Andrea LUKÁCS

Knowledge Management as a powerful tool to increase competitiveness. Exploring interrelations of knowledge management and adult learning in the context of the learning organization

Introduction

The knowledge economy is based on the learning organisation (Nonaka & Takeuchi, 1995), where the willingness to learn is the source of competitiveness, and maximum profit is not necessarily measured in money but in the organisation's knowledge. In such a context, thinking is the responsibility of each individual, which is realised at all levels of implementation and decision-making (Senge, 1994). When an organisation is transforming into a learning organisation, a key element of the process is to set up an effective and value-creating knowledge management system.

As Fayol (2002) puts it, management is a well-defined process that involves anticipating, planning, organising, executing, coordinating and controlling the activities of others. According to Davenport and Prusak (2000), all this is related to knowledge, which has three distinct levels: data, information, and knowledge, where knowledge alone has contextualised, complex content generated in the human mind. According to Nonaka and Takeuchi (1995), knowledge develops through experience, and according to Siemens (2005), it is not necessarily acquired but is always present in the network. Knowledge management is thus a process-oriented activity that involves collecting, evaluating, cataloguing, storing, and reusing knowledge from different sources, providing access to knowledge and removing obsolete knowledge (Gamble & Blackwell, 2001).

Davenport and Prusak (2000) also refer to knowledge management systems which have three main goals:
1. To make knowledge and its role visible to the whole organisation
2. To create a knowledge-intensive culture within the organisation
3. To organise an infrastructure around processes that creates links between people

Since long-term sustainable competitive advantage depends on the firm's resources and capabilities, it is up to managers to seek out rare and valuable resources that are difficult to replace and replicate and which can be exploited and harmonised with external factors through the system (Barney, 1995). Knowledge is a primary resource, especially in knowledge management-oriented firms. Knowledge sharing is essential for organisations; it is the basis of their effective functioning, it is probably already embedded in the strategy of many, but everywhere they are looking for ways and means to develop, share, 'catalogue' and reuse the knowledge that is inherent in the company's workforce (Israilidis, Siachou, Cooke and Lock, 2015). It is how unique, hard-to-replicate, valuable, scarce resources can be created. Dynamic market environments, high customer expectations, and successive rapid (often technological) changes are challenges to which the diffusion of a knowledge management approach offers effective responses, such as better results with less labour, reduced infrastructure costs, more satisfied customers, increased efficiency, and innovation.

Empirical studies in the 1990s and 2000s (Nonaka and Takeuchi, 2006; Sandhawalia and Dalcher, 2011; Wang et al., 2014; Wu and Lin, 2013) have sought answers to questions such as whether knowledge management systems have a strategic impact on firms, whether they are related to financial performance, what is the relationship between the system operated and the competitive strategies chosen, how they contribute to innovation and the creation of new knowledge, what are the factors necessary for operating a knowledge management system or what are the barriers to its implementation, and what are the keys to a successful knowledge management system. Nevertheless, Hungarian researchers have only discussed these issues to a limited extent (Stéber & Kereszty, 2015; Tóbiás, 2016; Klimkó, 2001) by focusing on organisational learning; therefore, this study seeks to

answer similar questions and generates new findings in the Hungarian context. The research uses qualitative and quantitative methods; however, in this paper, we share findings from the data collected with the Dimensions of Learning Organisation (DLOQ) questionnaire (Watkins & Marsick, 1993) to determine the degree to which organisations operate as learning organisations. The research questions explored the initiatives at 3 Hungarian organisations, particularly the systems in use to manage knowledge, the processes these systems allow, the role of technology and the opportunities offered by different networks to support becoming a learning organisation. The survey was sent out to nearly 800 contacts at 150 small, medium and large enterprises; the total number of respondents is 265. The sample is not representative; respondents from small companies are overrepresented with 30%. Most respondents work in the IT sector (25%), and other sectors are represented with a minor (under 5%) within the sample.

Knowledge management models

All models include processes related to knowledge creation, flow, storage, and reuse. However, the focus is on different elements and approaches from model to models, such as sequencing, synergies and networks, and the impact of the external environment on knowledge creation, strategic thinking, decision-making or even problem-solving processes. All of these are closely linked to the organisational culture and strategy, so paying attention to their fit when implementing a model-based knowledge management system is essential.

According to modern approaches, the primary driving force of an organisation is managed, which includes planning, for example, *strategy setting*. A strategy is nothing more than a vision, a plan that sets out the long-term objectives, defines the resources needed to achieve the objective and outlines how the objective is to be achieved. If we consider knowledge management as a management activity, according to Fayol (2002), then this activity implies strategy. Although three of the models only deal in detail with the topic of strategy formation, Nonaka and Takeuchi's (1995) model differs radically in its conception of strategy from the models of Watkins and Marsick (1995) and Bukowitz and Williams (1999). However, it is questionable to what extent the strategy imagined in the culture of hypertext organisations, which is based on Eastern philosophy and describes the vision of the future in metaphors, can be implemented in organisations that follow a Western philosophy sharply divided by Descartes' doctrines.

Nevertheless, essential and even implementable elements of the knowledge management strategy in their model are the rotation of employees between functions, unrestricted access to information about the firm (regardless of position) and the competitive bidding of development projects within the organisation. In terms of strategy, Watkins and Marsick (1995) emphasise the building of organisational culture, the creation of a shared vision, the importance of strategic leadership and the role of managers (role model, leadership) in line with the organisational learning goals. On the other hand, the model of Bukowitz and Williams (1999) essentially focuses on strategy and thus sees knowledge management as a planned, well-structured, analysis-based activity with responsibility within the organisation, including planning and implementation, and learning and contribution phases as tactical steps. *From* the third analysis perspective, organisational culture can be a facilitator or a barrier to knowledge management processes; hence, these models consider it a key factor.

The models discuss *knowledge* from a wide variety of perspectives. Watkins and Marsick (1995) emphasise the conceptual differences between organisational learning and learning organisation and the importance of mutual learning and dialogue, which can contribute to creating ever-renewing, collaborative knowledge. The SECI model (Nonaka & Takeuchi, 1995) stresses the importance of subjectivity and places the individual and the transfer of knowledge between individuals at the centre of knowledge creation and management (cf. Nonaka & Peltokorpi, 2006). Wiig (1993) focuses on knowledge systematisation, while Von Krogh, Roos and Slocum (1994) draw a dividing line between individual and community knowledge. Social knowledge is seen as a representation of networks and is considered the most important element in knowledge management. Bukowitz and Williams' (1999) model accounts for the obsolescence of knowledge and draws attention to the importance of managing such knowledge.

The level of **technology** is only sometimes mentioned as a critical factor, but it is touched upon in the storage of information. Wiig's (1993) framework addresses using tools in knowledge sharing. He mentions the need to create a "who knows what" repository, covering the references and libraries created in the background to make the knowledge as accessible as possible to all. Bukowitz and Williams (1999) distinguish between information management and knowledge management, the differentiating factor being that to access tacit knowledge, namely, it is necessary to link not only to content through technology but also to individuals or groups who know something. Von Krogh, Roos and Slocum (1994) emphasise the network of communities, which is inevitable today without an account of virtual communities. Given Nonaka & Takeuchi's (1995) understanding of tacit knowledge, the knowledge of the subject and the community, that knowledge is created, transmitted and reborn through individual and community interactions, it is perhaps not surprising that technology does not play a role in the model. Although Watkins and Marsick (1995) emphasised the importance of the characteristics of learning organisations, the **organisational culture** as an influencing factor, the fourth of the seven dimensions states that systems are set up to capture and share knowledge, which in their view can be high or low-tech systems, the point being that employees have access to the information stored there and that the organisation takes care of its maintenance.

Knowledge management in the corporate context

According to North, Reinhardt and Schmidt (2009), the euphoria of knowledge management studies in the 1990s had been replaced by reality, but primarily by pessimism: the knowledge management approach to optimise operations had no strategic effect on companies, as knowledge management was seen just as a method which had no particular relationship to financial performance; and it was found that the main barrier to implementation had been related to soft factors such as lack of trust in senior management, time management problems and the use of inappropriate tools (North et al., 2003).

Nonaka and Takeuchi (1995) found that the creation of new knowledge depends heavily on how organisations capture tacit knowledge and how it is made visible and used in the organisation. Furthermore, their results show that personal commitment is an essential part of the process and that employees identify with the company's vision and mission and understand its operations and goals to be achieved. Hence, the role and responsibility of middle managers in knowledge management were emphasised, as they bring together the ideas of senior management and the experiences of employees while constantly questioning daily routines, using metaphors and concepts to voice the company's vision, intersections of horizontal and vertical information, i.e., they form a bridge between chaotic reality and vision (Nonaka, 1995).

Sandhawalia and Dalcher (2014) examined how the flow of knowledge contributes to the creation, integration, and collaboration in processes through case studies. Their study demonstrated that collaboration supports knowledge flow, discovered interconnections between knowledge flow and functional areas, and confirmed that the existing knowledge of team members is incorporated into new knowledge. It is most often a necessary factor in problem-solving and development activities. Learning happens when mistakes are encountered, analysed, and corrected. New knowledge was created by analysing causal relationships and updating error lists, which were then incorporated into the existing knowledge base. Functional areas integrated experience and feedback, leading to further dynamic knowledge building, and this knowledge became an appropriate basis for decision-making processes (Sandhawalia & Dalcher, 2014).

