THE ROLE OF KNOWLEDGE MANAGEMENT PROCESSES IN ORGANIZATIONAL PERFORMANCE APPLIED STUDY IN THE CEMENT COMPANY OF "AIN TOUTA"

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ABSTRACT: *This research aims to identify the correlation and impact between knowledge management processes and organizational performance. To achieve this, it is relied on the key knowledge management processes, i.e., (knowledge diagnosis, acquisition, generation, storage, distribution and application). Organizational performance is expressed by the following focuses: (Growth and learning, internal processes, customer focus). The research was carried out at the Cement Company of "Ain Touta", province of Batna, Algeria. The necessary data were obtained by a questionnaire prepared for this purpose. Many statistical methods were used, including Pearson correlation coefficient to measure the correlation between variables, T-test to determine the significance of this correlation, regression analysis, F-test to determine the significance of the regression equation, and R^2 to explain the effect of independent variables on the dependent variable (organizational performance). The findings of the study are identical to the hypotheses. It is found that there are significant strong correlation and effect on all the focuses of knowledge management processes with the dependent variable "organizational performance", through which a set of recommendations are presented.*

KEYWORDS: Knowledge , Knowledge management , Knowledge management processes , Information and communication technology ,Organizational performance.

INTRODUCTION

Knowledge and its role have become increasingly important, particularly, with the dominance of the concept of knowledge age, in which organizations, of all kinds, face challenges and accelerate transformations, especially information and technology revolution that relies on advanced scientific knowledge and the optimal use of information where Renewed knowledge becomes a basic key for the success or the failure of the organization.

Knowledge management helps contemporary business organizations to generate, distribute and apply knowledge to make rational management decisions, promote innovation, increase competitiveness, achieve strategic objectives, increase value and improve performance. Not all information is knowledge and not all knowledge is valuable. Management should capture and use useful knowledge in the organization's activities and processes.

Linking knowledge management to performance is one of the most recent issues, where serious attempts have been made to measure and apply it in the light of the rapid environmental, economic, social and political changes and fluctuations locally and globally, and determine its reflection on performance levels in business organizations, which is the dividing line between their success or failure. On the basis of performance, the process of developing and making important decisions is made from determining the trends of the organization's activity,

determining the proximity or distance from achieving the objectives, implementing the plans and programs, rationalizing the use of the resources and the organization's efficiency and efficacy.

Study's problem

The success of business organizations requires keeping up with all that is new in management and in their ability to use their resources in activities that generate outputs contributing to their survival and growth, and ensure that they have access to advanced positions in competition, leadership and creativity. When the organization can develop its knowledge management ideas, this will reflect on its organizational performance. This is what we will try to answer through this study, by raising the study's problem in the following main question: What is the role of knowledge management processes in raising the performance efficiency of the Cement Company of "Ain Touta", "Batna" from the point of view of its employees? The following sub-questions are derived from the main one:

- What is the extent of awareness and understanding of the concept of knowledge management and its importance in the Cement Company of "Ain Touta" in Algeria?

- To what extent the Cement Company of "Ain Touta" in Algeria relies on knowledge management technology?

- What is the level of organizational performance with its dimensions (learning and growth, internal processes, customers) in the company under study?

- What is the relationship between knowledge management processes (knowledge diagnosis, acquisition, generation, storage, distribution and application) and its supporting technology, on the one hand, and the level of the company's performance on the other hand?

Study's hypotheses

Based on the abovementioned variables of the study, we have put the hypotheses as follows:

The first main hypothesis: There is a statistically significant relationship at the level of significance ($\alpha \leq 0.05$) between knowledge management processes (knowledge diagnosis, acquisition, generation, storage, distribution and application) and the performance level in the company under study.

The second main hypothesis: There is a statistically significant relationship at the level of significance ($\alpha \leq 0.05$) between the knowledge management technology and the performance level in its various components (learning and growth, internal processes, customers) in the company under study.

Study's importance:

The study's importance lies in:

- The issue of knowledge is increasingly important day after day; it is no longer possible to build a strong economy in the absence of knowledge since physical assets are no longer sufficient to achieve success and continuity. The countries that dominate the

world economy are not those with natural resources or capitals, but, primarily, those with knowledge assets and domination on knowledge industry.

- Addressing the issue of knowledge management as a modern administrative introduction for contemporary business organizations to face the current environmental challenges marked by change and innovation. In the context of global openness and increased competition, knowledge management can be an effective means for the organization to achieve outstanding performance and competitive advantages enabling it to excel and continue.

- The study's theme is related to information technology, which is the focus of the development of the administrative process under the circumstances of openness, competition and globalization.

Study's objectives: The study's theme aims to achieve the following objectives:

- Highlighting the need to knowledge management in the current era, deepening understanding this administrative concept and developing ideas on the concept and measurement methods of performance.

- Determining the nature of the relationship between the processes and technology on which knowledge management is based and the level of performance in its various components.

- Making the appropriate recommendations in this field.

Theoretical framework of the study's variables

The nature of knowledge:

J. Harris and A. Henderson see that knowledge is one of the basic elements within an integrated series that starts with the Signals and extends to Data, then Information, Knowledge and Wisdom (which are effective basis for innovation)[1].

