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Electronic Leadership as an Entrance to Enhance Knowledge Management Processes: An Exploratory Study of the Opinions of a Sample of Employees in the College of Computer Science and Mathematics / Tikrit University

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Abstract: The research is aimed at identifying the role of electronic leadership(EL) as a (independent) variable in enhancing knowledge management processes(KMPs) in its dimensions (generating knowledge, storage information, knowledge distribution and application) as a variable (approved) ,The research has relied on the descriptive approach to complete the requirements of its philosophy, and the College of Computer Science and Mathematics / University of Tikrit was chosen as a community to apply the research through the individuals working in it The research sample consisted of (40) respondents and the questionnaire was used as a main tool for data collection, The analysis of these data was carried out using SPSS-V24. The research reached a set of conclusions, the most important is (the existence of a correlation and impact of EL and KMPs at the micro and macro levels), and based on the conclusions reached by the research, a set of proposals was presented, the most important was (spreading the culture of EL among academic circles in universities through holding training workshops and scientific seminars for the benefits they can provide for guidance and mentoring towards achieving the goals of the organization).

Keywords: electronic leadership, knowledge management processes, Dimensions of knowledge management processes.

The first axis / research methodology

Introduction: EL is a process of social effect by information technology(IT) to bring about a change in attitudes, thinking, feelings, behavior and performance with individuals, groups or organizations to guide them towards achieving a specific goal. It includes strengthening relations between members of the organization in a context with IT at work and in this case, communication, collection and dissemination of information and knowledge through IT, as it plays an effective part in knowledge management ,this is why the researchers found an entrance to formulate the title of their research tagged (EL is an entrance to enhance KMP) The research included four axes, the first included the research methodology, while the second axis brought to light the theoretical framework of the research variables The third axis was

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concerned with the applied framework of the research and concluded the research with the fourth axis to cover the conclusions and proposals.

1 - The problem of research: nowadays the world is characterized as a world of knowledge as a result of dynamic changes in the social, economic, educational and technological environment, which naturally affect the reality of administrative organizations and threaten their existence and continuation and in this case requires the leadership of the organization to encourage its EL successfully by keeping up with and practicing modern methods to confront crises and avoid their negative effects and maintain the existence and survival of the organization and the problem of research can be summarized with the these questions:

1-1- What is EL and what is the readiness of the research sample organization to benefit from it?

1-2- What are KMPs and does the organization have a high recognition of the research sample?

1-3- What is the effect of EL in KMPs through its dimensions (creation knowledge, storage information, distribution and application knowledge) in the research sample organization?

1-4- Is there an recognition of the vital role played by EL in KMPs through its dimensions (creation knowledge, information storage, knowledge distribution and application) in the research sample organization?

2- The importance of the research: The importance of the study is through the dialogue of a relatively recent concept, which is (EL) and linking it to the subject of KMPs, and perhaps this highlights the importance of the study within the framework of growing research interests to deal with the performance of the organization with a perspective that goes beyond the traditional frameworks that have received intensive interests in the accumulation of information in knowledge management against limited research efforts with regard to EL (within the limits of researchers' knowledge) and the importance is summarized in the these points:

2-1 The importance of the study is an attempt to provide a theoretical and field framework linking EL and KMPs for the company, in light of the above, the study completes its importance in the these aspects:

2- 2-The importance of the study is that it sheds light on the requirements of EL in the organization under study and the extent of its contribution to the attribution of KMPs and attribution to that organization.

2-3 - The importance of the study increases through linking and briefing of the contents of EL and knowledge management, which are two of the main components of the organization researched.

3-Objective of the research: because of the importance of the study and its questions, the main objective of the study is to describe and diagnose the variables of the study, as well as to determine the nature and type of attachment relations and the effect between them at the level of (study population), as well as the following sub-objectives:

3-1- Identify the nature of EL in terms of concept and importance.

3-2- Identify KMPs and types.

3-3- Increasing the perception and cognitive recognition of the study sample in the organization researched on two important topics with their different variables.

3-4- Reaching the results of the attachment and influence relationship between EL and KMPs for the researched company.

3-5- providing a set of proposals depending on the results and conclusions to be reached by the researchers.

