LINKING ICT IN KNOWLEDGE MANAGEMENT IN ORGANIZATIONS

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Abstract: *Knowledge management in organizations adapts to the changes and trends demanded by the context, in the same way it is in function of creating a culture where organizational information flows to the corresponding actors in a timely manner and throughout the company, supported by technological tools that facilitate the storage and access to information for decision making in compliance with achievements. This article aims to analyze the importance of Information and Communication Technologies in Knowledge Management from the perception of employees of small, medium and large companies operating in the city of Bogotá, for which the variables knowledge management and ICT as knowledge management policy were worked on. It is a descriptive and correlational study, applied to a sample of 386 companies through an instrument with Likert-type reagents. Among the results it was found that there is a strong and positive relationship between knowledge management in organizations andInformation and Communication Technologies.*

Keyboard*: Knowledge management, Information and Communication Technologies, Likert-type*

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Introduction

Within this framework, Information and Communication Technologies (ICT) have been considered as a fundamental instrument to facilitate KM in organizations, given that electronic devices, the internet and intranet, among other resources, allow searching, creating, storing, communicating and sharing information (Rowe, 2013) in a secure manner, through different processes, techniques and tools, in order to improve organizational decision-making (Stirbu et al., 2015). Thus, understanding the correlation and importance between the application of technology and KM in an organization is of vital importance, given the ability of individuals and companies to generate information that then, by the contribution between computing, telecommunications, networks and data processing (Quintanilla, 2014), becomes organizational knowledge, which provides competitive advantages for the current and future market.

While it is true, these technologies are a support and strengthening for the procedures of organizations as they are a mechanism in the management of information that involves work and communication resources (Cebrián et al., 2015) in order to optimally manage their knowledge. However, although theadoption of ICT are pillars for the development of QM, business effectiveness and success not only depends on the preference of the technologies to be applied, but also on factors that, if not managed properly, become organizational, individual and technological

limitations and difficulties (Bojica & Fuentes, 2012), which hinder KM, such as: the activity to be carried out with ICT, the physical and digital resources available, the management that workers make of traditional and modern technologies within their work activities, as well as the implementation of the policies that the company has for ICT in QA (Valle-Castañeda et al., 2019). Based on the above, this study aims to analyze the perception that workers have in relation to the culture of ICT use and the importance of ICT practices in Knowledge Management in companies in Bogotá. Topic of interest, if one takes into account that ICT are fundamental instruments in all areas of the company, in addition to supporting the generation, dissemination and use of knowledge, according to organizational policies.

1. Literature Review

For his part, García (2015) studied the textile group Zara to evaluate how ICT influences knowledge management processes, innovation and co-learning within organizations. The results revealed that this company uses different types of tools, such as management systems based on electronic communication or process automation. Also, that the combined use of these ICTs implies positive effects on the processes of socialization, externalization, combination and internalization of knowledge management. In addition, they identified that ICT co-learning favors the development of a "living fashion" that implies product innovation and a policy of short-line production and zero stock (process innovation) in the company. Bleeker (2020) also investigated the role of ICTs and QA in supporting sustainable development in the multi-island islands of St. Kitts and Nevis, Trinidad and Tobago and the Turks and Caicos Islands. It focused on the areas of health, education and governance. It concludes that the ability of these countries to benefit from ICTs and QA depends on several factors, including the availability of ICT infrastructure, people's access to ICT services, and an e-governance framework across all government agencies that is tailored to the needs of the population.

The positive position of SMEs in the region regarding the use of ICTs to promote the dissemination of knowledge throughout business levels was ratified. It also concluded that SMEs have limitations in their administrative process, since this is empirical and not specialized, which means that most of this type of organizations do not have large areas defined and dedicated to specific functions, as is the case with large companies. In Ocaña, Manzano-Durán (2020), he correlated the mechanisms that make organizational learning possible with the ICTs used by micro, small and medium-sized enterprises (MSMEs). The population analyzed was made up of 120 managers of MSMEs. The data reflected that these companies still continue to prevail traditional technologies over collaborative and analytical technologies.

