensions in other areas, there are also differences, for example in the presence of the mentoring system.

Summative answers to the research questions

Main questions based on the main pillars				
Knowledge; how do companies interpret the concept of knowledge management?	There are no conscious initiatives to build a knowledge management system, the concept is known in principle and there is a need for implementation, but in practice there is no adequate knowledge for this.	The type of knowledge is mostly characterized by professional knowledge, and practices that exist in the head are widespread - this is partly due to the lack of systems for capturing knowledge. Which, in turn, is related to the connection to the external environment and the presence of global thinking.	Organizations define the range of competences needed in the future in a highly reactive manner - market demands and the expectations of partners are mostly the guiding principles.	Networked learning techniques cover IT technology and support information sharing. The lack of connection to the external environment and the lack of striving for global thinking can strongly influence the possibility of becoming a learning organization working in a network.
Processes: how do the organization's processes support the implementation of knowledge management?	Regulation and documentation appear in the field of training processes.	The level of informal knowledge sharing is high, the presence of reflection and double-loop learning is less typical, but mentoring initiatives appear in places, for example.	The externalization and combination phases are not realized or are only contingently realized - this affects the construction of the organization's collective memory.	The rate of use of video and teleconferencing is high, and the use of the device has a positive effect on the creation of continuous learning opportunities and the presence of systems created to capture knowledge.

Fő kérdés a pillérek mentén				
Organizational culture: how organizational culture supports knowledge management	A significant element of the learning present at the strategic level of the managers' attitude to learning, and connections can also be discovered in terms of the continuous learning opportunity, the encouragement of cooperation and teamwork. The attitude of managers in the companies of the case study depends on habitus.	The more it is typical to encourage the creation of interest and dialogue, the more likely it is that employees will talk openly about mistakes in order to learn from them, and the company will provide the resources for learning. A relationship can also be discovered in terms of connecting to the environment and encouraging global thinking.	There is a significant correlation between the support of the leaders' vision and the connection to the environment, which has an impact on the global thinking of the employees and keeping the customer's viewpoints in mind. At the same time, neither a common vision nor the incentive to shape it appeared in the companies examined in the case study.	The pursuit of quality is related to global thinking and consideration of customer aspects. These areas are less emphasized among the examined companies, and the question of quality only appears at the management level.
Technology: How rapidly developing information and communication technology is utilized in knowledge management	Video and teleconferences are the most common, and the presence of the "Good Practices" forum is the least typical.	Companies know and use modern technology, but at the same time, the lack of strategy and processes hinders its full utilization.	The company's employees find their systems easy to use and user-friendly.	The presence of network drives, the Teams system, and project management systems are typical, but at the same time, the location, access and version tracking of the information stored here is contingent.

Knowledge – How companies interpret the concept of knowledge management?

Based on the research, it can be concluded that the pillars of the knowledge management system are partially present in the companies, their presence is not the result of strategic planning. In terms of processes, the training processes are mostly regulated and documented, but the availability of both training and documentation is limited and contingent. Organizations focus on creating continuous learning opportunities, typically focusing on professionalism. The level of informal knowledge sharing is high everywhere, but due to the lack of reflection, double-loop learning is only rarely realized. The course systems that require personal educational presence has a positive influence on the perception of continuous learning opportunities, however, the choice between the two forms of education is not conscious on the part of the management, rather opportunities and time determine which form of training is implemented. During the data collection of the case studies, the coronavirus epidemic appeared in Hungary, which naturally shifted the emphasis towards online training opportunities.

Mentoring is an important component that has a positive effect on the "*Continuous learning opportunities*" dimension. One of the investigated companies had a documented mentoring (pilot) program, while in the other two organizations, the leaders mostly mean the "open doors" strategy (that is, anyone can turn to the leader for guidance and advice at any time). At the same time, mentoring could also have a positive effect on other areas, such as (1) global thinking, (2) teamwork, (3) problem-oriented learning, and (4) consideration of customer perspectives.

Networked learning is greatly influenced by the connection to the environment. It seems that this is a less emphasized area, and the employees mostly expect this type of activity from company managers. However, cooperation is more typical. the more certain the continuous (also networked) learning opportunities are present, and the more these opportunities are present, the more typical the collaborations become, that is, the process works based on influence and interaction. It can positively influence the connection to the environment if the company encourages interest and dialogue (for example, they identify the skills needed in the future, openly talk about mistakes, and pay attention to the cooperation of teams) within the organization, which can have a mediating effect on the connection to the external environment and the global outlook also for development.

It seems that (1) organizations do not have a coherent system for managing knowledge (including the processes and the technology behind it), (2) there are no uniform knowledge repositories, therefore the information is scattered and with limited availability, (3) middle managers would have an important role in the flow of information and in the development of knowledge-related processes and systems, but their management skills and therefore their toolkit are insufficient to operate this, (4) the introduced technologies largely support learning processes, but due to the lack of processes in other areas companies do not use their full potential.