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4- Research hypotheses: In keeping with the objectives of the research, two main hypotheses were identified, each emanating three sub-hypotheses, as follows:

4-1-Main hypothesis I: There is a meaningful attachment between EL and KMPs, and the following sub-hypotheses emanate from this main hypothesis:

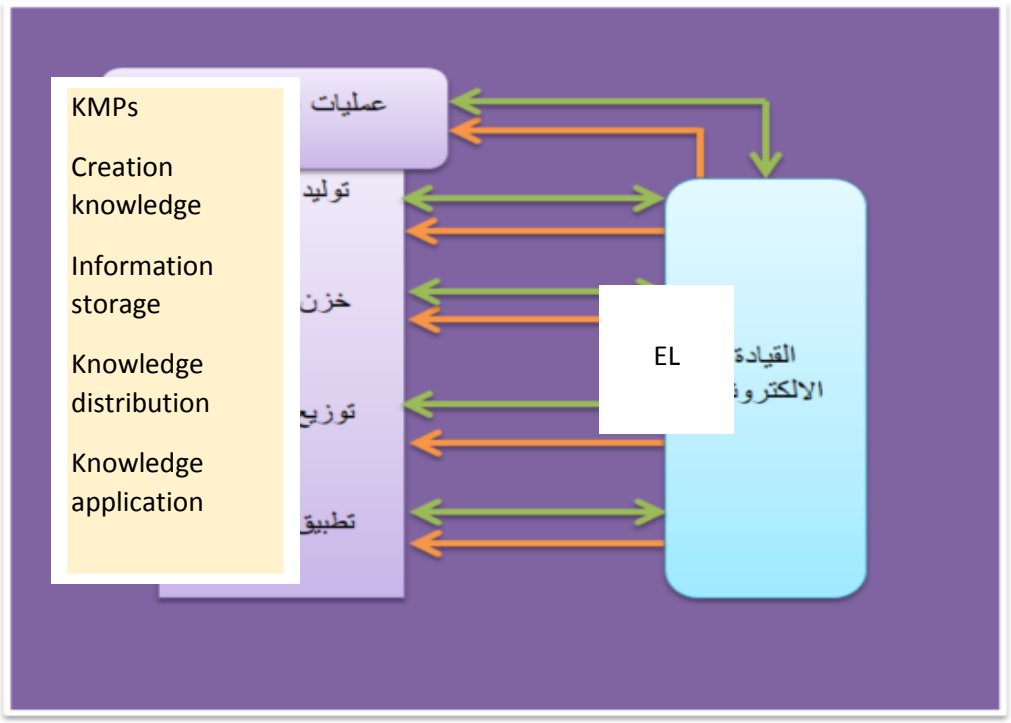
- There is a meaningful attachment between EL and the dimensions of KMPs (individually).

4-2-Main hypothesis II: There is a meaningful effect of EL on KMPs and the following sub-hypotheses emerge from this main hypothesis:

- There is a meaningful effect of EL in the dimensions of KMPs (individually).

5-Hypothetical Research Chart: By reviewing studies and literature that have been interested in both topics (EL and KMPs) the attachment and impact between research variables can be clarified through Form (1).

Figure (1) shows the hypothetical outline of the research



Source: by researchers → represents the effect ↔ represents the attachment

6-**Measuring truthfulness and stability**:

6-1-**Truthfulness Test:** The researchers provided the questionnaire form to the set of competent arbitrators. The researchers took all the observations identified by the arbitrators to make the questionnaire in the current form.

6-2-**stability test**: Researchers used the Lycert Trimeter to measure the resolution paragraphs, which is why this requires a stability test, and this done by ("Cronbacg Alfe equation ") in the case of a test

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where grades are not one and zero but take different values as in the case of the test that used the Licorde ladder, to answer the paragraphs, and table (1) shows the stability test of the research variables.

Table (1) shows the stability test of search variables using Cronbacg Alfe coefficient

Variables		Cronbacg Alfe coefficient
1	0.911	EL
2	0.925	KMP
3	0.915	Total search variables

the above table, showed us the value of the Cronbacg Alfe coefficient is high per research variable, since the total value of the Cronbacg Alfe coefficient is (0.915) for research variables. This result assures us of the sincerity and resolution as well as its validity for application within the research sample.

7- **Research community and sample:** The research community consists of 90 workers. They are members of the Faculty of Computer Science and Mathematics/Tikrit University. The sample of the research consisted of 40 workers. All the questionnaires were distributed and retrieved. They were fully usable and there is no shortage of data.

8- **Search boundaries**: The search boundaries are divided into three boundaries and as follows:

8-1-**Spatial boundaries**: The Faculty of Computer Science and Mathematics/University.