2. Theoretical framework

Knowledge Management in companies.

In addition, to the obtaining and use of resources that allow the storage and access by workers to information when required, to strengthen their own skills, for the benefit of the organization (Espinoza, 2018). In the words of Muñoz (1999), KM consists of obtaining the appropriate knowledge for the right subjects, in the period and with the propitious means to share that knowledge, in order to improve the results of the companies.

In the same order, the QA focuses on creating value by taking advantage of the resources that exist inside and outside companies, especially the knowledge that is necessary to promote the differentiating knowledge required by trade and thus compete efficiently in the environment. This effort to create a differentiating character with its own baggage of knowledge leads organizations to work hard to preserve this knowledge that allows them to be effective by learning from experience and potentiating good practices based on knowledge (ISO 30401, 2018) in order that this information is not lost, nor monopolized (Elizondo, 2019) or is weakened by personal interests, but on the contrary allows an individual and collective benefit, in such a way that the cognitive skills of employees are potentiated and thus, print a characteristic identity of these in favor of the processes, objectives and the development of new knowledge of the company.

ICT in organizations

Thus, obtaining benefits from the implementation of ICT in organizational contexts requires processes, policies, rules where sharing and collaborating (Montoya, 2018) based on knowledge occupy a central place in the work of those who use them. In this way, they are considered a determining element of the cultural system (Aguaded, 2005) that welcomes them for the design of business strategies based on teamwork. Since, if they are used correctly and focus on the key competencies of the business, they favor growth and promote the generation of new knowledge of the organization (Rodríguez, 2015). In the words of Montoya (2018), technology is not a simple medium, but has become an environment and a way of life due to its impact on institutions according to their particular characteristics.

Relationship between QA and ICT in organizations

Knowledge is considered the most valuable intangible asset for organizations (Edvardsson & Durst, 2013). Therefore, the management of this knowledge must be aimed at providing environments conducive to the generation and transmission of business information according to internal and external changes in the environment. Action that is developed in the interaction between people, own operational processes and technology; the latter considered a resource that allows companies to adapt to the digital tools that best suit their needs, to share and transfer effectively, constantly and more quickly organizational information, in a collaborative scenario for the creation of intangible assets that maintain the characteristic model of knowledge (Bom, 2018). In this sense, some studies have shown the benefits of linking ICT in QM, according to Anderson et al. (2014), this relationship between knowledge and technology is mainly used in the design of new products and in the improvement of company processes. Cannella & McFadyen (2013) consider that technological knowledge is significant in production planning, human talent management, R+D, marketing and finance.

3. Methodology

A quantitative study of descriptive and correlational level was conducted. The dimension, ICT in Knowledge Management, composed of two variables: knowledge management and ICT as a policy in knowledge management, was worked on, with 6 and 7 items respectively. Cronbach's alpha for the overall dimension was 0.915. The values for the variables are 0, 852 and 0.835 respectively, accounting for being a consistent and reliable instrument. The sample worked is composed of public, private and mixed companies that add up to a total of 386.

Values are taken for the analysis with which it was possible to know the level at which the variables are in these organizations, as well as the correlation between the variables without any manipulation of these, which attributes to being a quantitative study according to Hernández, et al. (2014). In this way, the reagents were around information perceived from the reality in which employees live in organizations, with which they realized the actions based on knowledge management and the use of resources, tools, equipment, computer programs, applications, networks and media, realizing being a qualitative study, as the way in which the data was obtained allowed to know the reality of the business context in their daily lives (Baena, 2017).

The intervals are established from the method of minimums and maximums. The measurement of each variable worked was obtained by the SPSS where the dimensions according to their number of reagents are levels of low, medium and high according as shown in table 1:

Table 1.

List of incidence levels in the variables studied

Item	Variable	Low	Middle	High
6	Knowledge management	6 – 14	15 - 23	24- 30
7	ICT as a policy in Knowledge Management	7 – 16	17 - 26	27 - 35

Note. Data resulting from the baremación process from the measurement needs of the variables.