Similar results were revealed by Wu and Lin (2013), who demonstrated that firms create different competitiveness strategies that are tied to different knowledge management strategies. The primary strategy of the companies they examined was to look at the organisation as an innovator; in so doing, new internal knowledge was constantly exploited. Innovation was the employees' goal, so they were ready to share important information. Organisations with a relatively stable product or service base follow a competitive analytical strategy, building on internal and external knowledge and acquiring new skills through continuous improvement. Firms with a defensive strategy operated in relatively well-defined markets with standard products, following a knowledge management tracking/copying strategy, where employees extensively studied and searched for knowledge from external sources,

codified it, stored it in a well-documented form, and made it available to everyone. The study highlighted that if senior management did not define the right competitive strategy well enough, employees would not be able to find the most helpful knowledge available at the company. Hence, knowledge management did not support their market competitive strategy. Therefore, knowledge management strategy comes first, and only the technical background/infrastructure to support knowledge management practices, including tacit and explicit knowledge creation, conversion, and storage (Wu & Lin, 2013).

Role of ICT in knowledge management systems

ICT technologies' continuous development has also changed how information is obtained, stored, organised, and shared. In 2007, Kane and Alavi (2007) examined the role of ICT in organisational learning. They found that knowledge repository-type systems are more suitable for developing explicit knowledge, while communication technologies are more suitable for developing tacit knowledge. Van den Hoff (2004) believed that the use of ICT systems has only an indirect effect on the knowledge transfer process. It influences the commitment to the organisation, and its role is to break down communication barriers. However, according to Barret (2004), ICT provides a basic infrastructure and environment to support learning but needs to be to encourage effective learning. If the organisational climate is ideal, technology can contribute to transmission by providing the infrastructure for the knowledge community. Information technology undoubtedly provides a suitable platform for learning, processing, storing, and retrieving information, becoming knowledge in specific contexts. In this way, information technology facilitates knowledge management, accelerating and facilitating organisational learning. At the same time, organisational learning plays a crucial role in the implementation of information technology systems, especially for enterprise resource planning (ERP) and customer relationship management (CRM), mainly by helping the organisation to make effective use of technology (Malik et al., 2018).

In the corporate sector, IT systems are generally classified into three categories: knowledge management, communication and collaboration systems, and decision support systems (Argote, 2017). Knowledge management systems collect, store, share, and make available knowledge to increase productivity (Argote, 2017). An organisation learns faster and performs better if it has a piece of information technology-supported organisational memory (Argote, 2015). Communication and collaboration tools facilitate collaboration among individuals and groups and facilitate the sharing, capture, and dissemination of knowledge. Such as web 2.0 technologies include social web, blog and forum applications and systems (Aboelmaged 2018, Qi & Chau 2018). Finally, decision support systems support faster learning and quick adaptation to change. These include ERM, CRM and extensive data analytics systems. Systems capable of analysing the vast amount of data that accumulates in organisations most often play a significant role in generating new knowledge. (Calvard, 2015; Rodriguez 2017).

The global COVID-19 epidemic has significantly impacted business worldwide, with McKinsey's 2020 report saying that one of the most affected areas was the transformation of work-based learning. Most in-person training has been postponed or cancelled by companies in the Americas, Asia, and Europe. At the same time, organisations could not afford to develop the skills of their employees, so to continue to deliver value-creating learning programs, almost every organisation has relocated learning activities to virtual space, creating new training programs and platforms. In addition to tactical steps, new strategic goals have been set, such as building alternative digital learning strategies (McKinsey, 2020). The design and development of strategies brought to life strong collaboration between the various functional teams, such as HR, IT and platform technology experts, management, marketing and finance, and training delivery companies. Priorities had to be set as to which training is necessary and possible to move to a digital platform; hence, the optimal training portfolio had to be re-evaluated. The proportions of centralised and decentralised programs have also changed, as in the pre-virus period, many forms of training required a global, personal presence. Nevertheless, since it became increasingly difficult to manage these, organisations were forced to hold smaller virtual events to communicate knowledge to their employees effectively.

Finally, the epidemic has accelerated digital learning, which in this situation has become necessary to protect employees from falling ill, facilitating the promotion of learning on virtual platforms. Of course, this has made it necessary to improve the quality of digital programs and for leaders to find new ways to motivate individuals to learn. It was a successful tactic for senior executives to participate in online training and for social media elements to be incorporated into the learning process. Group learning, collaboration, and interactivity played a more significant role. Digital content developers had to re-frame the "learning problem", rethink their experiences in the process, set priorities for learning goals, and select learning content that matched the previous ones (McKinsey, 2020).

The Learning Organizations Questionnaire (DLOQ) (Marsick & Watkins, 2003)

The Dimensions of Learning Organizations Questionnaire (DLOQ) (Marsick & Watkins, 2003) enables a zero diagnostic step of system implementation as it provides organisations with data on their current position in becoming learning organisation. According to the Learning Organisation Model (Watkins & Marsick, 1993), the fundamental prerequisite for implementing knowledge management is that the organisation adopts the learning organisation model and identifies with the concept. This model is based on the understanding that learning is not a linear process - even though most adult learning processes start from the instructor structuring the learning experience in some way –but it is instead a process where members of the learning organisation, e.g., employees, (also) learn from each other at work through dialogue. In the following, the model's dimensions and, thus, the questionnaire will be explained based on Watkins and Marsick (1993).

The first dimension of the model is "*Create continuous learning opportunities*" (CL), which links learning to work so that employees can learn on the job; they have the opportunity for continuous development and participation in training. The second dimension describes the process of "*Promoting inquiry and dialogues*" (DL), whereby individuals can express their views and listen to the views of others, ask questions, give feedback, and gather experiences. The third process focuses on "*Encourage collaboration and team learning*" (TL), i.e., work is designed to be done in groups of people with different mindsets, where learning and work can take place together. Collaboration between members is valued and rewarded. The fourth action in the process is to "*Establish systems to capture and share learning"* (ES), which means that both high- and low-tech systems can share knowledge and be integrated into work. These are accessed and maintained by the organisation. "*Empowering people towards a collective vision*" [EP] is the fifth process that characterises the model. We mean that employees are involved in creating and implementing a shared vision; responsibility and decision-making are shared to motivate employees to learn what they consider essential. The sixth dimension refers to "*Connect the organisation to its environment*" (SC), i.e., employees can see the impact of their work on the organisation as a whole to think systemically. Finally, the seventh process in the model ensures that learning is strategically embedded in the organisation, that is, "*Provide strategic leadership for learning*" [SL], i.e., learning is part of the leadership strategy, and leaders lead by example; most importantly, support individual and organisational learning and professional development (Marsick & Watkins, 2003.).

The DLOQ questionnaire is a diagnostic tool which seeks to identify gaps, define intervention points, and define related indicators (Marsick & Watkins, 2003). It is used in empirical research, measuring significant shifts in organisational culture, systems and structures that also affect individual learning. More than 70 studies used it. Furthermore, it has been translated into 14 languages. By 2010, more than 200 companies had completed the questionnaire, which had been modified until the alpha coefficient on all scales was correct. The statistical bases are solid and reliable on all scales above the recommended level of 0.70. The validation studies of the DLOQ questionnaire (Marsick, 2013) have thus confirmed that the degree of 'learning culture' within an organisation is a good measure for human resource and organisational development research. For these reasons, this study employed it to inquire about learning in Hungarian organisations.

Research questions

Thus, this quantitative inquiry using the DLOQ questionnaire focused on the following questions:
    (1) What types of initiatives are detectable in these organisations?

(2) How do these organisations operate knowledge management systems? If knowledge management systems are available, what are employees' experiences?

(3) What is the role of networked devices, techniques, and applications in the knowledge management system?

(4) How are connectivist learning systems, tools and knowledge management related, if at all, in these organisations?

Methods

The adapted version of the Watkins and Marsick DLOQ questionnaire (Watkins & Marsick, 2003) had been used in Hungarian organisations whose employees responded to the survey voluntarily. (N = 269).

DLOQ is a self-reported questionnaire, and the metrics are influenced by perception. Occasionally, only middle and senior executives can adequately answer performance questions during data collection and analysis. Further, it may also happen that current performance is based on the consequences of earlier activities, learning initiatives and outcomes that are not yet visible in the snapshot (if they are still at a very early stage), and, of course, the environment can change easily and quickly. (Marsick & Watkins, 2003)

The DLOQ questionnaire was available in 14 languages and adapted to different sectors (for-profit and non-profit organisations, public sector institutions, health, and education institutions), with a total of 7954 respondents from 5 countries (Horváth, 2019). These results confirmed the reliability and consistency of the questionnaire based on Cronbach's alpha indicators.

The measure focuses on on-the-job learning and supportive organisational culture and interprets learning at the level of the individual, groups, and the organisation along its seven dimensions (Horváth, 2019). Two independent experts translated the English version into Hungarian, and then a third expert translated the Hungarian version into English (Horváth, 2019). Preceding this larger-scale data collection, we piloted the questionnaire with a sample of 37 people. The results of the pilot were checked for reliability (Table 1).