8-2-**Human boundaries**: personnel working in the Faculty of Computer Science and Mathematics/University.

9-**Methods of statistical analysis**: research data were analyzed to arrive at its results by using the SPSS24 program. Statistical tools used in the research were as follows:

9-1-**Percentages, repetitions, standard deviations and arithmetic averages:** used to describe and diagnose research variables.

9-2-**Simple linear regression**: used to know the impact relationship between the main and sub-research variables.

Second axis/theoretical framework of research

1- **The concept of EL:** Leadership is the relationship between a leader and those who follow him. where the boss directs and supervises those who follow him to do the work, so leadership means the completion of the work through individuals to accomplish the organizations' goals (Ryssen: 2000.13). However, as technology and innovation of ICTs such as e-commerce and Internet development, a new leadership pattern called Zaccaro has emerged: 2003,4), where (Avolio & Kahai:2003,5) described EL as not merely an extension of traditional leadership, but as a fundamental change in the way bosses and followers interact with each other within and between organizations and based on the opinions of a set of writers and the researchers made the table (2) summarizing the definitions of EL by said sources.

Table (2) summarizes the definitions of EL.

	Source	Definition
1	Walker:2000	The organization's activities are carried out on the Internet , considering the Internet is the main source of revenue and profits
2	Kissler:2001	The key characteristic is it. of electronic business where the

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		business is done through an electronic broker, i.e. through the Internet and the business is carried out outside international borders.
3	Feeney&Welch:2012	leadership is through face-to-face communication (speaking and listening) and through non-verbal communication, dispensing with signals and physical presence
4	Avolio&et.al.:2014	A social effect process by (advanced information technology) to bring about a change in attitudes, feelings, thinking, behaviour and/or performance with individuals, groups and/or organizations to guide them towards a specific goal.
5	Van Wart et.al.:2016	It is a social effect process that involves all distances and proximity by advanced information technology that changes attitudes, emotions, behavior, thinking and performance.
6	Van Wart&et. al.:2019	An effective method that blends electronic and traditional communication methods. It involves awareness of current ICTs, selective adoption of new ICTs for oneself, organization and technical efficiency in the use of selected ICTs.
7	Darics:2020,14	Leading individuals through digital channels using new forms of communication techniques along with geographical expansion of corporate activities.
8	Torre&Sarti:2020,3	A process involving the management of electronic and traditional communication in an effective and adaptable manner (based on coexistence between two levels of relationships and the need to preserve the human dimension).

Source: done by researchers based on the above sources.

From the foregoing, researchers conclude that EL is not related to a particular place or time, since the communication process between the leader and the subordinates has no limits, and therefore its total reliance is on IT, which reduces the effort of the boss.

2-The importance of EL: By viewing the opinions of a group of writers and researchers, the researcher can summarize the importance of EL by these points:

2-1- The importance of EL comes from the change in management that leads to change by leadership itself, owing to increased technical requirements at all levels of leaders who are expected to possess adequate qualifications from new information and communications technology (Groysberg: 2014.23).

2-2- EL contributes to a change in organizational patterns. Bosses work remotely using leadership patterns that rely heavily on electronic communication. Therefore, the boss must manage, master and coordinate it. It is also important in these patterns that IT-based means are used (Van Wart et al.: 2017.14).

2-3- EL allows people with strong IT expertise to lead qualified staff to deal with IT and other disciplines to identify or design business models as well as the ability to exploit creative opportunities and find appropriate solutions to problems, and understand the basic skills of work and communication. (Ivanova&Arenas:2014,7).

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2-4- EL seeks to secure support in the widest possible way by having the high capabilities to break down barriers of time and place. In addition, trust can play an important role in achieving EL transactions (Ramage: 2017.10).

2-5- IT plays an effective role in organizations by having IT expertise and practices that help facilitate business handling and find appropriate solutions to problems and also help understand successful working methods, as well as provide effort and time for the boss and employee (Groysberg: 2014.23).

3-**The difference between conventional and EL**: Identify (Renu:2014,3) the difference between electronic and conventional leadership based on a set of criteria and have been summarized in table (3) as indicated therein.