M. Ackerman indicates that knowledge includes human and non-human factors such as truths, beliefs, perspectives, concepts, judgments, expectations, methodologies, skills and know-how[2].

Stettner sees that knowledge is "a cumulative and integrative process occurs over relatively long periods of time to be available for application and use in order to address certain problems and circumstances; therefore, knowledge is used to explain available information about a particular situation and to make decision about how to manage and address this case situation".[3]

Other researchers deal with the concept of knowledge from a bilateral perspective, which is most likely in the search for a comprehensive concept. Nonaka and Takeuchi have dealt with the knowledge generation from the angles of interaction between two types of knowledge: tacit knowledge and explicit knowledge.[4] R.T. Herschel describes explicit knowledge as knowledge that can be formally expressed using the symbol system and can therefore be easily communicated and disseminated in the form of patent specifications and schemas; implicit knowledge is unencrypted and difficult to disseminate and pronounce because it is expressed through skills based on work and learned through it.[5]

The concept of knowledge management:

Knowledge management is a modern management concept that has received increasing attention from those interested in business management; many business organizations seek to transform their works into knowledge-based businesses and activities. These organizations direct their investment towards knowledge generation and attention to activities, individuals and other means that contribute to knowledge creation, which enables them to be organizations with intellectual capital, moving away from the traditional works of ordinary individuals as much as possible, and orienting towards knowledge individuals considered as the most original, important and contributing in the achievement of competitive advantages.

It can be said that the historical roots of knowledge management began since the emergence of scientific management whose the most famous pioneers Frederick Taylor, Henry Fayol et al; they put the cornerstones of scientific management, most notably, the obligation to achieve productivity sufficiency, scientific research, rules and origins, division of work and specialization; all these principles contain clear knowledge contents and require the establishment of knowledge-based administrative units.

The review of some studies on the subject of knowledge management shows different definitions from one researcher to another according to his point of view on knowledge in terms of explicit or implicit knowledge, or competencies and information collection it includes.

According to Jean François Ballay, knowledge management is "a set of organizational and technological methods that aim at creating, collecting, organizing, storing, disseminating and using knowledge in the enterprise".[6] K. M. Wiig defined it as "a set of well-defined and well-specified approaches and processes aimed at discovering knowledge functions, both positive and negative, in different types of processes and their management, identifying new products or strategies, enhancing human resources management and achieving other objectives".[7]

Other scientists defines it as practices. For example, Capshaw and Frappaolo define it as "the practices and techniques that facilitate knowledge generation and sharing at the organization".[8]

From the previous presentation, we note that there is more than one definition of knowledge management; each one takes a specific aspect or set of key aspects of knowledge management depending on the background by which the author is influenced and the nature of intended use. However, most definitions focus on basic processes of knowledge management in terms of generation, sharing and learning.

Knowledge management processes

Laudon and Laudon see that knowledge management seeks to obtain knowledge and to document, organize and access it; these processes become a strategic and reliable asset in the success and survival of the organization.[9] Kucza indicates that the basic purpose of knowledge management is to provide the appropriate knowledge to the appropriate person in the appropriate place to increase the efficiency and effectiveness of the taken decisions. To achieve this, it is necessary to carry out a set of processes including the knowledge capturing, storage and transfer to the beneficiaries.[10]

It is clear from the above that writers and researchers differ in determining the course of knowledge management processes. This difference can be explained by the overlap in

knowledge management processes, as well as their different views. Therefore, the most important knowledge management processes in this study can be framed and defined as follows:

Knowledge diagnosis

Knowledge diagnosis is important in any knowledge management program. It begins with defining knowledge, searching its location in individuals' heads, in systems or procedures, comparing the existing knowledge assets of the organization with the required knowledge assets where the difference is the amount of efforts needed by the organization to reach the desired innovation.[11]

Knowledge acquisition

Knowledge acquisition is the process through which the organization seeks to obtain knowledge from many sources ranging between explicit and implicit knowledge; it may be internal such as knowledge repositories, or through sharing experiences and practices, attending conferences, seminars, dialogue and communication among working groups and customers, or from the financial and economic data through which knowledge is transferred and converted from implicit to explicit and vice versa, resulting organizational knowledge creation. It may be outsourced and brought by knowledge management across organizational boundaries or participate in them, assisted by technological developments such as video conferences, the Internet, etc. The organization also acquires knowledge through marketing intelligence, analysis, industry research, academic research, industry experts and specialists, mergers and acquisitions, consultants and attracting new employees.[12]

Knowledge generation

Knowledge generation means creating knowledge through the participation of working teams and support groups to generate new knowledge capital in new issues and practices that contribute to the definition of problems and the creation of new solutions in a creative and continuous manner. It provides the organization with the ability to excel in realizing and achieving high market position in different areas, such as strategy, starting new business lines, accelerating the transfer of problem-solving and best practices, developing professionals and assisting the administration in the recruitment and retention of talents. This reinforces the need to understand that knowledge and creativity are a two-way process: knowledge is a source of creativity and creativity becomes the source of new knowledge.[13]

Organizations usually generate knowledge and use it through a process called **knowledge transformation**, i.e.; the transformation of implicit knowledge to explicit knowledge, and vice versa. Nonaka and Takeuchi, Warner and Witzel and Wickhman argue that the organization cannot generate knowledge itself, because the implicit knowledge of individuals is the basis of organizational knowledge generation process.[14] Therefore, they must collect and accumulate implicit knowledge at the individual level then expand it through four knowledge transformation processes that are: Socialization, Externalization, Combination and Internalization.

