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## The Impact of Knowledge Management Processes on Organizational Innovation

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### Abstract

This study is aimed at identifying the effect of applying knowledge management processes on the organizational innovation in Qatari telecommunications companies. In order to achieve this goal, the researcher relied on the descriptive and analytical approach and designed a questionnaire and distributed the same to the study sample which is consisting of (322) employees who work for Qatar Telecom, (Ooredoo) and Vodafone Qatar. The study found out that there is a high relative importance of knowledge management processes, where the arithmetic average was (4.100), and the relative importance of organizational innovation was high, and hence, the arithmetic average reached (4.061). Furthermore, the study found out there is an impact of applying knowledge management processes in achieving organizational innovation, besides an impact for each of knowledge acquisition, knowledge sharing, knowledge storage, and knowledge application in achieving organizational innovation. Accordingly, the study recommended an increase in the level of interest of the Qatari telecommunications company's management in providing all the conditions and requirements for applying knowledge management processes, and paying more attention to organizational innovation, besides providing the necessary supportive environment for the creative and distinguished.

**Keywords:** Knowledge Management Processes, Organizational Innovation, Telecommunications Companies, Qatar.

### Introduction

During the past years, various developments and changes have appeared in the business environment represented by the acceleration of competition and the speed of globalization, which have made organizations compete in working on the development and raising the level of knowledge and innovation so as to face these challenges, since reaching the best level of knowledge management, which is considered as one of the most important specialized administrative matters, forms a fundamental pivot in enabling the organizations to achieve their goals and objectives (Aljawarneh et al., 2020). Therefore, knowledge management is considered as one of the things that contribute to making companies keep pace with the rapid changes in a tremendous way (Banyhamdan et al., 2020). Therefore, the companies are always seeking to reach innovation and innovation. Jones (Jones, 2013) considered knowledge management as a way of gathering experiences and coherence to be capable of

making appropriate decisions. In this context, the world has also witnessed the emergence of strong forces that affect organizations and sometimes reshape them, and most importantly globalization that directly interfered with the economy and management. which greatly affected the change of customer and customer market trends, and thus, changing the competitive advantage indicators (Alshare et al., 2020). From this point, organizations should have speed in responding and keeping abreast of these changes, which can maintain their continuity (Alsafadi et al., 2020; Shrouf et al, 2020). for which there was an emergence of several departments that worked to find several entrances to improve production and develop performance, including reinvention and re-engineering (Masaleh, 2013; Al-Qudah, Obeidat, & Shrouf , 2020). Moreover, knowledge is considered as one of the modern concepts that the literature has paid great attention to as it is one of the cornerstones for achieving organizational goals (Taha and Youhanna, 2013), and just as most organizations have abandoned traditional methods of obtaining, collecting and sharing information to face the technological and economic changes of globalization which has the greatest impact in highlighting the importance of knowledge to them (Masalha, 2013).

Accordingly, and in light of the tremendous changes, organizations have begun to resort to organizational innovation, since it is the basis of excellence and works to perpetuate it, especially as innovation is considered as one of the most basic matters in contemporary management. Therefore, it is necessary for the organizations to move away from traditional methods of various forms since focusing on these methods will lead to failure. Accordingly, the management of organizations has a full awareness of contemporary concepts in the environment of organizations including organizational innovation, as the latter expresses the organization's ability to reach distinct and appropriate ideas that benefit them (Sabry, 2010; Irtameh, Obaidat & Khaddam, 2016; Al-Da'abseh, et al., 2018).

It is worth mention that Qatar's Telecom sector is witnessing a great competition due to the presence of two large companies to manage the Qatari telecommunications service, namely: (Vodafone and Ooredoo).

Both of these companies are trying to remain within the level of competition in the market, which requires them to follow successful methods in order to help them improve their activities and upgrade their standard of services to ensure their ability to compete (Mahafzah et al., 2020). Therefore, they are encouraged to benefit from the knowledge they acquire in line with the developments and challenges witnessed in the telecommunications sector, and to embark on innovation so as to be able to excel and compete. Accordingly, and through the interviews conducted by the researcher with some individuals who are working in the Qatar Telecom Company, it became evident and clear that the problem of the Qatari telecommunications companies at the present time is their inability to compete due to the absence of their creative elements and components, and their focus on formal and material aspects in a way that outweighs their interest in knowledge. Hence, the problem of the study is to show the effect of applying knowledge management processes on the organizational innovation in the Qatari telecommunications companies.