Table 3. Difference between conventional and EL

	criterion	Conventional leadership	EL
1	Type of Communication	Face-to-face contact between the boss and his followers	Face-to-face communication is not done, but communication via an electronic broker such as the Internet between the boss and his followers.
2	Members	The traditional boss of the leadership and his followers are the main members	The boss is called the virtual boss and calls the subordinates the virtual subordinates
3	Qualities	It does not require them to have knowledge about new and modern ICTs	They must have knowledge about new and modern ICT
4	Place Required	A particular office or place is required to carry out the work by the boss and his followers	There is no need for a particular office, they can communicate with each other even from one place to another, from one country to another.
5	Availability of Members	All members are available only during working hours	Available even after working hours, 24 hours a day, 7 days a week.

4- **Electronic boss's qualities**: Walker:2000,21, (Pulley:2001,34) and (Potter:2002,15) (Colfax, et.) agree. al. : 2009.44) The electronic boss must possess a set of skills and have been summarized by these of points:

1- Communication skills and quality education.

2- A world and multicultural mindset.

3- Sensitivity to the mindset of followers.

4- High flexibility.

5- Ability to work under various department heads.

6- Persuade followers of his unique ideas and focus on creativity and innovation.

7- Ability to use better and modern IT.

8- Ability to effectively monitor, verify and manage virtual work.

9- Ability to convince others of the benefits of new and modern technology.

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5- **Challenges facing cyber bosses**: EL is a new paradigm, and it is a new style of leadership where EL plays an important role with the use of new and modern ICTs. (Kerfoot:2010), (Hanna:2007), (Darleen:2009,32) and (Holland & et.al.: 2009.14) agreed that E bosses have to face a number of challenges:

5-1- Creation a collaborative virtual culture: All connections are made online where the virtual boss has to guide people from a distance which creates a huge challenge for the boss to create a culture that helps him to be heard by all followers so that they can coordinate with him to achieve common goals.

5-2- Creation a social climate through ICT: It is a great challenge for an e-boss to make a social climate through ICT so that their followers coordinate with each other and work in a more socially responsible manner while taking into account others.

5-3- Communicating to people through the electronic medium effectively: This is a great challenge for online bosses to communicate effectively because it requires ICT knowledge from both parts. The boss as well as followers should know how to communicate electronically.

5-4- Building trust in a virtual communication: It is a great challenge for the boss to build trust with followers because face-to-face communication does not happen between them. Without face-to-face contact, it is very difficult to trust someone.

5-5- Developing a good electronic presence: It also presents a challenge for the boss to develop a good online presence to guide followers.

5-6- Inspiring people from a distance: It is also very difficult for the boss to inspire people in a situation where face-to-face communication is not done. It becomes difficult for the boss to motivate and inspire them to do the work properly in a hypothetical situation because he is unable to see their reaction and express their direction and orientation.

5-7- Monitoring and controlling virtual employees: It is also very difficult for the virtual boss to monitor virtual employees whether or not they work according to his guidance. It is also a great challenge for the boss to control their performance in a virtual environment.

5-8- Developing technical competence: We also know the technological efficiency required for leadership. It is a great challenge for e- bosses to develop the technical efficiency of followers as well as for him so that performance is not affected.

6- KMPs: Most entry points and concepts address knowledge management as a practical. Most researchers in the field of knowledge management have pointed out that knowledge derived from information and its internal and external sources means nothing without the processes they enrich, and they can be accessed, participated in, stored, distributed, preserved and retrieved for application or reuse (Mehaoui, 2004, 58). KMPs are processes that assist organizations in acquiring, generating, selecting, organizing, using and disseminating knowledge and transforming the Organization's important information and expertise, which are essential for various management activities, such as decision-making, problem-solving, strategic planning and so on (Nuri, 2011, 135). (Al-Kubaisi, 2002, 63) considers that "the processes, tools and behaviors that are jointly formulated and performed by the beneficiaries of the Organization to acquire, store, distribute and reflect knowledge in business processes to access the best applications with a view to long-term competition and adaptation". As it is defined (Harem, 2009, 360) as "activities and processes related to the acquisition, building and preservation of knowledge through coding, storage, assimilation, transfer, participation and application of knowledge to achieve the objectives of the Organization", Southon considers that three are essential to knowledge management; First, individuals must have access to knowledge; Second, their desire to use knowledge; Finally, they

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have the ability and wisdom to know where to use knowledge (Ajam, 2007, 89). (Wigg) has developed a five-stage model for the development of the institutional knowledge cycle ("Process of developing and preparing knowledge, process of acquiring knowledge, process of sifting and refining knowledge, process of raising knowledge") (Mohammed, 2008, 29). The "Duffy, 2000,64-67" model for knowledge management, expressed as 2, considers that the Organization obtains information, energy and activity from the external environment. Through the involvement of strategy, individuals, processes and technology, information is transformed into knowledge and thus into processes for the production of goods and services.