Processes – How the organization's processes support the implementation of knowledge management?

Regarding knowledge, the externalization and combination phases of Nonaka's spiral model are not realized, or only contingently, which affects the construction of the organization's collective memory. In terms of organizational culture, cooperation is typical, but in the absence of a common vision, the possibility of developing a learning organizational existence is limited. Certain functions, such as non-formal and informal learning (including learning from each other and supporting each other's learning) are mostly realized within the organization, with the presence of a strong desire for professionalism. At the same time, the processes of externalization (i.e. knowledge becoming explicit) and combination (i.e. sorting out concepts from explicit knowledge, casting knowledge elements into a new form, creating new knowledge after interpreting and synthesizing) do not work or are interrupted, which influences, for example, how much expenditure requires the training of a new employee. The document analysis showed that compliance with ISO standards is important for all three organizations (which partly supports the realization of the dimension), but this is often only part of an administrative task on the part of both employees and managers, where the main goal is to comply with the audit and renewal of the certificate. Processes and documentation of important areas such as performance evaluation, training plan, competency matrix show serious deficiencies in practice.

Organisational culture – How organizational culture supports knowledge management?

"*Encouraging cooperation and teamwork*" is also an important area for organizations, all three companies feature teamwork (brainstorming, formal and informal discussions, etc.), but

at the same time, there is a significant lack of rewarding teams for joint successes, and the performance evaluation systems are also incoherent. The presence of social platforms clearly has a positive effect on this dimension.

The dimension of "*Shaping a common vision*" is less emphasized in organizations. In this area, the main finding is that there is no vision for the future in companies even where the managers have created one, the workers' knowledge of it is also incomplete there. Based on the analysis of the questionnaire, the positive development of this dimension can be influenced by the managers' strategic approach to learning, which is currently not defined at a strategic level. It would also have a positive effect if the workers were given more space to shape the division of labour, control over resources and, of course, if the workers had unified ideas about the future. At the same time, the vision of the future and participation in its shaping have a positive effect on cooperation and teamwork, as well as on its encouragement and the connection of the organization to the environment.

Becoming a learning organization operating in a network is strongly influenced by the connection of companies to the external environment and the striving for global thinking. In this regard, the results of both the questionnaire and the case study showed that these are less emphasized areas for organizations. In the companies examined with the case study, the pursuit of quality is more present at the management level, the quality documents (1) only partially cover knowledge management, (2) only partially cover its areas, and (3) the pursuit of formality appears, i.e. the documentation is often retrospective and driven by the need to comply with audits. The pursuit of global thinking (including consideration of the customer's point of view) is only partially displayed, and even at the management level, the recognition of factors influencing this and the creation of strategies based on these insights are not visible.

Technology – How rapidly evolving information and communication technology is utilized for knowledge management?

Based on the results of the research, the shortcomings of the processes influence the optimal matching of the devices. The presence of technology is not fully utilized, while easy-to-use IT systems contribute to employees' positive assessment of this dimension. and since these systems develop very quickly, they bring new things, so they clearly have an impact on continuous learning as well. It can therefore be said that due to the lack of a conceptual approach, technology does not support the fulfilment of the "*Systems are created to capture knowledg*e" dimension, which also means that part of the knowledge remains "hidden" and organizations are exposed to the loss of knowledge capital. The rate of use of video and

teleconferencing is high in all companies, and the presence of a CRM system shows positive correlations with all dimensions. Such a system is present in 60 percent of the companies examined in the questionnaire, all three organizations in the case study reported its presence, but no documented processes behind it can be discovered and access is also severely limited.

Regarding the utilization of IT systems, it was found that the more typical it is that the amount allocated to IT investments increases, the more likely it is that the proportion of well-trained employees within the total number of employees increases at the company, and the number of employees who acquire new skills also increases. (Compared to last year). Networked learning techniques mostly cover network-based IT technology and support information sharing in all companies examined in the case study, their management is not conscious and not process-based, it is often created in a self-organizing, gap-filling way, limited to functional teams. The presence of the "Who-knows-what" repository and "Best Practices" forums can be important, which have a positive effect on other dimensions and are strongly connected to connectivist learning. At the same time, the "Best Practices" forum is the least present in the knowledge management systems of the examined organizations.

6. Discussion

The collection, transfer, systematization, and use of knowledge can only create added value for an organization if knowledge management is the result of a strategic approach and conscious system construction (*Von Krogh et al*, 1994; *Wiig*, 1993; *Bukowitz and Williams*, 1999). The results of the research show that positive initiatives can be identified in the studied organizations along the perspectives identified in the theoretical models, but several bottlenecks have also appeared in the knowledge management strategy of the companies.