Knowledge storage

Knowledge storage processes are the retention of knowledge in organizational memory and knowledge repositories in various forms including written documents, information stored in electronic databases, human knowledge stored in expert systems, knowledge in documented

regulatory procedures and processes and implicit knowledge gained from work individuals. With time, organizational knowledge accumulates, which helps in the group software, as information technology plays an important role in the distribution of organizational memory and the retrieval of stored information and knowledge. Knowledge storage is a bridge between knowledge capture and retrieval. A lot of the obtained value for knowledge management findings through the various elements of knowledge and the need to link, maintain and update them.[15]

Knowledge distribution

Knowledge, as an asset, increases by using, sharing and exchanging ideas and experiences between individuals. Organizations seek to encourage sharing. This process includes distributing, sharing, flow, transfer and moving. It includes all the processes necessary to communicate information and explicit and implicit knowledge from its makers and users.[16]

Knowledge management experts emphasize that training enhances the knowledge of staff. Others, who are interested in mutual relations between people, are likely to sharing methods by knowledge between teams and learning groups.

Knowledge application

This process refers to the terms of: Use, Utilization and Application. Knowledge application allows individual and collective learning processes that lead to the creation of new knowledge; hence, knowledge management processes are called "closed loops".[17]

McShane and Glinow confirms that not all previous processes are useful unless knowledge is effectively used. To this end, employees must understand that knowledge is available and they are completely free to apply it. This requires a culture to support learning and change.[18] Laudon and Laudon see that knowledge that is not shared and applied to the real problems facing organizations will not add any value. In order to obtain investment return, organizational knowledge must become a regular part of administrative decision-making and be appropriate in decision support systems. New knowledge must be built inside the organization processes. The administration supports this process by generating new business applications based on new knowledge and finding new products, services and markets for the organization.[19]

Organizational Performance

Most researchers agree that outstanding organizational performance is the product of strategy formulation process through which the organization seeks to achieve its mission and long-term objectives by making performance distinct from its competitors. Performance is defined as the final outcome of all processes undertaken by the organization; any defect in any of them must affect performance that is the mirror of the organization. Kotler presented its concept of organizational performance by putting up the characteristics of the business organizations with excellent performance; he indicated four factors that lead to outstanding organizational performance as follows:[20]

- The outstanding performance is done by identifying stakeholders (customers, employees, suppliers and distributors) as organizations understand that they have to meet the needs and desires of stakeholders.

- The management of key business processes (developing new product, attracting customers, reducing costs and meeting needs) to enable the organization to achieve own objectives by satisfying stakeholder.

- The appropriate allocation of human, material, financial and informational resources since the organization needs to allocate appropriate resources for the implementation of its processes.

- Effective management that is able to develop a clear and well-known strategy for its employees, objectives and how to achieve them.

Based on the above indications, organizational performance reflects the organization's ability and capability to achieve its long-term objectives, including the objectives of profit, survival, growth and adaptation using material and human resources in a high efficiency and effectiveness, and in changing environmental circumstances.

Performance is the organization's index of high productivity achievement, provided it is accompanied by customer satisfaction, a good market share that can provide appropriate financial returns, and ethical and social responsibilities towards the environment in which the organization operates and towards society.

As long as business organizations operate in an unstable environment, especially in the field of information and communications technology, as well as most of the business organizations are currently moving towards the knowledge economy, all this requires that the organization determine its performance level to reveal its potential, capabilities and market value and position.

Kaplan and Nortan indicate, when measuring organizational performance, a compound perspective called the balanced relations card that consists of the following focuses :[21]

- <u>Financial focus</u>: It reflects the financial objectives such as revenue and profitability.

- <u>Internal processes focus</u>: It reflects the performance of operational activities and the ability to control them.

- <u>Customer focus</u> : It reflects customers needs and desires, and the ability of the organization to achieve their satisfaction (internal and external customers).

- <u>Learning and growth focus</u>: It reflects the organization's ability to develop the intellectual capacity of the staff and the level of its skills, its structures and culture, in other words, the ability to make organizational innovation.

We will adopt, in this study, the three focuses (processes, customers, learning and growth) as standards for organizational performance because it is difficult to obtain the financial focus data in the company under applied study.

Introduction of the Cement Company of "Ain Touta"

The Cement Company of "Ain Touta" is one of the biggest public economic companies in the province of Batna – Algeria; it affiliated to the Industrial Cement Complex (GICA), Joint Stock Company, seeks through its activity to meet the various needs of cement in the construction sector.