It contributes to increasing the Organization's wealth, and knowledge management is a process that involves acquiring implicit knowledge and phenomenon, supporting and attributing business and generating returns and emphasizing the human element as the core of it, and obtaining lessons learned through frequent use of knowledge. Under this model, access to knowledge includes (acquisition, organization, retrieval, distribution, sustainability) (Droze,).

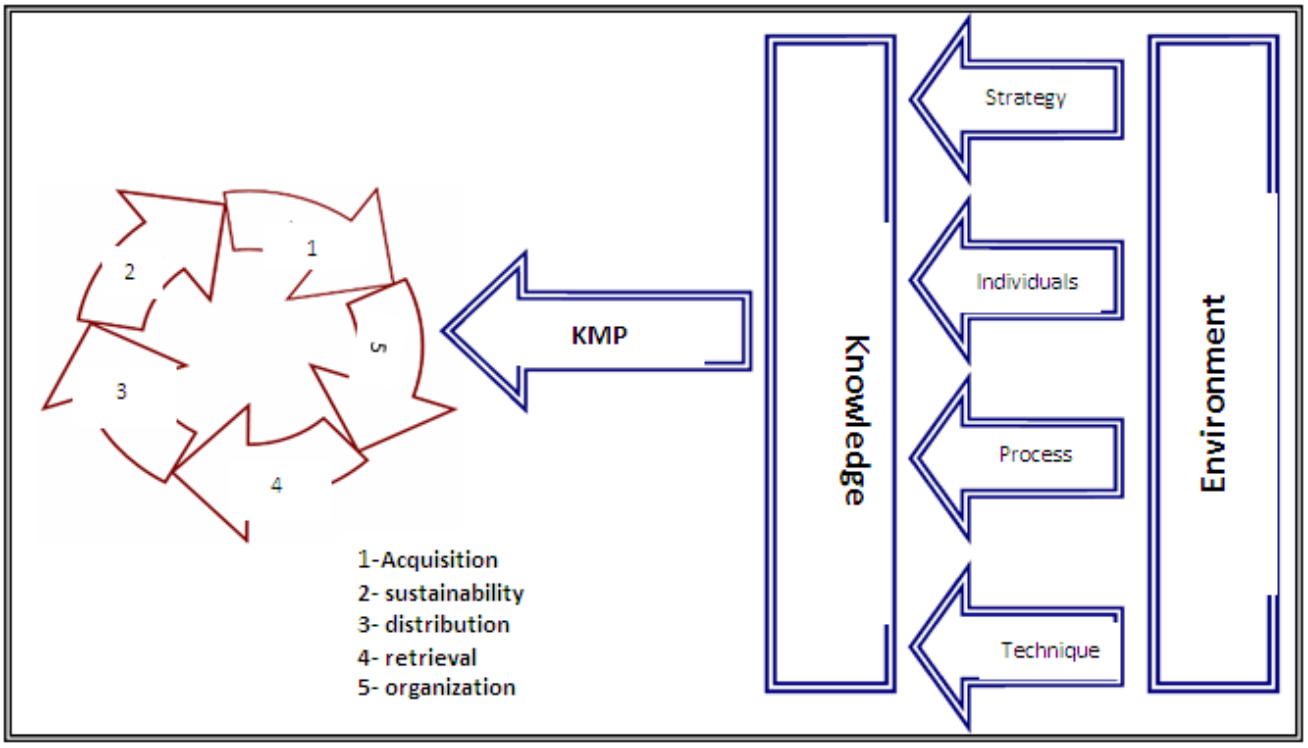


Figure (2) Duffy model for KMP

Source: Drozah, Suzanne Saleh, 2008, Relationship between knowledge management requirements and processes and their impact on institutional performance excellence, Master's thesis, Faculty of Administrative and Financial Sciences, Middle East Postgraduate University, Jordan, p. 37.