Learning organizations and areas and processes of knowledge transfer

The approach to lifelong learning (*EB*, 2000; *Maróti*, 2002; *Knowles*, 2005) appears everywhere, although there is no reference to this in the documents describing the operation, the most common documentation is the training plan, which appears to a greater or lesser extent in all three organizations. Therefore, I conclude that adult education is present as a latent strategy in the knowledge management system. In the field of continuous learning, the narrowest intersection is time and concentration on professionalism. Double-loop learning is not realized in many areas, such as (1) distribution of tasks and workload, (2) communication

with customers and external communities (partners, customers, suppliers, higher education, professional communities, etc.), (3) the daily practice of acquiring business, (4) the strategy creation process, and (5) the distribution of responsibilities. Concentration on professional training is not a unique practice, companies adapt the trainings to their own goals, but at the same time, the organization is effective and capable of development if it increases its adaptability by offering the individual opportunities for his own self-realization and expanding his knowledge, and his ideas about learning, and development approaches it strategically. For example, a well-functioning mentoring system goes beyond the most commonly used organizational trainings, which can not only help the initiation of new employees into the organizational culture, but also the professional development and learning of those already working there, thereby supporting knowledge management within the organization (*Bakacsi et al*. 1996).

In learning organizations, leaders' commitment to learning and reflection are inevitable. Based on the research, this does not appear coherently in the companies, management actions are organized on an ad-hoc basis, are less well documented and management's attitude towards the issue is differentiated. Meanwhile, the managers' strategic approach to learning is closely related to the creation of continuous learning opportunities, but this does not extend to the management of the conscious process and the quality of knowledge transfer either. However, it is increasingly noticeable that this area has also become a priority at a strategic level, many institutions are creating internal organizational units whose main activities are the development of knowledge transfer strategies and methods, the introduction of evaluation procedures, the development of learning support services, and the prioritization of activating solutions (*Halász et al*, 2017).

The company processes and quality systems within it show an important connection with the knowledge management system since the characteristics of the quality culture can be paralleled with the characteristics of the learning organizational culture. Solving quality problems by supporting the elements of the knowledge management system helps the organization to achieve success and strategic goals (*Bencsik*, 2017).

The research pointed out an important shortcoming, namely the lack of a contribution phase. In the knowledge management model of Bukowitz and Williams (1999), the contribution phase is when individuals make the knowledge public, show what they have learned, that is, from which others and ultimately the whole organization benefit. This can lead to tacit knowledge becoming explicit, so that, for example, by knowing the experiences of failed

projects, repeated mistakes can be avoided. Motivation plays a significant role in this phase, and organizational culture and leadership behaviour play a major role in its presence (*Bukowitz and Williams*, 1999). To make this more effective in the examined companies, it may be important to develop a recognition system for learning and knowledge sharing activities. The concept of collaborative learning is driven by creative tension, as there is capacity for this in a reflective and inspiring environment. If a team has mutual trust, a common vision and learning how to implement something, as well as how to shape each other's thinking in the process, then group learning can take place. However, this requires a strong cultural change, the right atmosphere and organizational culture are necessary, which can be built and (positively) influenced with the help of managers (*Senge*, 1994).

An important factor related to learning is that the management is aware of the utilization of the resources devoted to it. None of the examined organizations measures training effectiveness, the concepts of effectiveness and efficiency are mixed everywhere. According to various studies (*Polónyi* 2004; *Horesnyi* 2008; *Chikán et al*. 2005; *Czakó–Gősi* 2008), it is typical in Hungary that most organizations do not measure the effectiveness of the training they finance (Márkus and Rácz, 2016). In the Hungarian "Training Benchmark" survey conducted by DGS Global Research and the Lifelong Learning Hungary Foundation, nearly 50% of the respondents said that the effectiveness of training cannot be measured (*Czakó et al*, 2008). At the same time, there are several models for measuring training effectiveness, the most common perhaps being Kirkpatrick's 4-step model (*Kirkpatrick*, 1994). Another method for measuring the effectiveness of a training program is the so-called "Learning-Transfer Evaluation Model (LTEM), which was developed by Dr. Will Thalheimer. According to Robert Brinkerhoff's SCM (Success Case Method) model, research can be used to assess the competencies of those who have successfully completed the training and those who have not. In these studies, it is also very important to determine the success factor and the desired effect (output). It can therefore be seen that there are models and tools for measuring training effectiveness, the application of which can help organizations to plan the parts of their knowledge management system related to knowledge transfer and to monitor its effectiveness.