### **Knowledge Management**

The concept of knowledge is an old and new concept at the same time. Philosophers have begun writing on this topic hundreds of years ago, but, the connection of the concept of knowledge and its management with the organization and organizational innovation is somewhat relatively new (abualoush et al, 2018), despite the fact that many writers have raised this topic, however, he is considered as one of the few people who has written about

this relationship along with the extent of its connection (Hussein, 2010). In the first American conference on artificial intelligence, Freignebaum had referred to his famous phrase known as "Knowledge is Power", where he called for placing the organizational thought in front of the challenges of knowledge management and its processes. Therefore, and since that time a new job title was created, which is called "Knowledge Engineer" which goes back to 1980. But, in 1997, another field appeared, as its emergence was as a result of realizing the great importance of knowledge and its management in an era where information has revolutionized and that was the field of "Knowledge Management" (Information Systems and Knowledge Management Website, 2007).

However, most philosophers, writers and researchers tried to develop a specific concept of knowledge, but, they could not find a specific and comprehensive definition thereof, instead, there is almost an agreement that it is a valuable resource and gain, and it is a great wealth for both the individuals, and, thus, the organizations (Al-Omari, et al., 2018). It is, therefore, about data, information, observations and experiences accumulated by the individual, and it was also known as maximizing the use of all data and information in the organization, and contributing to maintaining competitive excellence (Ishaq, 2013). Both Omerzel and Gulev (2011) have indicated that knowledge is one of the strategic sources of the organization and its importance lies in maximizing the human value of employees.

As for the concept of knowledge management, it is considered as one of the new administrative concepts that affect the work environment by occupying a prominent, effective and vital position in various administrative fields, as it is a set of processes and practices that the organization takes as a basis for identifying, collecting and storing knowledge and sharing the same with stakeholders for the purpose of awareness and addition of a scientific value that positively affects the functioning of the organization's performance (Ghazali, 2016; obeidat, 2019). In addition, knowledge management is an intellectual but intangible investment that made the administration think carefully about how to benefit from it and how to create qualified human elements capable of obtaining, processing and analyzing them, and hence taking advantage of using it in the performance functioning more effectively and efficiently in the organization (Taha and Youhanna, 2013). Accordingly, (Garcia & Coltre, 2017) defined it as "The interaction of tacit knowledge and the experiences, ideas and skills it contains, and with the apparent knowledge resulting from interaction with the external environment." (Masalha, 2013) added that knowledge management is the management of technologies, tools and human resources used to collect, disseminate and manage knowledge in an organization. Accordingly, knowledge management is characterized as the techniques, tools and human resources used for managing and disseminating knowledge within the organization (Al-Omari, et al., 2020; obeidat et al, 2018). Meanwhile, Harem (2009) defines it as the activities and processes related to the acquisition, building and preservation of knowledge through coding, storing, assimilating, transferring, participating in and applying it to achieve the organization's goals (Harem, 2009). Masalha sees (2013) that it is the methods and techniques that help organizations obtain knowledge, test, organize, use, publish, and convert it into important information. On the other side, Al Maani (2009), believes that knowledge management processes include knowledge acquisition, knowledge storage, retrieval and documentation, knowledge sharing, and, then, application of knowledge. Therefore, it is clear from the above that most researchers have agreed on the fact that knowledge management processes can be summed up in four dimensions (Allameh et al., 2011).

### **Knowledge Acquisition**

Taha (2013) indicated that acquiring knowledge in an organization does not mean obtaining information or generating new knowledge, rather than the ability of the organization to create and take lead with the knowledge it possesses by developing the relevant ideas and finding alternatives throughout interactions between the types of visible and implicit knowledge. and, thus, rearranging the knowledge it possesses, which would create new solutions and new acquired knowledge (Aljawarneh & Al-Omari, 2018). Hence, the techniques of knowledge acquisition is either made through observation and interviews, which is well known as the traditional technique or methods, or by electronic brainstorming, which is the method used by the concerned parties in order to reach the implicit knowledge, i. e. the non-traditional method, which is translated through the collection and polarization of tacit knowledge. In addition, (Mohajan, 2017) emphasized also that the task of acquiring knowledge is considered as one of the most complex tasks, but, it is the most influential one in the long run on the success and continuity of the organization.