Table 1. Cronbach's alfa test of the pilot survey. Source: own editing based on SPSS results

Dimensions	Cronbach's alfa
"Create continuous learning opportunities" (CL) (7 item)	0,806
"Promote inquiry and dialogues" (DL) (6 item)	0,915
"Encourage collaboration and team learning" (TL) (6 item)	0,848
"Establish systems to capture and share learning" (ES) (6 item)	0,857
"Empowering people towards a collective vision" [EP] (6 item)	0,915
"Connect the organisation to its environment" (SC) (6 item)	0,889
"Provide strategic leadership for learning" [SL] (6 item)	0,886

Analyses

The one-way analysis of variance was used to compare groups or conditions. The normal distribution was checked with the Komogorov-Smirnov test. The sample did not show a normal distribution; however, as the sample was insignificant, we were permissive in this respect. Statistical tests were performed with the condition that the confidence intervals and the significance values could be interpreted. Therefore, the violation of the normality condition does not significantly influence the validity of the conclusions (Vargha, 2007). We also used the Levene test and ANOVA (F-test) for further analyses if the standard deviation was homogeneous. In the case of heterogeneous scattering, the Welch-Brown test was used. The results are presented in proportion to the valid responses, excluding the distorting effect of non-responses.

Results

Descriptive statistics ranged from average to good results, with the weakest performing statements relating to sharing experiences, measuring training effectiveness, seeing problems as a learning opportunity, providing honest feedback, and listening to each other's opinions (Table 2). Respondents rated the support of leaders in implementing learning activities as the best. For the most part, respondents feel that their respective companies have increased the amount of IT investment.

The DLOQ test is a self-reported questionnaire with metrics influenced by perception. Although individuals can complete the questionnaire, often only middle and senior executives can answer questions about performance appropriately. The statements about the company's performance have yielded above-average results of 4, but the high standard deviations show differing views in this regard. Therefore, the results will likely be affected by the position of the respondents at the company, as those working in lower positions have no view of these areas. It is also shown by the high number of missing items that many still need to answer or choose *I cannot / do not answer* option.

Table 2. Evaluation of the company's performance – descriptive statistics

Evaluation of the company's performance	n	M	SD
At the company, customer satisfaction is higher than last year.			
Evaluable answers	200	4,2	2,3
Missing items	65		
The number of employee proposals implemented at the company is higher than in the previous year.			
Evaluable answers	200	4,2	2,31
Missing items	65		
The number of new products / services at the company increased compared to the previous year.			
Evaluable answers	200	4,1	2,29
Missing items	65		
The proportion of well-trained employees in the company's total workforce has increased compared to the previous year.			
Evaluable answers	200	4,1	2,3
Missing items	65		
The company's investment in technology and IT has increased compared to last year.			
Evaluable answers	200	4,4	2,3
Missing items	65		
The company has increased the number of employees who have acquired new skills (learned something and actively used it)			
Evaluable answers	200	4,3	2,39
Missing items	65		

Source: own editing based on SPSS results

Aggregate descriptive statistics for the 7 dimensions

The combined descriptive statistics for the different dimensions are shown in Table 3. About half of the respondents (N = 265) believed that their companies create opportunities for continuous learning and another 40 percent moderately agreed with this statement. Stimulating interest and dialogue and encouraging collaboration and teamwork show similar results. Far fewer agreed with the statement that their company has systems in place to capture knowledge, with over 50 percent disagreeing moderately or not at all. The dimensions related to the vision of the organization and its participation in shaping it, as well as its connection to the environment, also show weaker results, here the proportion of those who moderately or rather disagree is over 80 percent. The last dimension examined learning as part of a leadership strategy that yielded approximately similar results to the first three dimensions. Thus, based on the statistical results that describe the learning organization along seven dimensions, the examined organizations focus less on the vision, their systems and processes, and the environment around them.

*Table 3.* Aggregate descriptive statistics for the 7 DLOQ dimensions
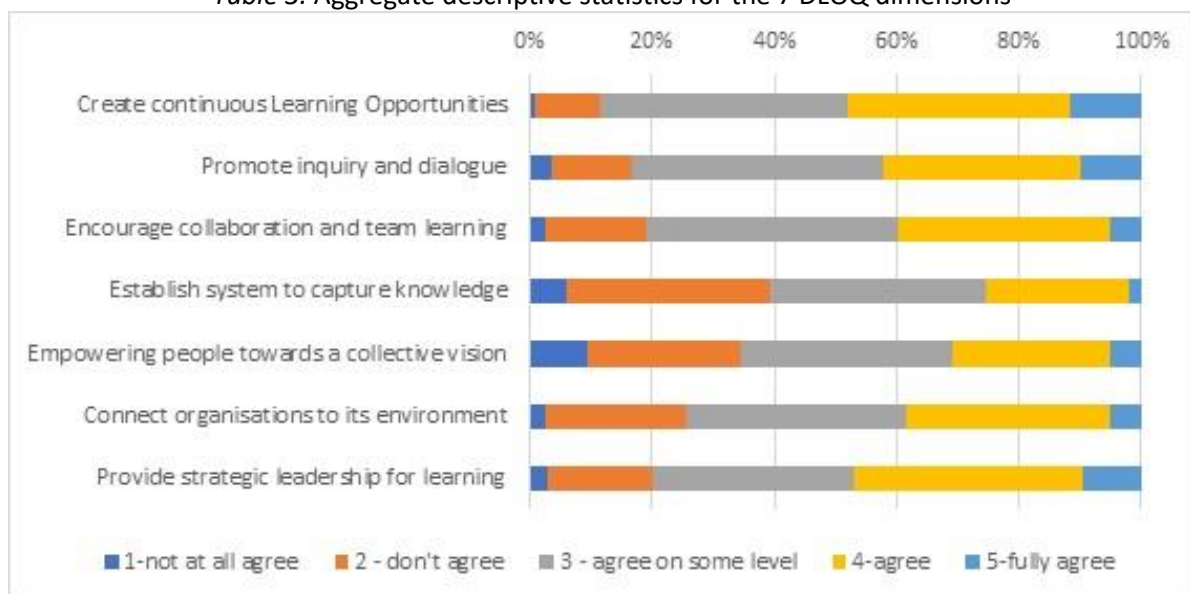
Source: own editing based on SPSS statistics results

Initiatives, knowledge management systems and experience in the light of technology
One of the research questions focused on existing initiatives and knowledge management systems, as well as experiences related to those. Based on the answers to the questionnaire about the technologies used (N=265), the most common tools organizations use are video or teleconferencing for collaboration. The availability of a knowledge repository was confirmed by less than half of the responses, while 2/3 of the organisations store information about their products and services in online databases. 54 percent of the respondents stated that their organisation has internal online education systems and in-service training systems, however, 61 percent of the respondents indicated that such trainings require in-person presence. 36 percent of respondents claimed that they use "Best Practices" forums to share information. The presence of a CRM system is also common, with nearly two-third of respondents indicating that such a system exists in their organisation. Online internal social platforms also seem to have become widespread, with 77 percent of respondents confirming their usage. External online learning interfaces are less widely used, with only 46 percent. The use of technology was not a problem for the respondents, as 74 percent of them believed that the software and applications were user-friendly.

In terms of technology use, the use of video or teleconferencing systems is the most common, while the presence of "Best Practice" forums is the least common. The distribution of technology use is shown in Table 4.

Table 4. Share of used technologies
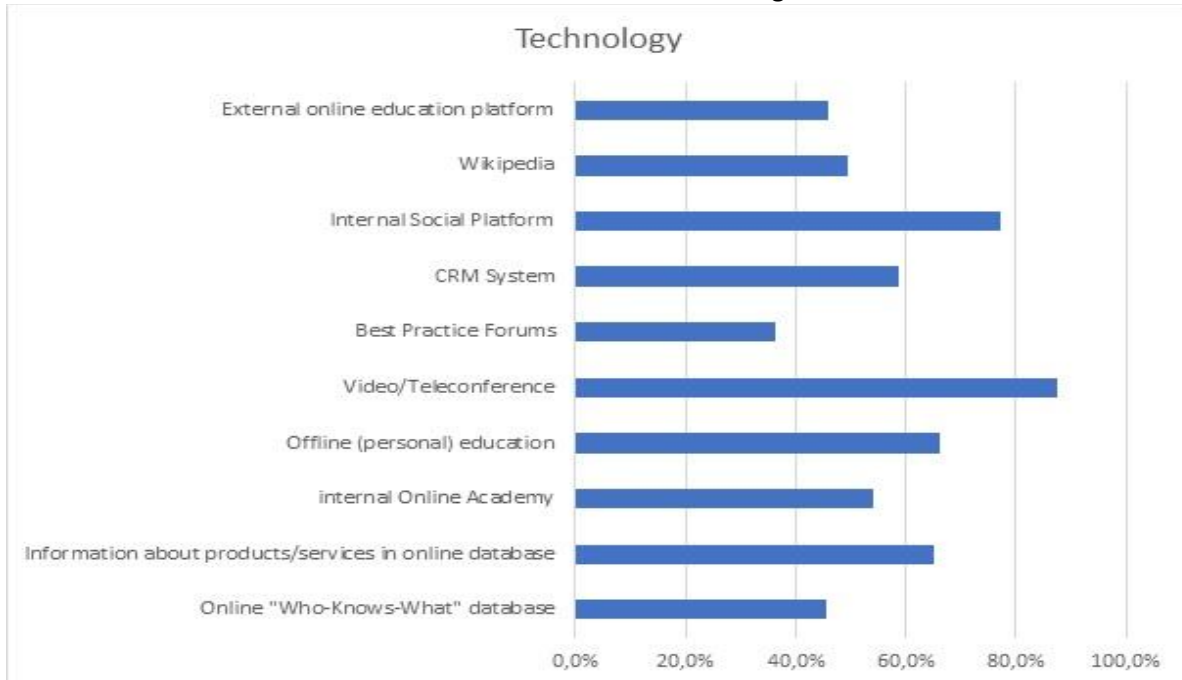
Source: own editing based on SPSS descriptive statistics

Knowledge sharing and skill development
The research questions also inquired into processes of knowledge sharing and skills development as well as the use of tools in relation to the dimensions of the learning organization. The results show that there are correlations between the use of the following tools and the dimensions.