The company was created by concluding a contract by the Danish company F.L.S. on May 15th, 1983 between the Company of Cement and Derivatives East and the Cement Unit of Ain Touta, in cooperation, by specialty, with the Belgian companies in the field of civil engineering and the company concerned with mechanical installation. The first production experience of the company was on September 3rd , 1986 with a production capacity of 1.000.000 tons per year or 84.000 tons per month.

Objectives of the Cement Company of "Ain Touta":

The general objectives (strategic) are to increase its turnover by improving its performance for the better in line with the requirements of the Quality Management System (ISO). The secondary objectives are:

- The financial focus objectives: through which it seeks to improve profitability and reduce costs.

- Customer focus objectives: They consist in satisfying customers, improving loyalty and simplifying communication with them.

- Internal processes focus objectives: they aims to ensure the management of production processes, reduce operational problems and control inventory values.

- Organizational learning focus objectives: they include the development of information systems, ensuring the training of its members and improving the incentive system.

Certificates obtained by the Cement Company of Ain Touta:

The Cement Company of Ain Touta obtained many of the certificates shown in the following table number (01):

Systems		Certificate	Year
Environment Functioning System		ISO 14001	2004
Health and Safety at Work Functioning System		OHSAS 18001	2007
Quality Functioning System ISO		ISO 9001	2008
Health and Safety at Work Functioning System		OHSAS 18001	2013

Field study methodology and procedural steps:

This part describes the field study procedures that were carried out to achieve the study's objectives, including the identification of the study's population, sample and tool as well as the methods adopted in statistical processing.

STUDY'S METHODOLOGY

Given the nature of the theme, the descriptive method is adopted in the theoretical part of the study through research in many references and sources related to both sides of the theme (knowledge management and organizational performance) such as books, periodicals, international forums and university dissertations. In the case study, the analytical method is adopted by using the questionnaire as a tool for collecting and analyzing initial data using SPSS. In addition to the two previous methods, inductive method, starting from the part to judge the whole, is adopted.

Study's population and sample

The study's population is the group of individuals who are interested in a particular study or research. The theoretical population of this study is composed of individuals working in the Cement Company of "Ain Touta" in Batna, Algeria. Since the study cannot include all individuals of the target population, a sample was intentionally selected, and 48 questionnaires were distributed, but only 40 were valid for analysis.

Statistical processing methods and the validity of the study's tool

To analyze the data collected from the questionnaire, SPSS (Version 20) was adopted through a set of statistical processing methods, as follows:

- Alpha Cronbach Test to determine the consistency of the questionnaire's expressions.

- Calculation of the arithmetic mean to determine the extent of the response of the sample's individuals to expressions, as well as their order by the highest arithmetic mean.

- Calculation of the standard deviation to measure the degree of dispersion of the response values of the study's sample from the arithmetic mean of each expression. The closer the value of the standard deviation is to zero, the more the answers are concentrated and the less they are dispersed.

- Calculation of the Pearson correlation coefficient to measure the correlation between the study's variables.

- Linear Regression Analysis to know the role of the independent variable in the dependent variable.

6-4 Study's tool stability

In order to ensure the stability of the study's tool, the internal stability coefficient test (Alpha Cronbach Coefficient) was carried out. The value of the coefficient is between 0 and 1; if its value is less than 0.6, this indicates a decrease in internal stability. The findings were 97.7%, which is a high percentage that justifies the reliability of the questionnaire.

Discussion of the study's questions

The first question: What is the extent of awareness and understanding of the concept of knowledge management and its importance in the Cement Company of "Ain Touta" in Algeria?

To answer this question, a descriptive analysis of the expressions of knowledge management processes dimensions using arithmetic mean and standard deviation is required, as shown in the following table:

Table number (02) : Arithmetic mean and standard deviation of knowledge diagnosis expressions

Number	Expression	Arithmetic mean	Standard deviation	Assessment	Rank
1	The company is interested in identifying the knowledge gap through viewing its knowledge.	3.625	0.952	High	2
2	The company is interested in identifying its knowledge needs in the future	3.500	1.132	High	3
3	The company's sources of knowledge are different (individual experiences, dialogue, suppliers, customers, competitors ...)	3.875	0.686	High	1
4	The company depends on the visual display of knowledge maps (charts and graphics)	3.300	1.043	Average	4
Overall arithmetic mean and standard deviation		3.575	0.766	High	/

Source: SPSS outputs

The findings of this table show that the overall arithmetic mean for knowledge diagnosis processes is 3.575, with divergence and dispersion of the opinions of the study's sample individuals; the standard deviation is 0.766. It seems that the acceptance of the respondents' answers mean to the expressions of this dimension is almost high, which explains that the Cement Company of Ain Touta is interested in identifying its knowledge and future needs as well as relying on different sources from which it can obtain knowledge to fill the gap.