The study began with a literature review through a specialized database so that, from there, the applied instrument could be designed and adjusted. Next, the instrument is validated with the help of the SPSS statistical package and then systematizing, analyzing and reporting.

4. Results

The GC has immersed a large flow of information that is obtained on the processes and procedures of business action, in order to facilitate access and storage of this data, both policies and the correct implementation of these are required in the use of technological tools, and thus contribute to the information is maintained over time for people and at the times they are needed (Pérez &Urbáez, 2016).). From the information collected, the following information was found which is delivered by variable worked.

Knowledge management

According to the information collected, it was found that the organization establishes mechanisms that allow the acquisition, incorporation and optimization of knowledge in work teams through periodic feedback meetings of their activities, this is reported by 87.3%, while 12.8% either have indecision or disagree that this occurs. 62.7% agree that in the company there are formal mechanisms that allow the exchange of experiences and good practices based on the resolution of problems experienced by employees in their work in the workplace; Disapproval is high compared to the fact that these mechanisms are in the company, since it is a value corresponding to 37.3%.

It was found that 87.1% realize that communication flows permanently in the company where its objective is to sensitize its employees with the rules, procedures, policies and internal processes, of the 12.9% that make up the undecided and those who do not perceive it is an 11.1% that definitely does not perceive it. Meanwhile, 74.4% report that the company shows concern in the constant updating of technological tools in terms of hardware / software, likewise the remaining 15% do not know or ratify that it is not perceived.

Table 2.

Variable: knowledge management

Option	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18
T/ disagree	3,9%	2,3%	3,1%	4,4%	2,6%	7,5%
Disagree	7,5%	12,4%	9,8%	19,9%	18,7%	26,7%
It-It's	1,6%	0,3%	2,1%	1,3%	1,0%	0,8%
I agree	47,2%	54,1%	52,6%	50,3%	50,3%	44,8%
T/ Agree	39,9%	30,8%	32,4%	24,1%	27,5%	20,2%

Note. Own elaboration (2023), based on data from the instrument applied.

Faced with the fact that the company shows concern in updating its employees based on the use and use of existing communication technologies through training, 25.6% are either undecided or definitely feel that it does not exist; However, it is the majority, 74.4% who realize that it does. 50% believe that the company clearly shows that the technological tools available are effective in the learning and continuous improvement of their employees in front of their job.

ICT as a knowledge management policy

Faced with the fact that the company shows that it is important to use ICT to facilitate the sharing of knowledge (conferences-training-training), it was found that 77.8% perceive it, while the difference is in denoting that they do not perceive or definitely do not know.

79.8% admit that it is identified that the company guarantees, from their jobs, that employees have access to ICT. Likewise, 61.7% realize that for the company, ICT is essential in daily activities.

For 82.7%, the company evidences the use of ICT frequently for monitoring customers, suppliers and / or competition. Similarly, for 79.3%, the company evidences the need to use ICT to carry out its trade process.

Table 3.

Variable: ICT as a knowledge management policy

Option	Item 19	Item 20	Item 21	Item 22	Item 23	Item 24	Item 25
T/ disagree	1,6%	7,8%	3,6%	5,2%	5,4%	3,1%	11,4%
Disagree	17,1%	29,0%	12,4%	14,2%	15,5%	18,4%	37,0%
It-It's	1,6%	1,6%	1,3%	1,3%	0,5%	1,6%	1,6%
I agree	54,4%	40,2%	44,6%	47,2%	52,6%	50,0%	32,4%
T/ Agree	25,4%	21,5%	38,1%	32,1%	25,9%	26,9%	17,6%

Note. Own elaboration (2023), based on applied instrument data

78.5% consider agreeing or totally agreeing that the company has ICT available and easily accessible to employees in general. Likewise, 86.9% estimate that the company uses ICT to improve and monitor products and/or services.

Table 4.

Level per variable

Level	V1	V2	T General
Low	6,0%	5,7%	4,9%
Middle	40,7%	48,4%	42,5%
High	53,4%	45,9%	52,6%

Note: V1: ICT in Knowledge Management. V2: ICT as a knowledge management policy.