(1) Where respondents indicated the presence of the "Who-Knows-What" knowledge repository, they rated all dimensions ("*Create cont. learning opportunities*" r=7,9, p=0,000; "*Promote inquiry and dialogues*" r=11,3, p=0,000; "*Encourage collaboration and team learning*" r=9,3, p=0,000; "*Establish systems to capture and share knowledge*" r=0,67, p=0,001; "*Empowering people towards a collective vision*" r=8,4, p=0,001; "*Connect the organisation to its environment*" r=14,1, p=0,000; "*Provide strategic leadership for learning*", r=12,4, p=0,000) of the DLOQ questionnaire better than those who did not indicate the use of this tool (Table 5).

Table 5. Correlations between the tool "Who-Knows-What" repository and dimensions of the DLOQ questionnaire

			Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company has a kind of online "Who-Knows-What" repository	Between Groups	(Combined)	7,923	1	7,923	12,926	,000
	Within Groups		96,848	158	,613		
	Total		104,771	159			
Promote inquiry and dialogues * The company has a kind of online "Who-Knows-What" repository	Between Groups	(Combined)	11,373	1	11,373	16,444	,000
	Within Groups		109,273	158	,692		
	Total		120,646	159			
Encourage collaboration and team learning * The company has a kind of online "Who-Knows-What" repository	Between Groups	(Combined)	9,352	1	9,352	16,037	,000
	Within Groups		92,137	158	,583		
	Total		101,489	159			
Establish systems to capture and share learning * The company has a kind of online "Who-Knows-What" repository	Between Groups	(Combined)	8,432	1	8,432	12,441	,001
	Within Groups		106,409	157	,678		
	Total		114,841	158			
Empowering people towards a collective vision * The company has a kind of online "Who-Knows-What" repository	Between Groups	(Combined)	9,111	1	9,111	10,590	,001
	Within Groups		135,934	158	,860		
	Total		145,044	159			
Connect the organisation to its environment * The company has a kind of online "Who-Knows-What" repository	Between Groups	(Combined)	14,144	1	14,144	21,895	,000
	Within Groups		102,071	158	,646		
	Total		116,215	159			
Provide strategic leadership for learning * The company has a kind of online "Who-Knows-What" repository	Between Groups	(Combined)	12,410	1	12,410	15,895	,000
	Within Groups		123,360	158	,781		
	Total		135,771	159			

Source: own editing based on SPSS ANOVA analytics results.

(2) Respondents who indicated that information about the products and services is stored in a database rated the following dimensions higher: "*Promote inquiry and dialogue*" (r=4,2, p=0,022), "*Establish systems to capture and share knowledge*" (r=6,8, p=0,002), "*Empowering people towards a collective vision*" (r=5,8, p=0,010), and "*Provide strategic leadership for learning*" (r=5,9, p=0.008). Thus, the systematic storage of information seems to have an impact on the assessment of the organisations' strategy and vision, as well as reflecting correlations with an organisational culture that is based on mutual interaction and dialogue. Nevertheless, as the descriptive statistics show, only a smaller percentage of respondents believed that the systematic storage of information was implemented in their organisation, hence, we may assume that lack of such an approach would have a negative effect on the assessment of the vision and corporate culture of the surveyed organizations (Table 6).

Table 6. Correlations between the tool "Products/services in online repository" and dimensions of the DLOQ questionnaire

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * Information about the company's products/services is stored in an online database	Between Groups (Combined)	1,398	1	1,398	2,070	,152
	Within Groups	101,309	150	,675		
	Total	102,707	151			
Promote inquiry and dialogues * Information about the company's products/services is stored in an online database	Between Groups (Combined)	4,168	1	4,168	5,360	,022
	Within Groups	116,635	150	,778		
	Total	120,802	151			
Encourage collaboration and team learning * Information about the company's products/services is stored in an online database	Between Groups (Combined)	1,197	1	1,197	1,842	,177
	Within Groups	97,472	150	,650		
	Total	98,669	151			
Establish systems to capture and share learning * Information about the company's products/services is stored in an online database	Between Groups (Combined)	6,795	1	6,795	10,001	,002
	Within Groups	101,924	150	,679		
	Total	108,719	151			
Empowering people toward a collective vision * Information about the company's products/services is stored in an online database	Between Groups (Combined)	5,823	1	5,823	6,725	,010
	Within Groups	129,887	150	,866		
	Total	135,710	151			
Connect the organisation to its environment * Information about the company's products/services is stored in an online database	Between Groups (Combined)	5,790	1	5,790	7,958	,005
	Within Groups	109,130	150	,728		
	Total	114,919	151			
Provide strategic leadership for learning * Information about the company's products/services is stored in an online database	Between Groups (Combined)	5,963	1	5,963	7,236	,008
	Within Groups	123,626	150	,824		
	Total	129,589	151			

Source: own editing based on SPSS ANOVA analytics results.

(3) Interestingly, the availability of internal online education systems shows a non-significant relation with one single dimension, which is the "*Creation of a continuous learning opportunity*" (r=1,9, p=0,069). Whereas the course system that requires a personal educational presence shows a connection with every dimension, including the "*Creation of a continuous learning opportunity*" (r=7,9, p=0,000). This difference in relationships may indicate that employees in the organization have different views and perceptions of the potential impact of online and in-person learning opportunities (Table 7/a & Table 7/b).

Table 7/a. Correlations between the „available online training systems" and other DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	1,939	1	1,939	3,374	,069
	Within Groups	67,828	118	,575		
	Total	69,767	119			
Promote inquiry and dialogues * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	3,200	1	3,200	5,605	,020
	Within Groups	67,366	118	,571		
	Total	70,566	119			
Encourage collaboration and team learning * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	7,566	1	7,566	12,952	,000
	Within Groups	68,933	118	,584		
	Total	76,499	119			
Establish systems to capture and share learning * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	17,650	1	17,650	33,825	,000
	Within Groups	61,572	118	,522		
	Total	79,221	119			
Empowering people toward a collective vision *The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	8,409	1	8,409	11,212	,001
	Within Groups	86,998	116	,750		
	Total	95,407	117			
Connect the organisation to its environment * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	13,455	1	13,455	21,926	,000
	Within Groups	72,410	118	,614		
	Total	85,865	119			
Provide strategic leadership for learning * Information about the company's products/services is stored in an online database	Between Groups (Combined)	10,077	1	10,077	15,079	,000
	Within Groups	78,856	118	,668		
	Total	88,933	119			
index_fejlodes_q16_s * Van a cégnél belső, online oktatási rendszer (Akadémia, online tanfolyam, stb.)	Between Groups (Combined)	3,420	1	3,420	2,916	,091
	Within Groups	104,402	89	1,173		
	Total	107,822	90			

Source: own editing based on SPSS ANOVA analytics results.

Table 7/b. Correlations between the „available online training systems" and other DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	7,924	1	7,924	14,896	,000
	Within Groups	61,708	116	,532		
	Total	69,632	117			
Promote inquiry and dialogues * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	3,657	1	3,657	6,119	,015
	Within Groups	69,329	116	,598		
	Total	72,986	117			
Encourage collaboration and team learning * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	7,041	1	7,041	12,225	,001
	Within Groups	66,810	116	,576		
	Total	73,851	117			
Establish systems to capture and share learning * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,111	1	8,111	13,371	,000
	Within Groups	70,365	116	,607		
	Total	78,476	117			
Empowering people toward a collective vision * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,286	1	8,286	11,393	,001
	Within Groups	82,904	114	,727		
	Total	91,190	115			
Connect the organisation to its environment * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,987	1	8,987	13,832	,000
	Within Groups	75,370	116	,650		
	Total	84,357	117			
Provide strategic leadership for learning * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,020	1	8,020	11,597	,001
	Within Groups	80,218	116	,692		
	Total	88,238	117			

Source: own editing based on SPSS ANOVA analytics results.

(4) The use of videoconferencing and teleconferencing has an impact on the dimensions "*Creating opportunities for continuous learning*" (r=7,1, p=0,000), "*Encouraging collaboration and teamwork*" (r=4,3, p=0,008), "*Establish systems to capture knowledge*" (r=5,2, p=0,004) and "*Provide strategic leadership for learning*" (r=6,9, p=0,002), meaning that the more these technologies are used, the better these dimensions are perceived (Table 8).