Networked learning in the light of connection to the external environment

The concept of networked learning has gained value these days, according to the definition of Siemens (2005), it is a learning process that appears in a vague environment of variable central elements and is not completely under the control of the individual. The learning in the network is only partially realized in the examined companies, the possible connection

between the nodes and the honest dialogue that brings the diversity of knowledge to a unified platform is not realized in all cases, which can be traced back to reasons such as (1) bad experiences in the past, (2)) the managers' limited knowledge in this field, and (3) the lack of resources. Since online learning also requires a high degree of autonomy (*Forrai and Juhász*, 2008), it would be inevitable to develop the basic skills of employees (problem solving, critical thinking, cooperation, communication). Learning in networks presupposes the use of new skills, interactions between people can encourage cooperation, communication can be customized and made personal, many activities can be carried out online, at the same time the amount of available information increases drastically, the use is differentiated, the information becomes more diverse, its flow accelerates and although finding relevant information has become easier, the importance of authentic and reliable information sources and the ability to think critically comes to the forefront (*Molnár*, 2013). Not all employees of the companies investigated in the research are currently prepared for the realization of autonomous learning in the network, meanwhile, the managers' motivation tools and their leadership skills are also incomplete, which makes it difficult to shift in the direction of networked learning. Information technology creates a basic infrastructure and environment to support learning, but it is not sufficient in itself to stimulate effective learning (*Barrett*, 2004).

One of the significant characteristics of learning organizations (Watkins and Marsick, 1993) is that they maintain a close relationship with their environment. This is important because it allows employees to see the impact of their work on the organization as a whole, so they can think in a system and understand the interactions and the factors that affect it. The operation of the system does not depend on the activity of the individual, but on the activity of the community, its structure influences the behaviour, and the behaviour affects the system (*Watkins and Marsick*, 1993). The research highlighted that cooperation with external organizations has a positive effect on many areas, and in addition, certain dimensions operate on an impact-interaction basis, so for example, the more dialogue and interest are encouraged within an organization, the greater the chance that employees they are looking for the opportunity to connect with the external environment. In the company of the case study, where this area is given a stronger emphasis, indirect economic benefits appear, and it also has a great impact on the local (regional) perception of the company. Hungarian small and medium-sized companies often gain their long-term competitive advantages in local areas, which is why it is very important to establish as versatile a system of relationships with local players as possible.

The basis of being a learning organization: a shared future vision

One of the pillars of the learning organization's principle is the construction of a common vision, which is nothing more than a set of guiding principles and practices, promoting individual and genuine commitment. When this phenomenon is observed, individuals learn and practice because they want to (*Senge*, 1994). In the examined company, the absence of a well-defined and common vision that pervades the entire company can be seen in action, vision as a concept is confusing within the organization. In most cases, the business strategy and business goals of the top managers appeared, which most of the managers and employees were not even able to recall, yet in all three companies, the organizational culture based on the historical past, with a family atmosphere could create a solid basis for creating a common vision for the future, which can further increase loyalty to the company, and can also define the corporate culture and value system prevailing within the institution. It can help strengthen relationships with customers and suppliers, which contributes to effective and efficient operations. The vision of many large companies such as Apple Computer, Microsoft, Ikea or even Disney for decades proves this. Managerial commitment is not enough to shape the future, the creation of a common vision could help shift the responsibility of managers from creating employee commitment to shared responsibility, where employees consciously deal with the development of themselves, and their company based on the ideas and ideals they feel are their own.

Information technology in the knowledge management system

According to Wiig's (1993) model, the main elements of sharing knowledge are coordination, access, retrieval and matching, and organizations often implement this in the form of a Who-Knows-What repository supported by an IT system, since knowledge can be retrieved from it at any time. In Von Krogh's (1994) network-based knowledge management model, IT tools play a major role in learning. Sveiby (2001) distinguishes between two ways of knowledge management: (1) ICT-oriented, which is characterized by information management, assumes IT background knowledge, and consists of software and hardware, (2) human-oriented, which is basically the task of HR management, psychological-business it assumes background knowledge and the focal point is the acquisition and development of individual skills. The two paths do not move on completely separate tracks, it is definitely worth interpreting and managing them together. The role of IT tools in knowledge management is therefore important, especially in the case of a network approach (*Bessenyei*, 2007; *Von Krogh*, 1994), but it is also important to recognize the importance and usefulness of "human" resources in addition to IT

tools and systems. My research has highlighted that the easy use of IT systems shows a positive correlation with the creation of learning opportunities, and in terms of utilization, the more typical it is that the amount allocated to IT investments increases, the more likely it is that the proportion of well-trained employees in the company's total workforce will increase within, and the number of workers who acquire new skills also increases (compared to the previous year). The results also highlighted that since the knowledge materials are not organized in a structured form, the technology is not able to fully support it either, and although technology helps in the storage of knowledge in all three companies, the need for a uniform knowledge repository appeared everywhere and in some places, there were initiatives to create it.

7. Conclusion

The aim of the research was to examine in specific contexts how the knowledge management system works and how much it supports the transformation of a company into a learning organization.