Table number (03): Arithmetic average and standard deviation of knowledge acquisition expressions

Number	Expression	Arithmetic mean	Standard deviation	Assessment	Rank
1	The company relies on the acquisition of knowledge from external sources (Internet, academic research, experts and specialists ...)	3.550	1.108	High	3
2	Knowledge is acquired from staff ideas	3.825	0.844	High	1
3	The company acquires knowledge from the ideas and experiences of customers, suppliers and competitive companies	3.625	0.925	High	2
4	The company acquire knowledge from databases and knowledge repositories	3.500	0.934	High	4
5	Staff with high experiences and skills are attracted	3.025	1.291	Average	6
6	The company gives its staff the opportunity to complete the study in order to expand their knowledge	3.325	1.248	Average	5
Overall arithmetic mean and standard deviation		3.475	0.780	Average	/

Source: SPSS outputs

Through the findings of this table, the overall arithmetic mean for knowledge acquisition processes is 3.475, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.780. It seems that the acceptance of the respondents' answers mean to the expressions of this dimension is average and high sometimes, which explains that the Cement Company of Ain Touta is interested in knowledge acquisition from its external sources or from the ideas and experiences of its staff as well as from the available databases.

Table number (04): Arithmetic mean and standard deviation of knowledge generation expressions

Number	Expression	Arithmetic mean	Standard deviation	Assessment	Rank
1	The company relies in generating knowledge on the interaction of staff and internal experiences to find solutions to problems	3.400	1.057	3	Average
2	The company works to support new and creative ideas of its staff	2.900	1.257	7	Average
3	The company uses the method of scientific research to create and innovate knowledge	2.975	1.250	6	Average
4	The company seeks to attract and acquire external knowledge (direct purchase or employment contracts)	3.275	1.109	5	Average
5	The company obtains new knowledge about databases which lead to the discovery of new knowledge	3.675	0.971	1	High
6	The company seeks to make the staff acquire new knowledge from outside	3.625	1.125	2	High
7	The company relies on organizational learning as a source of knowledge generation	3.300	1.043	4	Average
Overall arithmetic mean and standard deviation		3.307	0.910	/	Average

Source: SPSS outputs

Based on the findings of this table, the overall arithmetic mean for knowledge generation processes is 3.307, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.910. It seems that the acceptance of the respondents' answers mean to the expressions of this dimension is average, which explains that the Cement Company of Ain Touta seeks, to some extent, to transform implicit knowledge to explicit knowledge, and from the individual level to the collective level, and to attract and acquire external knowledge, in addition to relying on the staff to generate new knowledge.

Table number (05): Arithmetic mean and standard deviation of knowledge storage expressions

Number	Expression	Arithmetic mean	Standard deviation	Assessment	Rank
1	The company uses traditional methods and has archives and paper documents	3.950	0.8756	2	High
2	The company is keen to provide hardware and software for storing knowledge	3.975	0.800	1	High
3	The company relies in the storage of knowledge on individuals through the methods encouraging the exchange of experiences	3.250	1.127	3	Average
4	Views, experiences and experiments carried out by technicians and experts are recorded and saved to be viewed by the staff	3.150	1.099	5	Average
5	The company conducts ongoing update of stored knowledge.	3.225	0.920	4	Average
Overall arithmetic mean and standard deviation		3.510	0.648	/	High

Source: SPSS outputs

Based on the findings of the table number (05), the overall arithmetic mean for knowledge storage processes is 3.510, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.648. It seems that the acceptance of the respondents' answers mean to the expressions of this dimension is average to high where the arithmetic means are between 3.15-3.975 , which explains that the Cement Company of Ain Touta is interested in knowledge storage because in addition to traditional methods, archive and paper documents, it has provided hardware and software for storing knowledge, updating and classifying information in a way that facilitates easy reference.

Table number (06): Arithmetic mean and standard deviation of knowledge distribution expressions

Number	Expression	Arithmetic mean	Standard deviation	Assessment	Rank
1	The company holds internal training courses and lectures provided by efficient individuals.	3.300	1.181	2	Average
2	The knowledge available in the company is allowed for all the staff to take advantage through the publication of documents and internal bulletins.	3.100	1.057	4	Average
3	The company encourages knowledge sharing among the staff through meetings and seminars	3.150	1.424	3	Average
4	The company promotes the sharing culture and creates an atmosphere for the exchange of knowledge	2.825	1.299	5	Average
5	The company assigns the staff in tasks other than their duties.	3.375	1.295	1	Average
Overall arithmetic mean and standard deviation		3.150	0.918	/	Average

Source: SPSS outputs.

It is shown that the overall arithmetic mean for knowledge distribution processes is 3.150, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.918. It seems that the acceptance of the respondents' answers mean to the expressions of this dimension is average, where arithmetic means are between 2.825-3.375, and standard deviations are between 1.057-1.424, which explains that the Cement Company of Ain Touta is moderately interested in providing its available knowledge to its staff to take advantage and encourage collective work

Table (07): Arithmetic average and standard deviation of knowledge application expressions

Number	Expression	Arithmetic mean	Standard deviation	Assessment	Rank
1	The company permanently applies the initiatives and programs related to knowledge	3.200	1.181	1	Average
2	The company grants freedom to the staff in the application of new knowledge and information	2.900	1.172	5	Average
3	The company disseminates a culture that supports the effective application of knowledge	3.075	1.185	2	Average
4	The company provides material and human requirements of knowledge application.	2.950	1.176	4	Average
5	The company employs knowledge by converting it into new goods and services	2.600	1.150	6	Average
6	The company adopts guidance and dialogue to apply new knowledge	3.000	1.062	3	Average
Overall arithmetic mean and standard deviation		2.954	0.971	/	Average

Source: SPSS outputs

Through the findings of the table number (07), the overall arithmetic mean for knowledge application processes is 2.954, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.971. This dimension indicate average acceptance where arithmetic means are between 2.600-3.200 and standard deviations are between 1.062-1.185, which explains that the Cement Company of Ain Touta is moderately interested in the application of knowledge programs and initiatives and in providing material and human requirements to actualize knowledge.