Table 8. Correlations between "Usage of video and teleconference tools" and the DLOQ dimensions

			Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunites * The company regularly uses video or telephone conferencing for collaboration	Between Groups	(Combined)	7,108	1	7,108	13,813	,000
	Within Groups		65,354	127	,515		
	Total		72,462	128			
Promote inquiry and dialogues * The company regularly uses video or telephone conferencing for collaboration	Between Groups	(Combined)	1,437	1	1,437	2,334	,129
	Within Groups		78,224	127	,616		
	Total		79,661	128			
Encourage collaboration and team learning * The company regularly uses video or telephone conferencing for collaboration	Between Groups	(Combined)	4,346	1	4,346	7,270	,008
	Within Groups		75,928	127	,598		
	Total		80,274	128			
Establish systems to capture and share learning * The company regularly uses video or telephone conferencing for collaboration	Between Groups	(Combined)	5,183	1	5,183	8,437	,004
	Within Groups		78,018	127	,614		
	Total		83,202	128			
Empowering people toward a collective vision * The company regularly uses video or telephone conferencing for collaboration	Between Groups	(Combined)	2,370	1	2,370	2,929	,089
	Within Groups		101,151	125	,809		
	Total		103,521	126			
Connect the organisation to its environment * The company regularly uses video or telephone conferencing for collaboration	Between Groups	(Combined)	1,039	1	1,039	1,521	,220
	Within Groups		86,705	127	,683		
	Total		87,743	128			
Provide strategic leadership for learning * The company regularly uses video or telephone conferencing for collaboration	Between Groups	(Combined)	6,954	1	6,954	9,938	,002
	Within Groups		88,866	127	,700		
	Total		95,819	128			

Source: own editing based on SPSS ANOVA analytics results.

(5) The emergence of the "*Best Practices Forum*" correlates with all dimensions ("*Create continuous learning opportunity* r=5,9, p=0,001; "*Promote Inquiry and Dialogue*" r=5,2, p= 0,003; "*Encourage collaboration and team learning*" r=9,1, p=0,000; "*Establish systems to capture and share learning*" r=12,5, p=0,000; "*Empowering people towards a collective vision* r=9,1, p=0,001; "*Connect organisation to its environment*" r=8,5, p=0,000; "*Provide strategic leadership for learning*" r=11,6, p=0,000), but in terms of means, it seems lower rated among respondents (usage=36%). In other words, this tool appears in a few places, but where it appears, it has a clear positive relation to systematic knowledge management, in particular and the learning organization, in general. The presence of a CRM system shows similar correlations, and it is used by nearly 60 percent of companies (Table 9/a & Table 9/b).

Table 9/a. Correlations between „Existing Best Practice Forums" and DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * There are existing "Best Practice" forums at the company	Between Groups (Combined)	5,981	1	5,981	10,841	,001
	Within Groups	55,172	100	,552		
	Total	61,153	101			
Promote inquiry and dialogues * There are existing "Best Practice" forums at the company	Between Groups (Combined)	5,179	1	5,179	8,996	,003
	Within Groups	57,571	100	,576		
	Total	62,750	101			
Encourage collaboration and team learning * There are existing "Best Practice" forums at the company	Between Groups (Combined)	9,091	1	9,091	15,879	,000
	Within Groups	57,251	100	,573		
	Total	66,342	101			
Establish systems to capture and share learning * There are existing "Best Practice" forums at the company	Between Groups (Combined)	12,489	1	12,489	21,580	,000
	Within Groups	57,873	100	,579		
	Total	70,362	101			
Empowering people toward a collective vision * There are existing "Best Practice" forums at the company	Between Groups (Combined)	9,091	1	9,091	12,018	,001
	Within Groups	75,640	100	,756		
	Total	84,731	101			
Connect the organisation to its environment * There are existing "Best Practice" forums at the company	Between Groups (Combined)	8,527	1	8,527	13,884	,000
	Within Groups	61,419	100	,614		
	Total	69,947	101			
Provide strategic leadership for learning * There are existing "Best Practice" forums at the company	Between Groups (Combined)	11,567	1	11,567	17,434	,000
	Within Groups	66,347	100	,663		
	Total	77,914	101			

Source: own editing based on SPSS ANOVA analytics.

Table 9/b. Correlations between „Existing Best Practice Forums" and DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * There is a CRM System at the company	Between Groups (Combined)	5,693	1	5,693	7,843	,006
	Within Groups	98,718	136	,726		
	Total	104,411	137			
Promote inquiry and dialogues * There is a CRM System at the company	Between Groups (Combined)	5,116	1	5,116	6,246	,014
	Within Groups	111,398	136	,819		
	Total	116,514	137			
Encourage collaboration and team learning * There is a CRM System at the company	Between Groups (Combined)	5,142	1	5,142	7,790	,006
	Within Groups	89,771	136	,660		
	Total	94,913	137			
Establish systems to capture and share learning * There is a CRM System at the company	Between Groups (Combined)	7,725	1	7,725	11,371	,001
	Within Groups	92,390	136	,679		
	Total	100,115	137			
Empowering people toward a collective vision * There is a CRM System at the company	Between Groups (Combined)	6,045	1	6,045	7,416	,007
	Within Groups	110,857	136	,815		
	Total	116,902	137			
Connect the organisation to its environment * There is a CRM System at the company	Between Groups (Combined)	5,108	1	5,108	7,398	,007
	Within Groups	93,901	136	,690		
	Total	99,009	137			
Provide strategic leadership for learning * There is a CRM System at the company	Between Groups (Combined)	7,380	1	7,380	9,700	,002
	Within Groups	103,483	136	,761		
	Total	110,863	137			

Source: own editing based on SPSS ANOVA analytics.

(6) The presence of social platforms has a clear impact on teamwork and shows a strong correlation with the dimension "*Encouraging cooperation and teamwork*" (r=4,3, p=0,009), "*Establish systems to capture and share learning*" (r=10,2, p=0,000), "*Connect the organisation to its environment*" (r=5,1 p=0,010) and "*Provide strategic leadership for learning*" (r=7,8, p=0,002) (Table 10).

Table 10. Correlations between „Presence of internal social platforms and DLOQ dimensions

Create continuous learning opportunities * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	,479	1	,479	,704	,402
	Within Groups		119,628	176	,680		
	Total		120,107	177			
Promote inquiry and dialogues * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	2,204	1	2,204	2,890	,091
	Within Groups		134,254	176	,763		
	Total		136,458	177			
Encourage collaboration and team learning * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	4,335	1	4,335	6,969	,009
	Within Groups		109,492	176	,622		
	Total		113,827	177			
Establish systems to capture and share learning * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	10,219	1	10,219	15,098	,000
	Within Groups		118,449	175	,677		
	Total		128,668	176			
Empowering people toward a collective vision * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	3,757	1	3,757	4,168	,043
	Within Groups		156,841	174	,901		
	Total		160,598	175			
Connect the organisation to its environment * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	5,112	1	5,112	6,854	,010
	Within Groups		131,264	176	,746		
	Total		136,376	177			
Provide strategic leadership for learning * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	7,763	1	7,763	9,827	,002
	Within Groups		139,041	176	,790		
	Total		146,804	177			

Source: own editing based on SPSS ANOVA analytics.

(7) Respondents who perceived that the IT systems available were easy to use rated the dimension "*Creating a continuous learning opportunity*" (r=2,9, p=0,038) higher than those who disagreed with the statement. It seems that easy usage of IT systems can contribute to the feeling that the organisation creates a continuous learning opportunity. However, this variable has no effect on all other dimensions, meaning it is not a sufficient condition for learning and sharing.

Table 11. Correlation between „Easy usage of IT systems" and „Create continuous learning opportunity" dimension of DLOQ questionnaire

			Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * Usage of IT systems installed at the firm is generally easy (user friendly softwares, apps)	Between Groups	(Combined)	2,903	1	2,903	4,353	,038
	Within Groups		120,723	181	,667		
	Total		123,626	182			

Source: own editing based on SPSS ANOVA analytics results

Operations of KM systems

This research has also investigated how organisations operate knowledge management systems and whether according to respondents, their organisation has the potential to become learning organisations. In so doing, the correlation between organisational performance and the different dimensions are considered as significant indicators. The results of the ANOVA showed that the performance indicator "*Customer satisfaction is higher than in recent years*" has significant correlations with three dimensions.

- *Providing continuous learning opportunities* (*r=2,4, p=0,012*): respondents who think that the organisation provides continuous learning opportunities tend to agree more with the statement that their organisations had higher customer satisfaction in the year of the survey than in the previous year. Where learning is not considered a factor, the mean value of the response to customer satisfaction is rather low (M=2.55; SD=0,72). However, those indicating some learning opportunities (mean values greater than 3) tend to have higher customer satisfaction than in the previous year.

- *Encourage collaboration and teamwork* (r=2,7, p=0,003); respondents who think that their organisations encourage collaboration and teamwork also tend to agree with the statement about customer satisfaction.