### **Knowledge Sharing**

Cognitive sharing was defined by the researchers Jajiq and Zakia (2015) as one of the important processes in knowledge management which is based on transferring and disseminating information in a way that ensures its positive reflection on individuals and workers in the organization, and, thus, on their energies and abilities, and positively affects the achievement of future goals of the organization. In addition, it is a process that takes place between a group of individuals and workers who share goals, tasks, or even similar problems. However, such sharing is not limited to an apparent knowledge, but, it, also, includes implicit knowledge (Al-Hadrami, 2017). In this context, Zayed et al. (Zaied et al., 2012 Saffar, & Obeidat, 2020) defined knowledge sharing as the process of transferring knowledge acquired from its sources whether (Internal or external) into models applicable in practical reality, which increases the productivity of the organization. Al-Hadrami (2017) added that knowledge sharing is the flow of information and ideas from one person who owns it to another person who needs it. Moreover, it is possible for the recipient of this knowledge may add to it according to what his work tasks may entail or what the solution to his problem may require, thus, it shall become shared between the two parties, the sender for the knowledge and its recipient, and hence it will not remain in the possession or acquired of one person without the other. On the other hand, Ishaq (2013) believes that it is possible to spread knowledge, especially implicit ones, through dialogue between individuals and training. Meanwhile, virtual knowledge, it can be transferred or published in a number of ways including internal documents and publications, and even through interviews and notes between workers, and that the important part in transferring knowledge is to ensure the arrival of knowledge to the one who acquires the same in the most appropriate way and at the right time. As for Sawalha (2013), he indicated that spreading knowledge or sharing it takes place at the level of individuals or workers and the organization, so, between the individuals it is gained through speaking and helping each other to do a specific work quickly and more effectively. Meanwhile for the organization, it is made by finding and creating knowledge, reusing it, and adding it to the existing experiences in the organization and hence making it available to other organizations(Mahfodh & Obeidat, 2020).

### **Knowledge Storing**

Certainly, the organization has made a great effort in obtaining, acquiring and employing knowledge in a way that suits its tasks and objectives that it seeks to achieve. But, such information or knowledge is subject to loss or forgetfulness, hence, we find that storing knowledge is a very important process in knowledge management. (Taha and others, 2013; Obeidat & Otibi, 2015).

Therefore, knowledge storage is called by the term (Organizational memory) as the first type of the organization's memory through which past activities and knowledge in the organization are identified. Meanwhile, the second type of memory is called (Episodic memory) which is set for specific situations or associated with a specific event (Taha, 2013). Al-Sawalha (2013) points to the importance of the organizational memory as most organizations face some challenges and dangers when losing knowledge, whether for losing it or getting rid of its holder, and hence keeping and storing it is very important, especially for those organizations that have the characteristic of work turnover and dependence on temporary work contracts, as implicit and undocumented knowledge goes with these individuals. Al-Maani (2009) defined it by a procedure of preservation from loss. Therefore, it is possible to preserve knowledge by documenting it, especially implicit knowledge, as this is done by preserving those workers who are distinguished in knowledge within the organization and hence trying to extract this knowledge from their minds throughout training and dialogue, and working on storing virtual knowledge by using modern technological storage methods. Accordingly, Karasneh and Al Khalili (2009) believe that the process of storing knowledge consists of using the database, knowledge and digital documents to save knowledge from loss.

### **Knowledge Application**

Ishaq (2013) indicated that applying knowledge is the goal of knowledge management, i.e. using knowledge at the appropriate time. Therefore, the management must seize the opportunity of their existence, i.e. knowledge, and apply it within the organization and employ the same in solving the complexities and problems it may face, and, thus, reach the point of achieving the organization's goals through it. As for Sawalha (2013), he added that the application of knowledge means the ability of the organization to make the best use of it either by employing and applying it in a way that achieves an effective competitive strategic environment by integrating it with practical reality and solving the problems and translate them into services and goods. Karasneh and Al-Khalili (2009) added that it is the ability of the organization to use the acquired knowledge, apply it in practice, and benefit from it in solving problems through the exploitation of opportunities. In addition, the application of knowledge has also been defined as utilizing it in a way that ensures the achievement of the organization's goals with great efficiency and effectiveness (Maani, 2009).