The previous processes are ranked as follows according to their relative importance:

The overall arithmetic mean for knowledge management processes is 3.313, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.772. It seems that the interest the interest in knowledge management processes is average and that knowledge diagnosis is ranked first as the company is interested in identifying the information it has and what it should have compared with competitors, which makes it fully aware of changes in the market and avoid the problems that can occur. On the other hand, knowledge storage is ranked second as the company is interested in the use of electronic means to store and share knowledge among its staff because it understands the importance of these means for

survival and continuity. It is also clear that the company is not fully aware of the importance of applying new knowledge (cognitive innovation). This may be due to the lack of interest in new and creative ideas and to the lack of motivation of individuals with experience and skill inside the company, as well as the lack of attracting and acquiring knowledge from outside.

The second question:

To what extent the Cement Company of "Ain Touta" in Algeria relies on knowledge management technology?

To answer the second question in terms of technology and knowledge management, the findings were as follows:

Table number (08): Arithmetic means, standard deviations and relative importance of the responses of the study's sample individuals to the expressions of knowledge management technology dimension

Number	Expression	Arithmetic mean	Standard deviation	Relative importance	Acceptance level
1	All of the units are connected to computer network	4.275	0.640	1	High
2	The company is constantly updating the information systems	4.100	0.810	2	High
3	The company provides the Internet service with excellent speed for the staff	2.800	1.340	10	Average
4	The company deals with its customers via a website	3.275	1.339	8	Average
5	The company has technology facilities to generate and share knowledge	3.850	0.949	5	High
6	The company provides devices for the storing and sharing knowledge	4.025	0.862	3	High
7	The company uses artificial intelligence systems	3.125	1.090	9	Average
8	The company makes difficult decisions using decision support systems	3.425	1.010	6	Average
9	The company uses internal communication systems for the distribution of knowledge (telephone, reports ...)	4.000	0.934	4	High
10	The staff can access and use the technology available at the company and use it to develop and apply knowledge	3.375	1.213	7	Average
Overall Knowledge Management Technology		3.625	0.733	/	High

Source: SPSS outputs

Based on the findings of the table number (08), the overall arithmetic mean of knowledge management technology dimension is 3.625, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.733. It seems that the acceptance rate of the expressions of this dimension is average to high, where the acceptance of providing devices, computers, internal communication systems and other technological facilities to generate and exchange knowledge is high among the study's sample individuals, which indicates that the company is keen to provide the most important technological supplies and facilities, especially modern hardware and equipment in order to ensure the facilitation and acceleration of access, storage and exchange of information and knowledge. As for the expressions with average acceptance level among the respondents, their arithmetic means ranges between 2.80-3.425 and their standard deviations are between 1.010-1.34); they are expressions related to the internet service and its use by the company and with its clients, it is available only for some staff and its website provides only information services for customers. Artificial intelligence systems and decision support systems use some production systems, programming and solving some problems.

From the above, we can say that the Cement Company of Ain Touta is very interested in keeping up with technological developments and is working to provide them to benefit from the advantages they provide in facilitating communication and information transfer, but they are not used for the purpose of benefiting from it in the development and application of knowledge.

The third question:

What is the level of organizational performance with its dimensions (learning and growth, internal processes, customers) in the company under study?

To answer this question, we use the descriptive analysis of the performance dimensions expressions by arithmetic mean and standard deviation, as shown in the following table:

Table number (09): Summary of arithmetic averages of organizational performance focuses

organizational performance focuses	Arithmetic mean	Standard deviation	Relative importance	Acceptance level
Growth and learning focus	3.463	1.228	3	Average
Internal processes focus	3.670	0.751	2	High
Customers focus	3.800	0.780	1	High
Overall Organizational performance in general	3.646	0.791	/	High

The findings of the table number (09) show that the overall arithmetic mean for the performance level is 3.646, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.791. the findings of this dimension are as follows:

1 - Learning and growth focus: The overall arithmetic mean of the learning and growth focus is 3.463, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.963. It seems that the acceptance of the respondents' answers to the

expressions of this dimension is average, where arithmetic means are between 3.325-3.525, and standard deviations are between 1.132-1.320, which explains that the Cement Company of Ain Touta creates an appropriate work environment and encourages the staff to continue learning and develop their skills and abilities.

2. The internal processes focus: The overall arithmetic mean of the internal processes focus is 3.670, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.750. It seems that the acceptance of the respondents' answers to the expressions of this dimension is high, where arithmetic means are between 3.450-3.900, and standard deviations are between 0.709-1.037, which explains that the Cement Company of Ain Touta is interested in increasing the efficiency of processes and improving their quality as well as responding to the changes that occur in the work environment.