(1) The importance of knowledge management is not known in the examined companies, so we cannot talk about whether they approach the issue realistically or pessimistically, because there is simply not enough knowledge about it within the company, nor is it included in the formulated strategies. In the development of the knowledge management system, the development of the quality system can be an advantage since the characteristics of the quality culture can be paralleled with the characteristics of the learning organizational culture. A quality-oriented management prioritizes quality in knowledge management as well, so the results of the two systems can become factors that mutually presuppose each other (*Bencsik*, 2017). As a researcher, it is a lesson for me that research like this empirical study can be an awareness-raising tool for company managers, to recognize how this area could support their competitiveness and increase their efficiency.

(2) My dissertation emphasizes the theory of Watkins and Marsick (1993), according to which the relationship between performance and learning organization dimensions is crucial, so a direct predictor of knowledge performance can be if the organization has a suitable system for capturing and sharing knowledge. In my case studies, I also found that in the absence of a suitable system, it is not possible to predict the knowledge

performance of the entire organization and the skills needed in the future cannot be defined in this way either.

(3) In the field of learning, time is one of the most important missing resources, its absence often leads to the loss of learning motivation and the narrowing of the range of learning activities. Closely related to this is the lack of measuring training effectiveness, defining the competencies needed in the future, a shared vision, and competitive strategies. Together, these factors hinder an objective assessment of which development programs contribute to increasing efficiency, satisfaction, and effectiveness, so management has difficulty deciding how much time, money, and other resources are needed to develop employees in order to so that the company achieves its goals and maintains or increases its competitiveness on the market.

(4) As a result of the concentration on training aimed at developing professional skills, the lack of honest dialogues, the cooperation organized on an ad-hoc basis and the limited connection with the external environment, double-loop learning is sporadically realized in the examined companies. Double loop learning (*Farkas et al*, 2015) is created by contradictions and debates, therefore, to create this, honest, trusting dialogues, debates and dialogues are necessary, the presence of which requires the creation of a suitable corporate culture.

(5) The pillar of the principles of the learning organization is the construction of a common vision, which promotes individual and genuine commitment. The managers' own, personal vision of the future can never become an internalized vision of the future, which is a strong limitation for any company in allowing its employees to enter a world that thinks together. Closely related to this topic is the making of tacit knowledge explicit, i.e. the contribution phase described in the Bukowitz and Williams model (*Bukowitz and Williams*, 1999) or the externalization step described in the SECI model (*Nonaka and Takeuchi*, 1995), which is a key factor in knowledge management systems. Motivation, recognition of learning activities, organizational culture and management behaviour play a major role in achieving this. Externalization requires a high degree of commitment and mental models, personal beliefs and values, as well as the process in which individuals and groups reorganize themselves and ultimately the organization play a significant role in its creation.

(6) The case studies confirm that IT-supported network learning can represent a huge potential for companies that consciously build a knowledge management system. It is important to emphasize that information technology creates a basic infrastructure and environment to support learning, but in itself it is not sufficient to stimulate effective learning (*Barrett*, 2004). Based on the results of the dissertation, there are also essential conditions for exploiting the opportunities provided by networked learning; (1) creating connections between nodes, (2) honest dialogue that brings the diversity of knowledge to a unified platform and (3) autonomous learning skills of individuals.

(7) Finally, cooperation with external organizations is also key for a learning organization, and since this area is typically the task and responsibility of top management in the examined organizations, and for the time being there is an almost complete lack of cooperation with higher education institutions or even reliance on research results, precisely that area is not used, which can mean long-term competitive advantages for SMEs. At the same time, the creation and maintenance of a relationship with the environment is also of great importance in terms of the organization's culture, as employees can see the impact of their work on the organization, and the effects of the external environment and interactions help to develop employees' thinking in the system.

8. Literature

Aboelmaged M. G. (2018). Knowledge sharing through enterprise social network (ESN) systems: Motivational drivers and their impact on employees' productivity. *Journal of Knowledge Management* (2)22, 362 – 383.

Aiginger, K. in P., Devine, Y., Katsoulacos and R., Sugden (editors) (1995). *Creating a Dynamically Competitive Economy: Defining Competitiveness of a Nation and a Case Study*; Competitiveness, Subsidiarity and Objectives, London: Routledge

Argote L. (2015). An Opportunity for Mutual Learning between Organizational Learning and Global Strategy Researchers: Transactive Memory System. *Global Strategy Journal* 5(2). Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1002/gsj.1096

Bakacsi Gy., Bokor A. (1996). *Szervezeti magatartás és vezetés*. Budapest: Közgazdasági és Jogi Könyvkiadó Rt.