### **Organizational Innovation**

A number of researchers have adopted the definition of organizational innovation, and the majority of their concepts and definitions were similar, and there was not much difference in it. Accordingly, it was known as a new idea that is not present or familiar, and has been applied in a practical way to increase the production or the service provided. It also adds that the effect of innovation within the organization ranges between making certain improvements in something to creating something of value (Amrawi, 2016; Aljawarneh et al, 2020). It has also been defined as making minor improvements in performance to bring about tremendous and substantial development. These improvements may include production with technology and

management structures, and this definition was before (Badisi et al., 2011). Therefore, the importance of organizational innovation lies on the fact that it works to increase and improve organization services, which will benefit the organization and the individual, and hence provide an opportunity for human capabilities and optimal use of them, besides exploiting financial resources by keeping pace with modern developments and equipment and using different scientific methods in solving problems, which makes the organization the first among its competitors (Competitive Intelligence) (Mahjoubi, 2013). It is assumed also that innovation is a tangible thing in the organization, whether in the practical applications of ideas or in products and decisions as it is derived from the general framework within which the organization operates, thus, achieving its benefits in a way that makes it distinguished among its competitors. Furthermore, flexibility is considered as one of the most important characteristics of innovation and being ready for any sudden and urgent changes that may occur in the organization (Mansour and Al-Khafaji, 2010). Therefore, the organizational innovation is divided into two parts:

### **Administrative Innovation**

Administrative innovation is the change of the organizational structure, the redesign of work, the creation of advanced control strategies and systems which are aimed at improving the relationships between individuals, and, thus, achieving goals (Lam, 2011). Lulu (2015) indicated that it is a redesign of work, policies, procedures and training programs that will increase the relationships of the interactive employee, which results in achieving the desired long-term goals. Accordingly, the importance of administrative innovation from the researchers "Point of view" is summarized as it contributes to the development and training of workers' skills, thus, positively affecting their behavior and performance, and, then, helps create a suitable climate among workers to produce a quantity of ideas that contribute to the development of products aimed at satisfying the needs of customers and excellence, which finally increases the ability of the organization to face problems in a new intellectual way, and, thus, increase the loyalty of employees to the organization, with the positive retrospective effect of innovation (Hafsy, 2018). As the administrative innovation has a great role and a great importance in highlighting the organization among its competitors and achieving its competitive advantage to the extent that it is possible to lead to idealism, the researchers paid attention to this aspect, and they had agreed on several characteristics of innovation, the most important of which was that related to the factors which can be developed and expanded, and, hence, it is an organizational process that is made up of employees, departments and sections (Sarim, 2019). It is also a general human phenomenon present in all people by nature, but, it differs from one person to another depending on the circumstances and environment in which he lives (Shabani, 2016).

### **Technical Innovation**

Researchers have created several definitions of technical innovation, the most prominent of which is the creation and discovery of new products that are considered as the gateway to a new knowledge, and, thus, translate it and apply it in a commercial manner (Gambatese & Hallowell, 2011). Meanwhile, Al-Qurayshi (2008), explained that technical innovation is the result of applying artistic or technical knowledge and ideas, besides improving productivity and reducing costs through a series of successive industrial and technical processes and steps, which are considered as a reason for finding new products (Diaye, 2002). On the other side, Bouncken and others (Bouncken, Koch & Teichert, 2007) stated that there are two directions

to study technical innovation, the first concerned with innovation in products and their continuous development and development, and the second is concerned with customers' needs and trends in products in the market, and, then, work on meeting them.

### **The Relationship between Knowledge Management and Organized Innovation**

Many studies have tried to highlight the role of knowledge management and its impact on the organizational innovation of the administrative levels of the organization, since knowledge is the main source of competitive advantage, when those levels manage it to generate such knowledge, spread and embody it among creative teams in the form and manner that is meant to achieve the goals looked for by the organization. Therefore, the change in markets and technology is increasing rapidly and continuously. Hence, the successful organization is the one that keeps pace with and innovates constantly, seeing the implications of its innovation on the development of its products and services (Hussein, 2009). As the environment of the organizations suffers to a large degree from disruption due to change and rapid technological growth, and, thus, increasing the degree of competitiveness among organizations, it was necessary to generate knowledge, which is the key to innovation, to keep pace with and face these changes and challenges. Therefore, the organization must work to invest more in research and knowledge generation, which allows creating new products through which the organization can maintain its competitive value in the markets (Al-Amawi, 2018). On the other hand, the importance of generating knowledge lies in obtaining and managing it well in improving the organizational performance, methods and administrative processes that ensure innovation in production for the benefit of the organization (Abdel-Al, 2014). In order to ensure the success of productive innovations in the organization, it was necessary to have a management that controls and handles the existing knowledge and how to employ it for the supremacy of the organization. Hence, the effect of existing knowledge management and organizational innovation was evident in converting the amount of knowledge into processes that helped organizations to create and innovate in production very quickly and transform their old products in addition to modern ones required by the market, which also allowed the organization to enter the competitive market. Accordingly, knowledge management is the directive and responsible part for productivity in various forms and formulas (Wahiba, 2018). Also, with the growth of global development in all fields, especially in the field of business, it may generate quantity and accumulation of knowledge that contributes to the advancement of administrative methods and processes in the organization and its advancement of various forms and sizes, as these organizations have become a knowledge entity that only accepts upgrading to administrative philosophies which enhance and support the organization in facing internal and external competitive problems in light of a rapidly changing competitive environments (Al-Khafaji, 2008). In spite of the new amount of knowledge that the organization employs to support its competitive strategy, but, such new knowledge soon becomes traditional and known to everyone. Consequently, the organization seeks again to search for what is new and distinct and turn the same into innovative ideas that support its competitive size (Yahya, 2009).