KMPs vary depending on the entry points of their study. The document input and technical input emphasize the processes of sustaining, upgrading, enriching and reusing existing knowledge. Social organizational and value-added inputs emphasize the process of innovating and generating new knowledge (Hassan, 2007, 26). These differences in specialists' and organizations' perspectives on KMP in terms of their sequence, number and classifications are partly due to the different evolution of these organizations, the maturity and perception of senior management for the benefit and management of

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knowledge, and to the purpose of using and applying knowledge. The researchers present through table (4) a set of researchers' classifications of KMPs.

Table (4) Classification of KMPs according to some researchers' opinions

No	KMP / Researchers	Knowledge										
		Diagnosis	**Planning**	**spreading**	**Creation**	storage	organization	**distribution**	**application**	**retrieval**	**Updating**	**pursuit**
1	Heisig&Vorbek2001, 114.	√	√		√	√		√	√			
2	Tiwan, 2002, 59				√	√		√	√			
3	Turban, 2002, 396		√	√	√	√	√					
4	Laudon & Laudon ,2003:317		√	√			√		√	√		
5	Mc Elroy, 2003 , 5	√			√	√		√		√	√	
6	Fernandez, et. al,2004,32	√			√			√	√			
7	Najm, ،2005 103		√	√	√			√				
8	AL-Ali, et. 43 ،2006	√			√	√		√	√		√	
9	Ajam , ،2007 92				√	√		√	√			
10	Drozah, 36 ،2008				√		√	√		√	√	
11	Abo Farah and Alian 2010،57	√	√	√	√	√	√	√	√	√	√	√
12	Othman ,40 ،2010	√	√		√	√		√	√	√		
13	Hanna, 35-32 ،2011	√	√		√	√		√	√			
14	Nori, ،2011 135	√	√		√	√	√					
15	Fulmer, 2011, 13				√	√		√	√			
Agreement Percentage%		53.3	53.3	26	933	733	33.3	80%	666	33.3	26.6	6.66

Source: Table done by researchers based on the above sources

The researchers note from the table above that there is near-general agreement among researchers on four of its main KMPs (knowledge generation, knowledge storage, knowledge distribution, and knowledge application).

(Mertins et. al) used these critical KMPs, which will be adopted in this study, represent from the researchers' (modest) perspective of important key processes, As well as being given considerable relative

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importance in the studies of researchers and specialists, (Al-Kubaisi, 2002, 70-71) pointed out when enumerating KMPs adopted by a group of researchers on this topic. In addition, these four processes are considered as a parachute for a number of processes that researchers have mentioned or can be combined with, perhaps as a result of some researchers' expansion in the enumeration of these processes in some detail. Figure 3 illustrates the four KMPs adopted for the study's purposes.