Barney, J (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1)., 99-120. Retrieved from https://journals.sagepub.com/doi/10.1177/014920639101700108

Barrett, M., Cappleman, S., Shoib, G. & Walsham, G. (2004). Learning in Knowledge Communities. *European Management Journal*, 22**(**1), 1–11. Retrieved from https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/workingpapers/wp0502.pdf

Bell, M., Albu, M. (1999). Knowledge systems and technological dynamism in industrial clusters in developing countries. *World development*, 29(9), 1715 – 1734. Retrieved from https://www.researchgate.net/publication/222452115_Knowledge_Systems_and_Technological_Dynamism_in_Industrial_Clusters_In_Developing_Countries

Bencsik A. (2017). A fogyasztóvédelem gazdaságelméleti alapjairól. *Polgári Szemle*. 13(4-6), REAL-Az MTA Könyvtárásnak Repozitóriuma. Retrieved from http://real.mtak.hu/80114/

Bessenyei, I. (2007). *Tanulás és tanítás az információs társadalomban. Az e-learning 2.0 és a konnektivizmus.* Retrieved from https://www.academia.edu/8428242/Tanul%C3%A1s_%C3%A9s_tan%C3%ADt%C3%A1s_az_inform%C3%A1ci%C3%B3s_t%C3%A1rsadalomban

Bose, R., Sugumaran, V. (2003). Application of Knowledge Management Technology in Customer Relationship Management. Knowledge and Process Management, *Customer Relationship Management Model from Strategic Approach: A knowledge Management Perspective* 10(1), 3-17., Retrieved from https://www.researchgate.net/publication/323547899_Customer_Relationship_Management_Model_from_Strategic_Approach_A_knowledge_Management_Perspective

Botkin, J, Elmandjra, M., Malitza, M. (1979). *No limits to learning: Bridging the human gap,* Oxford*:* Pergamon Press

Bukowitz, W., Williams, R.L. (1999). *The Knowledge Management Fieldbook.* London: Financial Times Prentice Hall

Calvard T. (2015). Big Data, organizational learning, and sensemaking: Theorizing interpretive challenges under conditions of dynamic complexity. *Sage Journals* (1)47, Retrieved from https://doi.org/10.1177/1350507615592113

Czakó N., Gősi Zs. (2008). Fejlesztési és képzési trendek a képzési benchmark felmérés alapján. *Munkaügyi szemle*, 4. 90–100.

Chen, J.I., Paulray A. (2005). Driving forces of strategic supply management: a preliminary empirical investigation. *International Journal of Integrated Supply management.* 1(3). DOI: 10.1504/IJISM.2005.005953.

Chikán A., Czakó E. (2005). *Kutatási tervtanulmány*. Versenyben a világgal, 2004-2006. Gazdasági versenyképességünk vállalati nézőpontból című kutatás. 1. sz. műhelytanulmány, Budapesti Corvinus Egyetem, Vállalatgazdaságtan Intézet, Versenyképesség Kutató Központ, Budapest. Retrieved from http://edok.lib.uni-corvinus.hu/137/1/1__mht_tervtan.pdf

Courtney S. (1992). *Why Adults Learn: Towards a Theory of Participation in Adult Education*. London: Routledge

Csapó B. (2009). A tudás és kompetenciák. A tanulás fejlesztése. *Tudástár*. OFI. Retrieved from: https://ofi.oh.gov.hu/tudastar/tanulas-fejlesztese/tudas-kompetenciak.

Csengődi S. (2013). KKV-k versenyképessége. In: *Tematikus tanulmánysorozat, II. téma*. Budapest: Hétfa Elemző Központ, NFÜ

Davenport, H.T, Prusak, L. (2000). *Working Knowledge, how organizations manage what they know*. Boston: Harvard Business School Press, Massachusetts

Delors J. (1996): *Learning: the treasure within*; report to UNESCO of the International Commission on Education for the Twenty-first Century. 96 (9). Unesco Digital Library. Learning: the treasure within; report to UNESCO of the International Commission on Education for the Twenty-first Century (highlights) - UNESCO Digital Library

Dotsika F., Patrick K. (2013). Collaborative KM for SMEs: A framework evaluation study. *Information Technology & People*. 26(4). DOI: 10.1108/ITP-11-2012-0142

Downes, S. (2008). Types of Knowledge and Collective Knowledge. In Theo Hug (ed), *Media, Knowledge & Education* – Exploring new Spaces, Relations and Dynamics in Digital Media Ecologies. Inssbruck University Press

Erickson S., Rothberg H.N. (2017). Bid data systems: knowledge transfer or intelligence insights? *Journal of Knowledge Management*. 21(1): 92-112., DOI: 10.1108/JKM-07-2015-0300

Farkas G., Imreh Sz., Keczer G., Málovics É. (2015). *Menedzsment alapjai, Szervezetfejlesztés és Tudás*. Retrieved from http://www.jgypk.hu/tamop15e/tananyag_html/Menedzsment_alapjai/28_szervezetfejleszts_s_tuds.html

Fayol H. (2002). *Critical Evaluations in Business Management*. Ed: Wood J. and Wood M.C., London: Taylor and Francis

Ferincz A., Hortoványi L. (2014). Munkahelyi tanulást befolyásoló tényezők, Humán-számítógép együttműködés vizsgálata. *Vezetéstudomány*, 54(10). 30. Retrieved from http://unipub.lib.uni-corvinus.hu/1731/

Gamble P., Blackwell J (2001). *Knowledge Management: A State Of The Art Guide*. Kogan Page Ltd.