Therefore, obtaining and searching for high-quality knowledge is considered as one of the important elements for its use, but, at the same time, if such knowledge is not used, employed, and innovated to advance the organization and its goals, it will not have any value (Al-Ghalabi, 2011), since the goal of knowledge management is its application and employment, obtaining, storing and preserving it is just an additional cost to the organization, so, it must invest this knowledge and transfer it to implementation. Furthermore, the success



of the organization does not depend on the volume of knowledge it possesses, but on the volume of knowledge exploited, so, the gap between the available knowledge and the knowledge used is the criterion and the main basis for assessing the success of knowledge management in that organization, especially as knowledge management is somewhat defines the administrative paths in the organization (Ebeid, 2015). Accordingly, Knowledge is the lifeblood of the organization and its way of adapting to modern problems and how to face them, as it is one of the most important resources in innovation, innovation and distinction in light of modern intellectual and technological requirements. Although innovation and innovation are two sides of the same coin, there is a clear difference between them, as innovation relates to creating a new distinct idea that was not previously familiar, and innovation is what puts the idea into practice, meaning that innovation is the actual application of intellectual innovation (Hammoud, 2010) ). It is worth stating that innovation during the past decades has depended on knowledge, regardless of its type, whether the knowledge is explicit or implicit, but, the new matter is that these innovations are totally distinguished from those innovations that do not depend on knowledge, as intellectual capital is the basis for the continuation and success of the organization which plays an important role in the innovation process of working individuals, as new creative ideas emerge from them through their sharing and distribution of knowledge among them, by which knowledge management supports these creative people by making use of tangible assets in the organization, and hence, enhances innovation (Sarim, 2019). Also, the relationship between knowledge management and organizational innovation was strengthened by highlighting the importance of the existence of knowledge to ensure its competitive success, especially as it has the greatest impact in formulating and developing competitive strategies and administrative methods used as the development of knowledge is closely linked to the characteristics of individuals and their capabilities, which supports innovation organizers and competitiveness (Al-Jamous, 2013). In practical terms, the organization is distinguished in its innovation by generating tacit knowledge elements and working to employ them in production, and also working on developing its intellectual capital and using it optimally (Darwish, 2006). Based on the above mentioned, the study assumes the following:

H0 There is no statistically significant effect of the application of knowledge management processes in all its dimensions (Knowledge acquisition, knowledge sharing, knowledge storage, and application of knowledge) in achieving organizational innovation.

H01: There is no statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for knowledge acquisition in achieving organizational innovation.

- H02: There is no statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for knowledge sharing in achieving organizational innovation.

- H03: There is no statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) of knowledge storage in achieving organizational innovation.

- H04: There is no statistically significant effect at the level of significance ( $\alpha \leq 0.05$ ) for applying knowledge in achieving organizational innovation.

## Methodology

The researcher adopted the descriptive and analytical approach to describe the phenomenon in question, which is represented by the application of knowledge management processes and its impact on the organizational innovation in Qatari telecommunications companies. The study population is represented by the Qatari telecom companies, which is two companies as at the end of 2019, namely: Qatar Telecom (Ooredoo), whose number of employees is

approximately (1560) male and female employees, and Vodafone Qatar, whose number of employees is approximately (440) employees. Therefore, and due to the limited number of Qatari telecommunications companies, all telecommunications companies were taken to represent the study sample. The inspection and analysis unit included individuals working in Qatari telecommunications companies, whose number is approximately (2000) male and female employees, and who fall under the following job titles: Director, Section Head, Assistant (Director - Section Head), and an employee. Sekaran statistical table was relied upon to determine the size of the acceptable sample, where a random stratified sample of (322) male and female employees was drawn from the study population (Sekaran & Bougie, 2010). In addition, the researcher distributed (322) questionnaires to the members of the study sample, and (306) questionnaires were retrieved, out of which (31) were questionnaires that could not be analyzed due to the incompleteness of answering some of its paragraphs or following the one-style method in answering its paragraphs, so the researcher has (275) questionnaires recovered which can be statistically analyzed, i. e. 85.4% of the total distributed questionnaires, and that was a statistically acceptable percentage. The following table provides a summary of the distributed, retrieved, excluded, and analyzable questionnaires and their percentage in the Qatari telecommunications companies in the study sample.