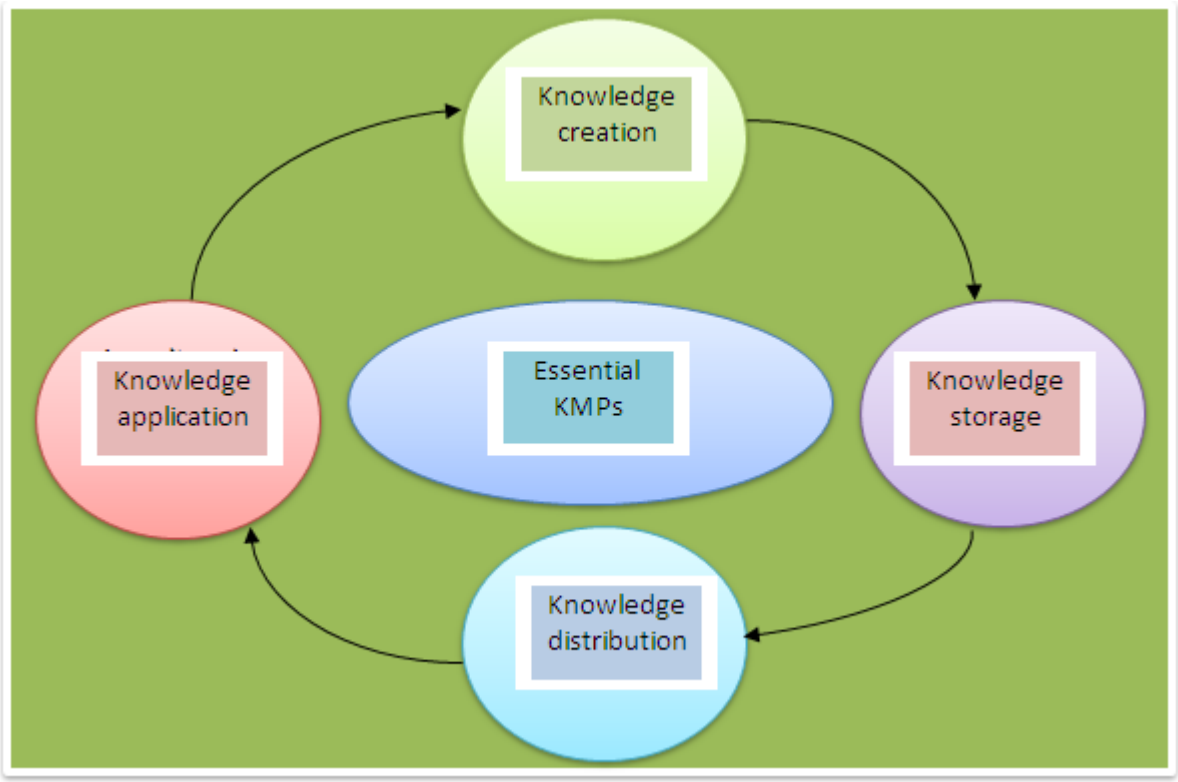


Figure (3)the essential KMPs

Source: Abdullah, Nahda Ismail, 2006, The Role of KMPs in Promoting Competitive Advantage, Future Research Journal, No. 13, p. 38.

6-1- Knowledge creation: The process means: capture, purchases, innovations, discoveries, absorption, acquisition and attaining. All these processes refer to creation and access to knowledge. Knowledge creation processes need knowledge, experience, practice and organizational culture that encourages this (Abu Bafara and Alian, 2010, 7). These creation processes do not belong to an organizational level but not to another. All management levels are candidates for knowledge creation processes according to their respective competence and contacts. Knowledge creation can occur in reproductions, when solving problems, when completing tasks, current knowledge and experience is used in these processes, which involve learning processes, as workers' experience is important, and workers must be motivated and supported (Ramalingam, 2006, 25). Knowledge creation is closely related to creativity. Knowledge management is central to product creativity and improvement, implementation of decision-making, regulatory adaptation and innovation (Sher & Lee, 2004,935). It plays a key role in the rapidly changing environment by reducing the time required for the implementation and implementation of tests, especially if supported by IQ, the process of knowledge creation begins with an idea presented by the individual who obtained or created it. But new knowledge can be created through research, development, experimentation, learning lessons and creative thinking (Hassan, 2007, 27). The representation and absorption of knowledge refers to the acquisition of apparent knowledge. It is worth mentioning here that

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individuals and organizations differ in the ability to absorb and represent knowledge, for a number of reasons, such as absorptive capacity, capability, and the possibility of communication between the source and the target. This leads to different capabilities of individuals and organizations to distinguish the value of new knowledge. Knowledge is acquired in three ways: (Learning, Scientific Research and Technical Development) (Long and Alive, 2007, 155).

6-2- Knowledge storage: These include: retention, sustainability, access, retrieval and location. The organization may make a great effort to acquire knowledge, but it may be vulnerable to losing it either by forgetting or stalling access to it. (Al-Kubaisi, 2005, 73). Because knowledge storage and retrieval when needed is an important element of knowledge management, often referred to as organizational memory, a term that refers to the storage and preservation of intellectual capital, it includes information whereby individuals operate as well as knowledge in the organization's systems and structures. (Al-Ali et al., 2006, 43) In the same sense and in order to ensure continuity of utilization of the Organization's knowledge base in the future and not to lose it, this knowledge must be preserved and made retrievable and accessible at any time under any circumstances, for which purpose knowledge management should establish organizational memory (Gandhi, 2004,373). There are two types of storage units (Hanna, 2011, 29):

A-**Sequential storage**: Sequential Storage. Magnetic tape is used to store cumulative knowledge.

B- **Direct Access Storage**: Direct Access Storage uses the magnetic disk. The inventory can be read in it for long years with the need to have a knowledge base and quantify the open part of that base. Knowledge value depends not on the moment it is created but on the far-reaching value of knowledge, so knowledge repositories must be sustained.

6-3- Knowledge distribution: Once created and stored, knowledge is given to individuals who need it within the organization. The distribution of knowledge varies according to organizations and the degree of use of technology, thus ranging from the publication written on paper, or through meetings and dialogues between individuals and groups within the organization to the distribution through computer networks, as the latter implies the distribution of coded knowledge. while the nature of communication and meetings between individuals is an implicit and undisclosed means of knowledge transfer (Ajam, 2007, 95).