 3 - Customer focus: The overall arithmetic mean of the customer focus is 3.800, with divergence and dispersion of the views of the study's sample individuals; the standard deviation is 0.780. It seems that the acceptance of the respondents' answers to the expressions of this dimension is high, where arithmetic means are between 3.575-4.150, and standard deviations are between 0.700-1.118, which explains that the Cement Company of Ain Touta pays great attention to the satisfaction of its customers through the quality of its products and their availability right on time as well as the examination of their proposals.

Based on the above, it is clear that the Cement Company of Ain Touta is primarily interested in its customers by providing a product of quality and conforming to the applicable standards. Therefore, it works to win the loyalty of its customers. To reach this, it cares about the efficiency of its processes and works to increase and expand the efficiency and knowledge of its staff, which ensures that it generally improves its performance.

Study's hypotheses test:

Test of the first main hypothesis: There is a statistically significant relationship at the level of significance ($\alpha \leq 0.05$) between knowledge management processes (knowledge diagnosis, acquisition, generation, storage, distribution and application) and the performance level in the company under study.

To test this hypothesis, we use simple regression analysis as shown in the table number (10):

Correlation coefficient R	Determination coefficient square (R^2)	Adjusted (R^2)	Standard error	Calculated F	Sig.
0.831	0.691	0.683	0.445	84.904	0.000

It is shown that the correlation coefficient R is 0.831, which explains that the relationship between them is positive and strong. The R^2 is 0.691, which means that 69.1% of the change in the performance level is due to the change in knowledge management processes, while the rest is due to other factors outside the model. As the calculated F is equal to 84.904 at the probability value (Sig) which is equal to zero, i.e., less than the adopted level of significance, there is a statistically significant relationship between knowledge management processes and institutional performance at the level of significance ($\alpha \leq 0.05$).

The first sub-hypothesis:

- H_0: There is no statistically significant relationship between knowledge diagnosis process and performance at the level of significance ($\alpha \leq 0.05$).

- H_1: There is a statistically significant relationship between knowledge diagnosis process and performance at the level of significance ($\alpha \leq 0.05$).

To test the hypothesis, we put the following table:

Table number (11): Findings of the simple regression analysis test to test the relationship between knowledge diagnosis and the dependent variable "performance"

Independent variable	A	Standard error	Beta	Calculated T	Sig.	Correlation coefficient (R)	Determination coefficient square (R^2)
Constant	0.899	0.408	-	2.202	0.034	-	-
Knowledge diagnosis	0.769	0.112	0.745	6.883	0.000	0.745	0.555

Source: SPSS outputs

It is shown that the correlation coefficient R is 0.745, which explains that the relationship between the two variables is positive and strong. The R^2 is 0.555, which means that 55.5% of the change in performance is due to the change in knowledge diagnosis, while the rest is due to other factors outside the model. As the calculated T is equal to 6.833 at the probability value (Sig) which is equal to zero, i.e., less than the adopted level of significance, we accept the alternative hypothesis and negate the null one.

The second sub-hypothesis:

- H_0: There is no statistically significant relationship between knowledge acquisition process and performance at the level of significance ($\alpha \leq 0.05$).

- H_1: There is a statistically significant relationship between knowledge acquisition process and performance at the level of significance ($\alpha \leq 0.05$).

To test the hypothesis, we put the following table:

Table number (12): Findings of the simple regression analysis test to test the relationship between knowledge acquisition and the dependent variable "performance"

Independent variable	Constant A	Beta	Calculated T	Sig.	Correlation coefficient (R)	Determination coefficient square (R^2)
Constant	1.128	-	2.870	0.007	-	-
Knowledge acquisition	0.699	0.689	5.858	0.000	0.689	0.475

It is shown that the correlation coefficient R is 0.689, which explains that the relationship between the two variables is strong. The R^2 is 0.475, which means that 47.5% of the change in performance is due to the change in knowledge acquisition, while the rest is due to other factors outside the model. As the calculated T is equal to 5.858 at the probability value (Sig) which is

equal to zero, i.e., less than the adopted level of significance, we accept the alternative hypothesis and negate the null one.

The third sub-hypothesis:

- H_0: There is no statistically significant relationship between knowledge storage process and performance at the level of significance ($\alpha \leq 0.05$).
- H_1: There is a statistically significant relationship between knowledge storage process and performance at the level of significance ($\alpha \leq 0.05$).

To test the hypothesis, we put the following table:

Table number (13): Findings of the simple regression analysis test to test the relationship between knowledge storage and the dependent variable "performance"

Independent variable	Constant A	Beta	Calculated T	Sig.	Correlation coefficient (R)	Determination coefficient square (R^2)
Constant	0.267	-	0.719	0.477	-	-
Knowledge storage	0.963	0.833	9.271	0.000	0.833	0.693

It is shown that the correlation coefficient R is 0.833, which explains that the relationship between the two variables is strong. The R^2 is 0.693, which means that 69.3% of the change in performance is due to the change in knowledge storage, while the rest is due to other factors outside the model. As the calculated T is equal to 9.271 at the probability value (Sig) which is equal to zero, i.e., less than the adopted level of significance, we accept the alternative hypothesis and negate the null one.