- *Systems are put in place to capture knowledge* (r=2,4, p=0,028); perhaps unsurprisingly, organisations that pay attention to putting systems in place to capture knowledge (i.e., to make tacit knowledge explicit) are more likely to achieve customer satisfaction.

Table 12. Correlations between „Perceived Customer Satisfaction level" and different dimensions of DLOQ dimensions

	Customer satisfaction is higher than in recent years	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunity (index)	Between Groups	9,493	4	2,373	3,335	,012
	Within Groups	90,386	127	,712		
	Total	99,879	131			
Encourage collaboration and teamwork (index)	Between Groups	10,855	4	2,714	4,142	,003
	Within Groups	83,206	127	,655		
	Total	94,061	131			
Systems are put in place to capture knowledge (index)	Between Groups	9,609	4	2,402	2,813	,028
	Within Groups	108,452	127	,854		
	Total	118,061	131			

Source: own editing based on SPSS ANOVA analytics.

Leadership and the concept of "continuous learning"
When examining whether managers' need for continuous learning has an impact on the development of a learning culture, the results across the different dimensions show that the more prevalent the strategic attitude of managers is in an organisation towards learning, the more likely it is that

- *Opportunities for continuous learning are created* (r=12,6, p=0,000), i.e., employees talk openly about mistakes, can support each other's learning, the organisation provides resources and time for learning, and problems are seen as learning opportunities.
- *Interest and dialogue are encouraged* (r=14,2, p=0,000), i.e., open, and honest feedback, listening to each other, asking questions, respecting each other, and the energy to build trust.
- *Collaboration and teamwork are encouraged* (r=12,3, p=0,000), i.e., teams are given space to shape their goals, teams focus on working together beyond the task, review their positions in response to new information, team encouragement is present, and employees have confidence that their suggestions will be considered by the organisation.

- The organisation leaves room for *employees to shape the vision* (r=15,9, p=0,000), which includes recognising their initiative, giving them the choice to shape the division of labour and control over resources, encouraging calculated risk-taking, and seeking to ensure that different levels and groups have a shared vision.

Table 13. Correlations between the „Strategic leadership for learning" and other DLOQ dimensions

	Provide strategic leadership for learning	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities	Between Groups	50,244	4	12,561	29,872	,000
	Within Groups	75,689	180	,420		
	Total	125,933	184			
Promote inquiry and dialogues	Between Groups	57,006	4	14,251	30,787	,000
	Within Groups	83,322	180	,463		
	Total	140,328	184			
Encourage collaboration and team learning	Between Groups	49,276	4	12,319	29,958	,000
	Within Groups	74,017	180	,411		
	Total	123,293	184			
Empowering people towards a collective vision	Between Groups	63,806	4	15,952	30,363	,000
	Within Groups	93,514	178	,525		
	Total	157,320	182			

Source: own editing based on SPSS ANOVA results.

The ANOVA test shows a significant result that mentoring and development in an organisation have an impact on the elements of the creation of continuous learning opportunities. That is, the more it is typical in an organisation for management to mentor and develop employees, the more likely it is that employees in will help each other in learning (r=13,3, p=0,000), interest and dialogue will be created (r=14,4 p=0,000), employees will interpret problems as learning opportunities (r=12,0, p=0,000), and the organisation will encourage employees to develop a customer-friendly approach (r=17,7, p=000) and to think globally (r=19,5, p=0,00)(Table 14).

Table 14. Correlations between mentoring and other DLOQ dimensions

	Leaders are mentoring and developing co-workers	Sum of Squares	df	Mean Square	F	Sig.
In the company employees are supporting each other's learning	Between Groups	53,060	4	13,265	16,000	,000
	Within Groups	158,348	191	,829		
	Total	211,408	195			
In the company, employees see problems they encounter at work as learning opportunities.	Between Groups	48,107	4	12,027	12,508	,000
	Within Groups	179,810	187	,962		
	Total	227,917	191			
Employee learning is recognised in the company	Between Groups	98,153	4	24,538	21,824	,000
	Within Groups	203,508	181	1,124		
	Total	301,661	185			
Promote inquiry and dialogues (index)	Between Groups	57,771	4	14,443	24,245	,000
	Within Groups	113,780	191	,596		
	Total	171,551	195			
Empowering people towards a collective vision (index)	Between Groups	62,129	4	15,532	26,346	,000
	Within Groups	111,422	189	,590		
	Total	173,551	193			
The company encourages employees to think globally	Between Groups	78,223	4	19,556	24,174	,000
	Within Groups	143,189	177	,809		
	Total	221,412	181			
The company encourages everyone to take a customer perspective when making decisions	Between Groups	71,097	4	17,774	21,312	,000
	Within Groups	153,454	184	,834		
	Total	224,550	188			

Source: own editing based on ANOVA analytics.

Organisational culture and the learning organisation

As the company's vision is an essential element of a learning organisation, we examined the impact of management support on the different dimensions of the vision characterizing the organization. The ANOVA test showed significant results in all cases. Thus, the more significant the support of management for the vision and mission, the more likely it is that

- *collaboration and teamwork are encouraged* (r=12,6, p=0,000), i.e., teams are given space to shape their goals, they also focus on collaboration and are rewarded for their joint successes. They can be confident that their suggestions will be considered, and they will be ready to revise their position in response to new information.
- *the organisation is connected to its environment* (r=13,7, p=0,000), meaning that it encourages employees to think globally, considers customer perspectives and the impact of decisions on employee morale, seeks applicable solutions to problems, by also working with external communities. (Table 15)

Table 15. Correlations between shaping the company's vision and other DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Encourage collaboration and team learning	Between Groups	50,329	4	12,582	32,032	,000
	Within Groups	75,025	191	,393		
	Total	125,354	195			
Empowering people towards a collective vision	Between Groups	83,041	4	20,760	44,287	,000
	Within Groups	89,535	191	,469		
	Total	172,576	195			
Connect the organisation to its environment	Between Groups	54,842	4	13,711	32,689	,000
	Within Groups	80,109	191	,419		
	Total	134,952	195			

Source: own editing based on SPSS ANOVA analytics.

The statistical test also showed a significant correlation between keeping managers up to date and providing continuous learning opportunities (r=6,3, p=0,000) and encouraging cooperation and teamwork (r=7,5, p=0,000). In other words, the more informed employees are about issues affecting the organisation, the more likely it is that, among other things, encouraging collaboration and teamwork will create the conditions for both individual and group learning (Table 16).

Table 16. Correlations between up-to-date information provided by the managers and other DLOQ dimensions

	Managers provide up-to-date information	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities	Between Groups	25,184	4	6,296	11,543	,000
	Within Groups	103,638	190	,545		
	Total	128,822	194			
Encourage collaboration and team learning	Between Groups	29,902	4	7,476	15,077	,000
	Within Groups	94,208	190	,496		
	Total	124,111	194			

Source: own editing based on SPSS ANOVA analytics.

A significant component of organisational culture is the promotion of interest and dialogue. The analysis shows that the category means are significantly different from each other. In particular, encouraging interest and dialogue has an impact on

- the *creation of continuous learning opportunities* (r=18,6, p=0,000); the more typical it is for an organization to encourage interest and dialogue among employees, the more likely it is that employees will openly talk about mistakes and consider how to learn from those, help each other in learning, identify future competencies, and it is also typical that in this case the organisation will provide financial and time resources for learning.
- *encouraging collaboration and teamwork* (r=17,8, p=0,000), i.e., in organisations where dialogue is encouraged, teams are likely to be given space to shape their goals, team members are treated equally, there is a focus on how teams work together, colleagues tend to review their positions in response to new information, and care is taken to reward teams for their collective achievements. Hence, in such organisations, employees perceive that the organisation will take their suggestions into account.
- *Connectedness to the environment* (r=11,1, p=0,000); where collaboration and dialogue are encouraged, the organisation is more supportive of work/life balance, more likely to encourage employees to think globally and take account of customer views, more attentive to the impact of decisions on company morale and more likely to engage with external communities.
- and the presence of *learning at the strategic level* ("*Provide a strategic leadership for learning*"; r=17,8, p=0,000), a significant element of which is the attitude of managers to learning (Table 17/a and 17/b).

Table 17/a. Correlations between inquiry and dialogue based organisational culture and other DLOQ dimensions

	Promote inquiry and dialogues (index)	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities (index)	Between Groups	74,512	4	18,628	42,331	,000
	Within Groups	98,133	223	,440		
	Total	172,645	227			
Encourage collaboration and team learning (index)	Between Groups	71,347	4	17,837	39,255	,000
	Within Groups	97,238	214	,454		
	Total	168,584	218			
Connect the organisation to its environment (index)	Between Groups	44,509	4	11,127	17,210	,000
	Within Groups	131,255	203	,647		
	Total	175,764	207			
Provide strategic leadership for learning (index)	Between Groups	71,351	4	17,838	30,193	,000
	Within Groups	115,204	195	,591		
	Total	186,555	199			

Source: own editing based on based on SPSS ANOVA Analytics.