When trying to expose from the quantitative the perception of the informants in the study, it was found: with regard to ICT in knowledge management and ICT as a knowledge management policy, they have a high level of 53.4%, and 45.9%; average of 40.7% and 48.4% and low respectively, 6% and 5.7%. Likewise, at a general level, a high, medium and low level of 68.1%, 30.3% and 1.6% is reported. Similarly and based on the fact that the sample is 386 cases, it was decided to work the Pearson R test in order to establish the relationships between the variables, as between these the characteristics of the companies, for which it was found that there is a strong direct and positive correlation with the variables among themselves, this taking into account that the Pearson coefficient between them has a value of .685**. In turn, as shown in Table 5, it is established that the relationship between variables and the type, size and age of the company found the following: ICT in knowledge management, 006; 220** and .009, thus showing that, respectively, the correlation is non-existent with the type and age of the firm and the existence of a weak correlation with size. As for ICT as a knowledge management policy, there is a relationship, but weak for the size of the company: .220** and non-existent for the others.

Table 5.

Pearson correlations between variables

		V1	V2	Type of Company	Company size	Age of the company
V1	C. de Pearson	1	,685**	0,068	,220**	0,091
	Sig. (bilateral)		0,000	0,185	0,000	0,075
V2	C. de Pearson	,685**	1	0,042	,219**	0,004
	Sig.	0,000		0,412	0,000	0,934

	(bilateral)					
Type of company	C. de Pearson	0,068	0,042	1	0,079	-0,034
	Sig. (bilateral)	0,185	0,412		0,122	0,508
Company size	C. de Pearson	,220**	,219**	0,079	1	,319**
	Sig. (bilateral)	0,000	0,000	0,122		0,000
Age of the company	C. de Pearson	0,091	0,004	-0,034	,319**	1
	Sig. (bilateral)	0,075	0,934	0,508	0,000	

**. The correlation is significant at level 0.01 (bilateral).

Note: V1: ICT in Knowledge Management V2: ICT as a knowledge management policy

The following table reports that there is a positive, strong and direct relationship between the general dimension and the variables: ICT in Knowledge Management and ICT as a knowledge management policy, showing respectively a correlation of .823** and .842**.

Table 6.

Correlations between General dimension and variables

		D	V1	V2
D	Pearson correlation	1	,823**	,842**
	Sig. (bilateral)		0,000	0,000
N		386	386	386

**. The correlation is significant at level 0.01 (bilateral).

Note: D: General dimension, V1: ICT in Knowledge Management

V2: ICT as a knowledge management policy.

Thus, it is inferred that, although there are low and non-existent relationships, the observed variables are not independent. Similarly, it is noted that the existence of correlation between the variables does not imply that there is causality between them.

5. Conclusions

On ICT in knowledge management, research demonstrates through the variable of this that: 1) communication flows permanently in companies to sensitize their employees about rules, procedures, policies and internal processes; 2) companies still use traditional technologies to address opinions, suggestions, needs and complaints from their customers; 3) companies regularly update their processes and train their employees in installed technologies; 4) Organizations use digital and traditional technologies in their organizational communication to share knowledge and notifications.

In reference to the variable ICT as a knowledge management policy, it is reflected that: 1) companies guarantee, from their jobs, that employees have access to ICT for their daily work activities; 2) technological tools are useful for the learning and continuous improvement of employees; 3) organizations make use of ICT for the monitoring of customers, suppliers and / or competition, as well as the improvement of products and / or services; 4) ICTs are relevant to carry out your trade process.

The analysis of results also found that the second most relevant relationship is that the use of ICT has a positive effect on organizational information storage. The literature indicates that ICTs allow

searching, classifying and storing information, as well as having documents and content, at the moment in which users need to consult them (Quintanilla, 2014; Díaz et al., 2017). Likewise, companies make use of ICT to monitor customers, suppliers and / or competition, these results are similar to the data obtained in studies by Buenrostro and Hernández (2019), Spagnol (2015) and Muñóz (1999) who have indicated that ICT are resources to acquire information from actors external to the organization in order to use it for planning, Impact studies, evaluation and monitoring.

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