### Study Tool

The researcher designed a questionnaire consisting of the following parts:

- Part One: This part contains general (demographic) information for the members of the study sample, which are: gender, age, educational level, job title, and years of experience.
- The second part: This part contains (45) paragraphs related to the variables and dimensions of the main study, and it was divided into two aspects:
  - o The first aspect: the independent variable represented by knowledge management processes, and it includes (31) paragraphs distributed on the following dimensions: knowledge acquisition, knowledge sharing, Knowledge storage, application of knowledge.
  - o The second aspect: the dependent variable represented by organizational innovation, and it includes (14) paragraphs distributed on the following dimensions: technical innovation and administrative innovation. The questionnaire used the perceptual measurement method based on Likert's five-point scale to determine the weights of the paragraphs assigned to measure each of the study variables, as these weights determine the attitudes of the sample members towards each paragraph of the variable, to determine the general level of the variable and the relative importance for paragraphs and variables.

The five Likert scale was developed as shown in the following table:

**Table 3: Likert's five-point scale**

Degree of agreement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Score	5	4	3	2	1

### Validating the Study Tool

The apparent validity of the questionnaire was tested by presenting it to the body of experienced and competent arbitrators from academic professors, in order to express an

opinion regarding it in terms of its suitability for collecting data related to the study, its clarity, coherence and cohesion, or any other observations they deem appropriate regarding the correction, or deletion and according to the arbitrator's opinion. The arbitrators' comments and suggestions have been taken into consideration. The process of reviewing and auditing the questionnaire by the arbitrators, taking their observations and suggestions, in addition to making the modifications referred to by them was considered a test of the apparent validity of the tool, and, therefore, the study tool is considered suitable for measuring what it was designed for.

In addition, the reliability of the tool used to measure the variables that it contains was also tested using the Cronbach Alpha Coefficient test, where the result of the scale is statistically acceptable if the value of Cronbach Alpha is greater than (0.60). (Sekaran, 2006, 311), and the closer the value to (100%). This indicates higher degrees of stability for the study tool, and in view of the data presented in the following table, the internal consistency coefficient of Cronbach Alpha was measured for the study variables for its dimensions and for the study tool as a whole, to see the consistency in the answers; which came as follows:

**Table (4): Values of the internal consistency coefficient for the study tool items**

S. No.	Dimension	Alpha Values
1	Knowledge acquisition	0.808
2	Knowledge sharing	0.890
3	Knowledge Storing	0.841
4	Knowledge Application	0.872
Knowledge Management Process		0.944
5	Technical innovation	0.855
9	Administrative innovation	0.883
Organizational innovation		0.911

We note from Table (4) that the values of the internal consistency coefficient of Cronbach alpha for the paragraphs of the study tool ranged between (0.808 - 0.944), where the value of the internal consistency coefficient for the items of the variable of knowledge management operations was (0.944), and the value of the internal consistency coefficient for the paragraphs of the variable organizational innovation (0.911). Consequently, all values are greater than (0.60), and this is an indication of the consistency between the paragraphs of the study tool, the reliability of the study tool and its reliability for conducting statistical analysis.

### **Multicollinearity Test**

This phenomenon indicates the existence of a near-perfect linear correlation between two or more variables, which inflates the value of the coefficient of determination R<sup>2</sup> and makes it greater than its actual value, and for this the value of the coefficient between the independent variables was calculated, according to the study model, and the results were as follows:

**Table (5): Correlation Matrix for Independent Variables**

Variable	Knowledge Acquisition	Knowledge sharing	Knowledge storing	Knowledge Application
Knowledge acquisition	1.000			
Knowledge sharing	0.541**	1.000		
Knowledge storing	0.483**	0.604**	1.000	
Knowledge application	0.498**	0.604**	0.608**	1.000

(\*\*) Signal at 0.01 level of significance

Table (5) shows that the highest correlation coefficient between the two variables (Knowledge storage) and (Knowledge application), which reached (0.608), and it is less than (0.80). This indicates the absence of the phenomenon of multiple linear correlations between the variables, where the value of the correlation coefficient exceeding (0.80) is an indication of the existence of the multiple high linear correlation problems ((Gujarati, 2004, 359)

### Descriptive Statistics

For the purpose of analysing the items of the study tool, the descriptive statistics represented by the arithmetic means and standard deviations were used. In addition, the relative importance was also used to determine the level of agreement of the study sample members on the paragraphs of the study tool, its main variables and its sub-dimensions. The following is an analysis of the items, variables and dimensions of the study tool.