Halász G., Fazekas Á., Horváth L. (2017). Innováció az oktatásban: az Innova kutatás elméleti-fogalmi keretei. *Neveléstudomány*. 4(26). DOI: 10.21549/NTNY.20.2017.4.2

Hirschhorn, L., Gilmore, T (1992). The new boundaries of the “boundaryless” company. *Harvard Business Review,* 70(3). 104–115.

Horesnyi J. (2008). Nagyító alatt a munkaviszonyban álló személyek képzésének támogatása. *Munkaügyi Szemle*, 4. 40–43.

Israilidis, J., Siachou, E., Cooke, L., Lock, R. (2015). Individual variables with an impact on knowledge sharing: the critical role of employees’ ignorance. *Journal of Knowledge Management,* 19(6). 1109–1123. Retrieved from http://dx.doi.org/10.1108/JKM-04-2015-0153

Kirkpatrick, J. D., Kirkpatrick, W. K. (2016). *Kirkpatrick´s Four Levels Training Evaluation*. 1st Edition. USA: Association for Talent Development

Klimkó G. (2001). *A szervezeti tudás feltérképezése*. Doktori értekezés. Budapesti Közgazdaságtudományi és Államigazgatási Egyetem.

Knowles M. (2005). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development*. Amsterdam: Elsevier

Kshirsagar A., Mansour T., McNally L, Metakis M. (2020). Adopting workplace learning in the time of coronavirus, *People & Organizational Performance*, (03), McKinsey & Company. Retrieved from https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/adapting-workplace-learning-in-the-time-of-coronavirus

von Krogh G., Roos J. & Slocum K. (1994). An Essay on corporate Epistemology. *Strategic Management Journal*, 15 53-71. Retrieved from https://www.researchgate.net/publication/31672276_Organizational_epistemology_G_Von_Krogh_J_Roos

Lengyel I. (2003). *Verseny és területi fejlődés*. Szeged: JATE Press

Lévy, Pierre(2001): *Cyberculture*. Minneapolis: University of Minnesota Press

Ling-hsing, C., Tung-Ching Lin, C. (2015). The role of organizational culture in the knowledge management process. *Journal of Knowledge Management*. 19(3). 433–455. Retrieved from http://dx.doi.org/10.1108/JKM-08-2014-0353

Lopez V. W. B., Esteves, J. (2013). Acquiring external knowledge to avoid wheel re-invention, *Journal of Knowledge Management*, 17(1), 87-105.

Maróti A. (2002). Lehet-e tanulni egy életen át. Utópia vagy reális lehetőség. *Új Pedagógiai Szemle*. 2002(6-7). Retrieved from https://epa.oszk.hu/00000/00035/00062/2002-07-ta-Maroti-Lehet.html

Marsick, V.J.& Watkins, K.E., (2003). Demonstrating the Value of an Organization’s Learning Culture: The Dimensions of the Learning Organization Questionnaire. *Advances in Developing Human Resources*, 5(2)., 132–151. Retrieved from http://journals.sagepub.com/doi/10.1177/1523422303005002002

McEvily B., Marcus A. (2005). Embedded Ties and the Acquisition of Competitive Capabilities. *Strategic management Journal* 26(11), 1033 – 1055. DOI: 10.1002/smj.484

Mead, G. H. (1973): *A pszichikum, az én és a társadalom*. Budapest: Gondolat Kiadó

Nonaka, I. & Takeuchi, H. (1995). *The Knowledge-Creating Company. How Japanese Companies Create the Dynamics of Innovation*. Oxford: Oxford University Press.