The fourth sub-hypothesis:

- H_0: There is no statistically significant relationship between knowledge distribution process and performance at the level of significance ($\alpha \leq 0.05$).
- H_1: There is a statistically significant relationship between knowledge distribution process and performance at the level of significance ($\alpha \leq 0.05$).

To test the hypothesis, we put the following table:

Table number (14): Findings of the simple regression analysis test to test the relationship between knowledge distribution and the dependent variable "performance"

Independent variable	Constant A	Beta	Calculated T	Sig.	Correlation coefficient (R)	Determination coefficient square (R^2)
Constant	1.660	-	5.321	0.000	-	-
Knowledge distribution	0.963	0.833	6.627	0.000	0.732	0.536

It is shown that the correlation coefficient R is 0.732, which explains that the relationship between the two variables is strong. The R^2 is 0.536, which means that 53.6% of the change in performance is due to the change in knowledge distribution, while the rest is due to other factors outside the model. As the calculated T is equal to 6.627 at the probability value

(Sig) which is equal to zero, i.e., less than the adopted level of significance, we accept the alternative hypothesis and negate the null one.

The fifth sub-hypothesis:

- H_0: There is no statistically significant relationship between knowledge application process and performance at the level of significance ($\alpha \leq 0.05$).

- H_1: There is a statistically significant relationship between knowledge application process and performance at the level of significance ($\alpha \leq 0.05$).

 To test the hypothesis, we put the following table:

Table number (15): Findings of the simple regression analysis test to test the relationship between knowledge application and the dependent variable "performance"

Independent variable	Constant A	Beta	Calculated T	Sig.	Correlation coefficient (R)	Determination coefficient square (R^2)
Constant	1.917	-	6.724	0.000	-	-
Knowledge application	0.585	0.719	6.379	0.000	0.719	0.517

It is shown that the correlation coefficient R is 0.719, which explains that the relationship between the two variables is strong. The R^2 is 0.517, which means that 51.7% of the change in performance is due to the change in knowledge application, while the rest is due to other factors outside the model. As the calculated T is equal to 6.379 at the probability value (Sig) which is equal to zero, i.e., less than the adopted level of significance, we accept the alternative hypothesis and negate the null one.

Test of the second main hypothesis:

- H_0: There is no statistically significant relationship between knowledge management technology and performance at the level of significance ($\alpha \leq 0.05$).

- H_1: There is a statistically significant relationship between knowledge management technology and performance at the level of significance ($\alpha \leq 0.05$).

To test the hypothesis, we put the following table:

Table number (16): Findings of the simple regression analysis test to test the relationship between knowledge management technology and the dependent variable "organizational performance"

Independent variable	Constant A	Beta	Calculated T	Sig.	Correlation coefficient (R)	Determination coefficient square (R^2)
Constant	1.058	-	2.181	0.035	-	-
Knowledge management technology	0.714	0.662	0.439	0.000	0.662	0.432

It is shown that the correlation coefficient R is 0.662, which explains that the relationship between the two variables is strong. The R^2 is 0.432, which means that 43.2% of the change in performance is due to the change in knowledge management technology, while the rest is due to other factors outside the model. As the calculated T is equal to 2.181 at the probability value (Sig) which is equal to zero, i.e., less than the adopted level of significance, we accept the alternative hypothesis and negate the null one.

Study's results:

The study concluded to a set of results that can be included in the following points:

1- The company relies on the staff with new knowledge rather than on the experienced staff.

2- The company has various sources to obtain both internal and external knowledge and seeks to diagnose and acquire what matters.

3- The weakness of the application of knowledge at the company because it is not interested in supporting the implementation of creative ideas and proposals by its staff, as well as it pays weak attention to scientific research and organizational learning to generate new ideas.

4- The company under study relies on storing explicit knowledge in records, documents and computers, and it is not sufficiently interested in storing implicit knowledge.

5- The company is not interested in distributing knowledge, promoting sharing culture and exchanging experiences and expertise.

6- The company connects its administrative units with a computer network, modernizes and develops the information system, and responds quickly to the changes in technology.

7- The results in the company under study reflect that its performance level is high with a focus on the customer and the achievement of the efficiency of its internal processes.

8- The study showed that there is a relationship between knowledge management and organizational performance; any improvement in knowledge processes and assets is positively reflected in increasing the efficiency of performance. It also shows that there is a relationship between knowledge management technology and the level of performance in its focuses.

Study's recommendations:

Based on the obtained results, a set of recommendations can be made in the following points:

1- The company should control all new information technology and use modern management information systems, economic intelligence systems and decision support systems.

2- The company should valorize its knowledge of the potential expertise of its competence and human resources as one of the most important elements of competitive advantage.

3- The company should pay more attention to organizational learning and providing an environment supporting the sharing culture by knowledge to raise the performance of the staff in order to gain their satisfaction and develop relationship with them.

4- Orientation to customers by knowing their suggestions, listening to their complaints and working to solve them in order to win their loyalty.

5- The company should be open to international experiences in the field of knowledge management to take advantage of its applications in order to improve and develop its performance.

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