Table 17/b. Correlations between inquiry and dialogue based organisational culture and other DLOQ dimensions

Dependent Variable	Promote inquiry and dialogues (index)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Create continuous learning opportunities (index)	1,00	2,00	-,56667	,26396	,333	-1,3866	,2533
		3,00	-1,31915*	,24431	,000	-2,0780	-,5603
		4,00	-1,89041*	,24705	,000	-2,6578	-1,1230
		5,00	-2,34783*	,27229	,000	-3,1936	-1,5020
	2,00	1,00	,56667	,26396	,333	-,2533	1,3866
		3,00	-,75248*	,13910	,000	-1,1846	-,3204
		4,00	-1,32374*	,14386	,000	-1,7706	-,8769
		5,00	-1,78116*	,18385	,000	-2,3522	-1,2101
	3,00	1,00	1,31915*	,24431	,000	,5603	2,0780
		2,00	,75248*	,13910	,000	,3204	1,1846
		4,00	-,57126*	,10349	,000	-,8927	-,2498
		5,00	-1,02868*	,15432	,000	-1,5080	-,5493
	4,00	1,00	1,89041*	,24705	,000	1,1230	2,6578
		2,00	1,32374*	,14386	,000	,8769	1,7706
		3,00	,57126*	,10349	,000	,2498	,8927
		5,00	-,45742	,15862	,084	-,9501	,0353
	5,00	1,00	2,34783*	,27229	,000	1,5020	3,1936
		2,00	1,78116*	,18385	,000	1,2101	2,3522
		3,00	1,02868*	,15432	,000	,5493	1,5080
		4,00	,45742	,15862	,084	-,0353	,9501
Encourage collaboration and team learning (index)	1,00	2,00	-,78571	,28485	,111	-1,6708	,0994
		3,00	-1,26349*	,26450	,000	-2,0854	-,4416
		4,00	-1,96177*	,26704	,000	-2,7916	-1,1320
		5,00	-2,45963*	,29098	,000	-3,3638	-1,5555
	2,00	1,00	,78571	,28485	,111	-,0994	1,6708
		3,00	-,47778*	,14587	,033	-,9310	-,0245
		4,00	-1,17606*	,15042	,000	-1,6435	-,7086
		5,00	-1,67391*	,18969	,000	-2,2633	-1,0845
	3,00	1,00	1,26349*	,26450	,000	,4416	2,0854
		2,00	,47778*	,14587	,033	,0245	,9310
		4,00	-,69828*	,10700	,000	-1,0308	-,3658
		5,00	-1,19614*	,15749	,000	-1,6855	-,7068
	4,00	1,00	1,96177*	,26704	,000	1,1320	2,7916
		2,00	1,17606*	,15042	,000	,7086	1,6435
		3,00	,69828*	,10700	,000	,3658	1,0308
		5,00	-,49786	,16173	,054	-1,0004	,0047
	5,00	1,00	2,45963*	,29098	,000	1,5555	3,3638
		2,00	1,67391*	,18969	,000	1,0845	2,2633
		3,00	1,19614*	,15749	,000	,7068	1,6855
		4,00	,49786	,16173	,054	-,0047	1,0004
Connect the organisation to its environment (index)	1,00	2,00	-,42308	,36419	,853	-1,5553	,7091
		3,00	-,96386	,33993	,094	-2,0206	,0929
		4,00	-1,60000*	,34205	,000	-2,6634	-,5366
		5,00	-1,65217*	,36861	,001	-2,7981	-,5062
	2,00	1,00	,42308	,36419	,853	-,7091	1,5553
		3,00	-,54078	,18072	,066	-1,1026	,0210
		4,00	-1,17692*	,18468	,000	-1,7510	-,6028
		5,00	-1,22910*	,23017	,000	-1,9447	-,5135
	3,00	1,00	,96386	,33993	,094	-,0929	2,0206
		2,00	,54078	,18072	,066	-,0210	1,1026
		4,00	-,63614*	,13049	,000	-1,0418	-,2305
		5,00	-,68832*	,18948	,012	-1,2774	-,0993
	4,00	1,00	1,60000*	,34205	,000	,5366	2,6634
		2,00	1,17692*	,18468	,000	,6028	1,7510
		3,00	,63614*	,13049	,000	,2305	1,0418
		5,00	-,05217	,19326	,999	-,6530	,5486
	5,00	1,00	1,65217*	,36861	,001	,5062	2,7981
		2,00	1,22910*	,23017	,000	,5135	1,9447
		3,00	,68832*	,18948	,012	,0993	1,2774
		4,00	,05217	,19326	,999	-,5486	,6530
Provide strategic leadership for learning (index)	1,00	2,00	-,32000	,34942	,933	-1,4067	,7667
		3,00	-1,11392*	,32549	,022	-2,1262	-,1017
		4,00	-1,81159*	,32715	,000	-2,8290	-,7942
		5,00	-2,19048*	,35581	,000	-3,2970	-1,0839
	2,00	1,00	,32000	,34942	,933	-,7667	1,4067
		3,00	-,79392*	,17638	,001	-1,3425	-,2454
		4,00	-1,49159*	,17943	,000	-2,0496	-,9336
		5,00	-1,87048*	,22752	,000	-2,5780	-1,1629
	3,00	1,00	1,11392*	,32549	,022	,1017	2,1262
		2,00	,79392*	,17638	,001	,2454	1,3425
		4,00	-,69767*	,12665	,000	-1,0915	-,3038
		5,00	-1,07655*	,18871	,000	-1,6634	-,4897
	4,00	1,00	1,81159*	,32715	,000	,7942	2,8290
		2,00	1,49159*	,17943	,000	,9336	2,0496
		3,00	,69767*	,12665	,000	,3038	1,0915
		5,00	-,37888	,19156	,421	-,9746	,2169
	5,00	1,00	2,19048*	,35581	,000	1,0839	3,2970
		2,00	1,87048*	,22752	,000	1,1629	2,5780
		3,00	1,07655*	,18871	,000	,4897	1,6634
		4,00	,37888	,19156	,421	-,2169	,9746

*. The mean difference is significant at the 0.05 level.

Source: own editing based on based on SPSS Scheffe Analytics.

Networking – collaboration with external communities

The ANOVA test showed that there is a significant relationship between existing external cooperations and the creation of continuous learning opportunities (r=3,6, p=0,000), the strength and direction of the relationship was tested using Spearman's rank correlation, which showed that the relationship is strong and positive (r=3,5, rho=0,32). Thus, the more prevalent the collaboration. the more certain the Presence of continuous learning opportunities is. Also, the more prevalent the Presence of continuous learning opportunities, the more prevalent the collaborations are, as perceived by the employees (Table 18/a and 18/b).

Table 18/a. Correlation between co-operation with external communities and Continuous learning opportunity dimension of DLOQ

			Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company works with external communities (organisations, associations, chambers, clusters, educational institutions, etc.) to achieve common goals.	Between Groups	(Combined)	14,287	4	3,572	6,181	,000
	Within Groups		103,439	179	,578		
	Total		117,727	183			

Source: own editing based on SPSS ANOVA analytics

Table 18/b. Correlation between co-operation with external communities and Continuous learning opportunity dimension of DLOQ

			The company works with external communities (organisations, associations, chambers, clusters, educational institutions, etc.) to achieve common goals.	Create continuous learning opportunities
Spearman's rho	The company works with external communities (organisations, associations, chambers, clusters, educational institutions, etc.) to achieve common goals.	Correlation Coefficient	1,000	,327"
		Sig. (2-tailed)		,000
		N	184	184
	Create continuous learning opportunities	Correlation Coefficient	,327"	1,000
		Sig. (2-tailed)	,000	
		N	184	235

Source: own editing based on SPSS Spearman rank correlation.

The Spearman correlation also showed a significant strong positive relationship between continuous learning opportunities and the encouragement to think globally (r=10,8, p=0,000, rho=0,58). That is, the more present continuous learning opportunities are, the more likely it is that employees have the ability to think globally (Table 19/a and 19/b).

Table 19/a. Correlation between global thinking and continuous learning opportunity. Source: own editing based on ANOVA analytics

Create continuous learning opportunities * The company encourages employees to think globally	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	43,230	4	10,807	21,035	,000
Within Groups	95,566	186	,514		
Total	138,796	190			

Table 19/b. Correlation between global thinking and continuous learning opportunity. Source: own editing based on Spearman's rank correlation

			Continuous learning opportunity	The company encourages employees to think globally
Spearman's rho	Continuous learning opportunity	Correlation Coefficient	1,000	,582**
		Sig. (2-tailed)		,000
		N	235	191
	The company encourages employees to think globally	Correlation Coefficient	,582**	1,000
		Sig. (2-tailed)	,000	
		N	191	191

Discussion

According to the Learning Organisation Model (Watkins & Marsick, 1993), learning organisations first should see if they can identify themselves with the concept itself. For this, they need to understand what learning and knowledge are, how the learning process is structured and what the relationships are between the different dimensions of the model.