### Description of the Independent Variable: Knowledge Management Processes

**Table (18): The arithmetic means, standard deviations, ranks and the relative importance of knowledge management processes**

S. No.	Variable	Arithmetic Average	standard deviation	Rank	Relative Importance
1	Knowledge acquisition	4.025	0.536	3	High
2	Knowledge sharing	3.972	0.499	4	High
3	Knowledge storing	4.192	0.515	2	High
4	Knowledge application	4.209	0.587	1	High
	Knowledge management process	4.100	0.437		High
	Organizational innovation	4.061	0.539		High

We note from the previous table that the general average of knowledge management processes in terms of relative importance is high, with the general average reaching (4,100) and a standard deviation of (0.437). The “knowledge application” came in first place with an arithmetic mean of (4.209) and a standard deviation (0.587) with high relative importance, meanwhile, “knowledge sharing” dimension came last with an arithmetic mean (3.972) and a

standard deviation (0.499) with importance. This indicates the interest of the Qatari telecommunications companies to benefit from the knowledge available to them, by adopting methods and means that contribute to generating, storing, sharing and applying knowledge. We also note from the previous table that the general average of organizational innovation in terms of relative importance is high, with the general average reaching (4.061) and a standard deviation of (0.539). This indicates that the Qatari telecommunications companies possess the creative potential and the ability to perform work in creative ways.

### Test Hypotheses of the Study

Table (26): \* Results of testing the effect of applying knowledge management processes to achieving organizational innovation

Dependent variable	Model Summary		ANOVA			Coefficients				
	R	R <sup>2</sup>	F Calculated	Df	Sig F*	Description	B	Standard error	T Calculated	Sig t*
Organizational innovation	0.766	0.587	95.751	4	0.000	Knowledge Acquisition	0.115	0.049	2.341	0.020
						Knowledge sharing	0.203	0.060	3.411	0.001
						Knowledge storing	0.403	0.056	7.158	0.000
						Knowledge application	0.210	0.050	4.225	0.000

\*The effect is statistically significant at ( $\alpha \leq 0.05$ ).

The results of Table No. (26) indicate that the correlation coefficient ( $R = 0.766$ ) indicates the relationship between the independent variables and the dependent variable, along with the relationship between the independent variables (Knowledge management processes) and the dependent variable (Organizational innovation) is the same. Statistical significance, where the value of the calculated F was (95.751), and with a significant level ( $Sig = 0.000$ ), which is less than 0.05, as it appeared that the value of the coefficient of determination ( $R^2 = 0.587$ ) indicates to (58.7%) of the variance in (Organizational innovation) which can be explained through the variation in the dimensions of (Knowledge management processes) combined. As for the table of transactions, it showed that the value of B at the (Knowledge acquisition) dimension reached (0.115) and the standard error was (0.049), and that the value of T was (2.341) with a significance level ( $Sig = 0.020$ ), which indicates that the impact of this dimension is significant. As for the value of B at the (Knowledge-sharing) dimension, it reached (0.203) and the standard error was (0.60), and that the value of T was (3.411), with a level of significance ( $Sig = 0.001$ ), which indicates that the effect of this dimension is significant. Hence, the value of B was reached at the (Knowledge storage) dimension (0.403) and the standard error was (0.056), and its T value was (7.158), with a significant level of ( $Sig = 0.000$ ), which indicates that the effect of this dimension is intangible. Meanwhile, the value of B at

the (Application of knowledge) dimension was (0.210) and the standard error was (0.050), and its T value was (4.225), and with a significance level (Sig = 0.000), which indicates that the effect of this dimension is significant.