Molnár P. (2013). *Hálózatosodás és tanulás hálózati környezetben*. ELTE. Retrieved from https://ttk.elte.hu/dstore/document/867/book.pdf

Nilsen, P., Ellström, P. (2012.) Practice-Based Innovation Through Reflection at Work. In Melas, H & Harmaakorpi, V (Eds.), *Practice Based Innovation: Insights, Applications and Policy Implications*. 155-172. New York: Springer

Nonaka, I., Peltokorpi, V. (2006). Objectivity and subjectivity in knowledge management: A review of 20 top articles. *Knowledge & Process Management*, **13**. 73-82., Retrieved from https://www.researchgate.net/publication/227712846_Objectivity_and_subjectivity_in_knowledge_management_A_review_of_20_top_articles

Oslo Manual (2006). Guidelines for collecting and interpreting innovation data: The measurement of scientific and technological activities. *European Communities Statistical Office, Organisation for Economic Co-operation and Development*. 3.edition. Paris: OECD

Ozgener S., Rifat I. (2006). Customer Relationship management is Small-medium Enterprises: The Case of Turkish Tourism Industry. *Tourism Management.* 27(6), 1356-1363. DOI: 10.1016/j.tourman.2005.06.011

Pawitt, K. (1984). Sectoral patterns of technical change: towards a taxonomy and a theory. *Research policy*, **13**(6), 343 – 373. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/0048733384900180

Polónyi I. (2004): A pedagógusképzés – oktatásgazdasági megközelítésben. *Educatio*. 2004(3). 343-358. Retrieved from https://epa.oszk.hu/01500/01551/00029/pdf/

Rideg A. (2017). A versenyképesség, a vállalati kompetenciák és a pénzügyi teljesítmény összefüggéseinek elemzése a magyar KKV szektorban. *Doktori Értekezés*. Pécsi Tudományegyetem.

Ropolyi, L. (2006): Internet-használat és hálólét-konstrukció. *Információs Társadalom* 6(4). 39-46. o. Retrieved from https://www.academia.edu/1449116/Internet_haszn%C3%A1lat_%C3%A9s_h%C3%A1l%C3%B3l%C3%A9t_konstrukci%C3%B3

Rothwell, R (1992). Succesful industrial innovation: critical factor for the 1990s. *R&D Managemen*t, **22**(3). 221 – 240. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-9310.1992.tb00812.x

Sandhawalia S., Dalcher D. (2011). Developing Knowledge Management Capabilities: A Structured Approach. *Journal of Knowledge Management*, *15*(2), 313-328. doi: 10.1108/13673271111119718/full/html

Senge P.M. (1990). *The fifth Discipline*. The Art & Practice of the Learning Organisation. Random House

Somogyi (2009). Versenyképesség a szakirodalomban, A fogalmi megközelítések összegzése és elemzése. (I. rész), *Vezetéstudomány*, 11(4)

Stéber A., Kereszty O. (2015). A munkahelyi tanulás támogatási formái – a tudásmenedzsment szerepe. Az elméleti kutatások kritikai elemzése. *Szakképzési Szemle*, *31*(4), 34-52.

Sveiby K.E. (2001): A knowledge-based theory of the firm to guide strategy formulation. *Journal of Intellectual Capital*. 2(4):15. DOI: 10.1108/14691930110409651

Tóbiás Sz. (2016). *Tudásmenedzsment és tudásprojektek vállalati gyakorlata a szlovák-magyar határtérségben*. Doktori értekezés. Széchenyi István Egyetem.

Zuboff, S 1988, *In the age of the smart machine,* New York*:* Basic Books

Wang, J., Yang, J., & Xue, Y. (2017). Subjective well-being, knowledge sharing and individual innovation behavior. *Leadership and Organization Development Journal*, 38(8), 1110– 1127.

Watkins, K. E. & Marsick, V. J. (1993). *Sculpting the learning organization*. San Francisco: Jossey-Bass.

Welsh, J. A., White, J. F. (1981): A small business is not a little big business, *Harvard Business Review*, 59(4), 18.

Wiig, K.M. (1993). *Knowledge Management Foundations, How People and Organizations Create, Represent, and Use Knowledge*. Arlington: Schema Press Ltd. Retrieved from https://www.researchgate.net/publication/31672277_Knowledge_Management_Foundations_Thinking_about_Thinking_How_People_and_Organizations_Create_Represent_and_Use_Knowledge_KM_Wiig

Wlodkowski, R. J. (2008). *Enhancing adult motivation to learn: A comprehensive guide for teaching all adults* (3rd ed.). Jossey-Bass/Wiley.

Wu, W. (2008). Dimensions of Social Capital and Firm Competitiveness Improvement: The Mediating Role of Information Sharing. *Journal of Management Studies*, 45(1), 122-146.

9. Publications

Lukács A., Dorner H. (2019): Nemzetközi tudásmenedzsment modellek összehasonlító elemzése. *Neveléstudomány* 3(4). 25-44. o. DOI: 10.21549/NTNY.27.2019.3.2

Lukács A., Dorner H. (2021): Az élethosszig tartó tanulás, a munkahelyi képzések és a tudásmenedzsment összefüggései egy magyarországi kisvállalatnál végzett esettanulmány alapján. *Tudásmenedzsment* 22(1) 153-176. o.

Lukács A., Dorner H. (2022): Knowledge Management as a powerful tool to increase competitiveness. Exploring interrelations of knowledge management and adult learning in the context of the learning organization. Opus et Educatio, 9(4). 254-282.