The results show that organisations seem to focus most on creating opportunities for continuous learning, stimulating interest and dialogue, and encouraging teamwork. Areas with less emphasis are (1) encouraging employees to participate in shaping the vision, (2) connecting to the environment, and (3) creating knowledge capture systems. Creating opportunities for continuous learning and encouraging collaboration and teamwork are thus common in organisations, and the results of the questionnaire suggest that both have an impact on perceived customer satisfaction. If we take Nonaka and Takeuchi's (1995) spiral model and consider its first step, namely, socialisation, we understand that individuals' tacit knowledge is surfaced and shared in groups through collaboration. However, externalisation – where knowledge becomes explicit through fixation and shared within teams – does not necessarily take place. In its absence, the combinatorial phase – where explicit knowledge is interpreted, sorted, synthesised, and transformed into new forms – is also difficult to achieve. Hence, this calls into question the internalisation phase, where new knowledge would be put into practice and adapted to individual knowledge. One of the challenges of knowledge management is organisational learning, which is based on the learning of individuals, because "without individual learning there can be no organisational learning, but individual learning is no guarantee of organisational learning" (Senge, 1990, p.139). From the organisational point of view, an important aspect of knowledge management is the feedback of experience and the incorporation of knowledge into the memory of the organisation in a way that allows for two-loop learning. This means that the organisation, and

within it the individual, is constantly reflecting on and 'questioning' the practices and processes already in place (Gamble and Blackwell, 2001).

Another challenge today occurs in adult learning, namely, how to shift access to learning content and responsibility for learning into spaces that are sufficiently flexible and open to individual learning pathways, and how to make it attractive for adults to take the risks that arise from the contrasts between current knowledge, values and norms and new knowledge, while the expected rewards are unknown. It is essential that both the organisation and the individual benefit from the advantages of knowledge transfer (cf. Senge, 1999). Several concepts of work-based learning define the workplace as (1) "a workplace where knowledge is created and shared", (2) "the workplace is part of the knowledge society" or (3) "the workplace is an organic entity capable of capturing and adapting knowledge" (Candy and Matthews, 2003). Learning and knowledge are closely related concepts, which also implies that effective knowledge management systems must take into account the differences between learners and the factors that influence adult learning (Gamble and Blackwell, 2001,).

Providing continuous learning opportunities and encouraging cooperation and teamwork are common in companies, and the results of the questionnaire show that both have an impact on customer satisfaction. Less common is the Presence of systems for capturing knowledge, which also has an impact on customer satisfaction, so improving this area could have a positive impact on the relationship between providers and their customers. Petr Suchánek and Maria Králová (2019) studied the correlation between customers' product knowledge and customer satisfaction. Results show that product knowledge directly influences satisfaction and business competitiveness, which is also influenced by customer's loyalty (Suchánek, Králova, 2019). This means that in the long term, it is vital to take the knowledge of the products and the customer's behaviour into consideration, which also emphasises our study's results that the Presence of systems for capturing knowledge has an increasingly important role in knowledge management systems. The customer data helps to understand the customer, so to develop strong bonds of trust and commitment with them (Rajan & Jayanthi, 2020). Sharing information about customers, customer involvement, long-term partnerships, joint problem solving, and technology-based CRM can lead to business success and enhance innovation capabilities, namely product, process, marketing, service and administrative innovation (Migdadi, 2019). Recently organisations realised that KM plays a key role in CRM success (Salomann et al., 2006) as CRM processes are based on a large amount of knowledge (Bueren et al., 2005), so this led to the integration of customer relationship management (CRM) and knowledge management (KM) (Migdadi, 2019).

In both Nonaka and Takeuchi (1995) studies and Watkins and Marsick's (1993)' models, management plays a significant role in knowledge management, which our results have also confirmed. We thus claim that managers should be aware of their role in managing organisational knowledge and be willing to reflect on and adjust their behaviour which influences the complex processes of becoming a learning organisation.

In so doing, the ICT investments pay off; our results show that the more it is invested in ICT infrastructure, the more likely the organisation will have more highly skilled employees in its total workforce. As a result, there should be an increase in employees who acquire new skills. However, it should be remembered that ICT only provides the essential infrastructure and the environment to support learning; more is needed to encourage effective learning (Barret, 2004). Hence, technology facilitates knowledge management, accelerating and facilitating organisational learning; it increases the organisation's ability to make more informed decisions and may impact its performance and competitiveness. Nevertheless, the human dimension contributes to organisational learning, which then plays a crucial role in the efficient implementation of information technology systems, primarily when enterprise resource planning (ERP) and customer relationship management (CRM) systems are used (Malik et al., 2018).

In terms of tools, the organisations surveyed use a wide range of information technology; the most common are video or teleconferencing systems, while the least common is the Presence of the "Best Practices" forums. The use of video and teleconferencing positively impacts several dimensions, such as the creation of continuous learning opportunities, the encouragement of collaboration and

teamwork, and the perception of managers' strategic approach to learning. The Presence of a "knowledge repository" database shows positive correlations with all dimensions of the DLOQ questions that the availability and the use of an information database on products/services influences the stimulation of interest and dialogue among employees, the Presence of knowledge capture systems, the shaping of the company vision and the strategic attitude of managers towards learning. Among the training opportunities and systems, in-person training significantly impacts employees' perception of creating continuous learning opportunities more than online training. The least common systems are the "Best Practices" forums, although these positively impact all dimensions of the DLOQ questionnaire. Social platforms have the most significant impact on the perception of teamwork.

As for how organisations operate knowledge management systems and whether they are likely to become networked learning organisations, we found that the continuous learning needs of management impact the development of a learning culture. The more positive the respondents felt about this, the more they perceived the "presence of continuous learning opportunities", the "encouragement of interest and dialogue", the "encouragement of collaboration and teamwork", and "the opportunity to participate in shaping the vision" as positive. Further, where managers support employees to participate in shaping the vision, there is a greater likelihood that teams will be given space to shape their goals, focus on collaboration and are more likely have a reward system for shared success. Additionally, the up-to-date information managers provide impacts how employees perceive the creation of continuous learning opportunities and the encouragement of cooperation and teamwork. In other words, the more informed employees are about issues affecting the organisation, the more likely they are to create individual and group learning conditions, including collaboration and teamwork. Encouraging interest and dialogue also create opportunities for continuous learning and teamwork and for connecting with the environment. Namely, where this is encouraged, employees are more likely to help each other learn, identify skills for the future, talk openly about mistakes, pay attention to team collaboration (including rewards), and the company provides resources for learning. Encouraging dialogue also impacts taking customer perspectives into account and achieving global thinking.

Mentoring, by one definition, means a technique that strengthens knowledge management by giving opportunities for conversations across boundaries and creating a new opportunity to meet experts both inside and outside the organisation (Chakpitak, 2010). Based on our results, mentoring and development also substantially impact continuous learning opportunities. Where some form of the mentoring process is in place, employees are more likely to help each other learn, interest and dialogue are encouraged, employees interpret problems as learning opportunities, and they are more likely to consider the customers' perspectives. Where mentoring opportunities are available, there is a greater chance of motivating people to learn from each other. Mentoring is an effective method of transferring knowledge that contributes to building the organisational memory, which has significant potential for organisations' competitive advantage. A request to train and mentor others means empowerment that has a positive effect on the organisation-based self-esteem also (Dunham, 2010); it brings an additional benefit by supporting building relationships and trust within the organisation (Chakpitak, 2010).

Finally, if the organisation is more environmentally focused, employees are more likely to be willing to think globally and take customer perspectives into account. However, although respondents who perceived IT systems as easy to use rated learning opportunities in the company higher, IT infrastructure is necessary but needs to be a sufficient condition for becoming a learning organisation. The enlisted other human dimensions must also be available. Cooperation with and embeddedness in the external environment shows weak results, although it positively impacts the creation of continuous learning opportunities. In line with our findings, Von Krogh, Roos and Slocum (1994) place particular emphasis on the network of communities, which is inevitable today without an account of virtual communities. It also shows where firms who want to become learning organisations can implement development plans.

As for the relationship between connectivist learning techniques, systems and tools and knowledge acquisition and transfer processes, we found that cooperation with external organisations has a clear

positive impact on creating continuous learning opportunities. Thus, the more prevalent such collaborations are, the more confident the Presence of ongoing learning opportunities is. Moreover, the more prevalent the Presence of ongoing learning opportunities is, the more prevalent collaborations become. Similarly, the more dominant the Presence of continuous learning opportunities is, the more likely employees will be able to think globally.

Conclusions

Our study shows that organisations may need to be fully aware of what learning and knowledge are, how their learning processes may be structured and how these could help them to become a learning organisation. They primarily focus on providing continuous learning opportunities to the employees, neglecting other essential factors such as connectedness to the environment or establishing systems for capturing knowledge. They face challenges in effective adult learning, especially in the externalisation and internalisation phases. Implementing mentoring processes hence could be an efficient tool to provide partial solutions.

Customer satisfaction is a crucial success factor for business competitiveness, although its connectedness to knowledge management systems needs to be recognised and more integrated, as we found in this study. Understanding and enhancing this factor could lead to increased productivity and innovation capabilities.

This study also claims that managers may need to be more fully exploiting their potential for managing organisational knowledge. However, their behaviour influences the complex process of becoming a learning organisation. Development of the learning culture also relates to their potential; nevertheless, some factors, such as encouragement of shared interest, dialogue, teamwork, and collaboration or employees' participation in shaping the companies' vision, clearly play a supportive role in this regard.

Finally, ICT investments pay off; although technology can only be seen as a facilitator of KM, there needs to be a clear understanding of technology's influence on other dimensions such as strategy, leadership, future vision and continuous learning opportunities.

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