To determine which of the knowledge management processes had the most prominent impact on organizational innovation, a graded regression analysis was used, and the result was as follows:

**Table (27): \* Results of the gradient regression analysis of the main hypothesis**

Form	Knowledge Management Process	B	Standard error	T value calculated	Sig* Indicated level	R <sup>2</sup> Determination coefficient	F Calculated	Sig* Determination coefficient
First	Knowledge storing	0.724	0.046	15.857	0.000	0.479	251.425	0.000
Second	Knowledge storing	0.511	0.054	9.540	0.000	0.551	166.711	0.000
	Knowledge application	0.309	0.047	6.569	0.000			
Third	Knowledge storing	0.422	0.056	7.536	0.000	0.578	123.795	0.000
	Knowledge application	0.231	0.049	4.702	0.000			
	Knowledge Sharing	0.242	0.058	4.196	0.000			
Fourth	Knowledge storing	0.403	0.056	7.158	0.000	0.587	95.751	0.000
	Knowledge application	0.210	0.050	4.225	0.000			
	Knowledge Sharing	0.203	0.060	3.411	0.001			
	Knowledge acquisition	0.115	0.049	2.341	0.020			

\*The effect is statistically significant at ( $\alpha \leq 0.05$ ).

The results of the progressive regression analysis shows the order of entering the variables in the regression model, which represents the effect of applying knowledge management

processes on organizational innovation, as it was found that (Knowledge storage) came first, and an explanation of (47.9%) of the variance in the dependent variable. The addition of (Knowledge application) in the second model, the interpretation rate increased to reach (55.1%), and the addition of (Knowledge sharing) increased the interpretation rate to reach (57.8%), and the addition of (Knowledge acquisition) increased the interpretation rate to reach (58.7%). Therefore, we note that the effect of all the independent variables was significant at a significance level less than 0.05.

## Results

The results of the study tool analysis showed the high relative importance of knowledge management processes in Qatar Telecom, where the arithmetic average reached (4.100), and after (Knowledge application) it ranked first with an arithmetic average (4.209), followed by (Knowledge storage) in second place with an arithmetic mean (4.192), then after (Knowledge acquisition) in third place with an arithmetic mean (4.025), and in fourth and final place after (Knowledge sharing) with an arithmetic mean (3.972), with a high relative importance for all dimensions. This indicates an interest on the part of the Qatari telecommunications companies in utilizing knowledge and making the best use of it by adopting participatory methods, means, tools, activities and processes that contribute to generating, storing, sharing and applying knowledge, which is positively reflected on their performance and contributes to achieving their goals which guarantees its survival. In addition, the results of the study tool analysis showed the high relative importance of organizational innovation in Qatari telecommunications companies, as the arithmetic average reached (4.061), and this indicates that Qatari telecommunications companies possess the creative elements and components and have the ability to perform work in new and innovative ways and methods through what is available its human resources have mental and intellectual capabilities and personal qualities.

The results of testing the hypotheses derived from the hypothesis of the main study showed that there is a significant effect of applying all knowledge management processes in achieving organizational innovation in Qatari telecommunications companies, when studying the effect of each of them individually, as the significant effect appeared at a significance level less than 0.05. This shows the importance of all knowledge management processes in achieving organizational innovation. The results of testing the hypothesis of the first main study also showed that there is a significant effect of applying management processes in achieving organizational innovation in Qatari telecommunications companies, as the significant impact appeared on all dimensions of knowledge management processes with a significance level less than 0.05, when studied together. This is consistent with the findings of the test results of the hypotheses branching from the main hypothesis. The researcher attributes the reason for this effect to the fact that knowledge is an essential element in achieving innovation, as reaching excellence and uniqueness in services and performance depends greatly on the knowledge available to the company, which is represented in the capabilities, skills, energies and capabilities available to it. The results of the gradient regression analysis of the main study hypothesis also showed that storing knowledge is one of the most important knowledge management processes that have an impact on organizational innovation, as the value of the determination factor was (0.479). The researcher attributes the reason for this to the fact that knowledge storage allows the management of Qatari telecommunications companies to benefit from the knowledge stored with them and invests the same in developing or

enhancing products, services and processes, and thus achieving success and continuity for the company.

### Implications

Innovation is considered as one of the basic characteristics that God the Almighty has assigned to man from the rest of the earth's creatures, and it is the secret behind the development of man and his success in life and hence is behind the progress of societies over the years and ages. Therefore, and based on the findings of the study, it recommends increasing the level of interest in managing the Qatari telecommunications companies by providing all requirements and requirements for applying knowledge management processes, besides increasing the level of interest of Qatari telecommunications companies in organizational innovation, and providing the necessary supportive environment for creative and distinguished people. Also, Qatari telecommunications companies give more attention to the knowledge-sharing process, by adopting flexible mechanisms and means in transferring and disseminating information in a way that ensures its positive reflection on the individuals working in the company, and, thus on their energies and capabilities, which positively affects the achievement of goals of the company. In addition to the above, focus more on developing and enhancing the creative capabilities and energies of their management and motivating them to carry out creative and distinguished work.

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