Knowledge is distributed implicitly and visibly through training and dialogue methods. Knowledge can be distributed through modern documents, records, devices and equipment while ensuring that this knowledge is accessible in an integrated manner. Four conditions for the distribution of knowledge are the means, the ability to transfer knowledge and the incentive to transmit knowledge, and that there are no impediments to the transfer of knowledge (Fulmer, 2011, 13).

6-4- Knowledge application process: The objective and purpose of KM is to apply the knowledge available to the organization. This application is the most prominent of its processes. This process refers to: use, reuse, utilization (leap, 2002, 76). The application process is an important process that reflects previous efforts of creation, storage and deployment, and translate its results in practice through its application in the organization. Without the application process, past processes have little significance. As the entire process constitutes a closed loop, the application's outputs with its errors, disadvantages and advantages will be reflected in the entire four KMPs within that cycle, thereby increasing its value through continuous corrections (Ajam, 2007, 26). In this regard, (Gandhi,2004,374) considers that the Organization should acquire the best applications and add new KM applications to be accessible to its future users, as the lack of timely access to applications and practices would be a waste of the Organization's previous efforts.

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Third Axis/Applied Framework for Study

Through this research, researchers seek to explain a brief overview of the study sample organization, as well as describe and diagnose study variables, and test the research hypotheses as:

1-Organization Description Sample Research: The organization sample research is the Faculty of Computer Science and Mathematics of Tikrit University located within the administrative boundaries of Salahuddin Governorate, The Faculty of Computer Science and Mathematics/University of Tikrit was established in 2007 and consists of two departments: Computer Science and Mathematics. The first batch of its students was received in (2007-2008). The College actively seeks to provide all departments of Iraq that suffer from a lack of computer science and mathematics specializations. The College provides training and development activities for the community and various service and industrial facilities in Iraq. The Faculty has an important, significant and distinct role in promoting the scientific and cultural aspect of the University through its intensive scientific seminars.

2- Description and diagnosis of study variables.

2-1-Description and diagnosis of the EL variable: Table (5) data indicate that the responses of individuals in the College about this variable through its indicators (X1-X12) were in an agreement and in the proportion (68%), while the negative direction (disagreement) of those responses was in the proportion (12%), while the proportion of neutrals (29%), came in an arithmetic mean of (2.43), and a standard deviation of (0.66).

Table 5 data revealed that individuals in the College feel independent in the performance of their tasks and functions as they use modern IT. This is confirmed by the individual's answers in the phrase (12X) Which came up with an agreement of (77.5%) and the arithmetic mean of (2.77) and with a standard deviation of (0.42) and because the IT in the College has the advantage of being modern, it is also easy to deal and here has enabled the working individuals to stimulate more and more in the accomplishment of the work entrusted to them. This is what the responses of the researchers in paragraph (9X) which received an agreement ratio of 77.5%, an arithmetic mean of 2.77 and a standard deviation of 0.42.

The results clearly demonstrated that there is constant and sustained follow-up by organization Sample Study. In addition, employees believe that the work on IT has reduced the exercise of close control over the subordinates in the age of the senior management. Here is an affirmation that there is a situation closer to compatibility between the aims of organization Sample Study and what IT aims to do, The aims of IT are the legitimate novelty of the organization's objectives and are reflected in the harmonious situation between them through the presence of leadership that follows the work and communicates with workers electronically and gives them the right space to perform their functions well. This is reflected in the answers of individuals in the phrase (11X) which received an agreement ratio of (72.5%), an arithmetic mean of (2.62) and a standard deviation of (0.66). The foregoing leads us to say that the modern IT used in the College and its ease of use, it gives the worker sufficient confidence and loyalty to the college. This is in itself the aim of the EL as it seeks to strengthen the worker's trust and loyalty to his organization in which he works in order to reach safety. This is confirmed by the individual's answers in paragraph (x7), in which the agreement ratio was 67.5% and with an arithmetic mean of (2.55) and a standard deviation of (0.71). Thus, it is clear that the EL in the faculty of study is as clear as it is applied. This is explained by all the indications that the EL is positive according to the responses of individuals in the faculty.

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Table 5. Repeated distributions, percentages, arithmetic means and standard deviations of EL

X	Agree 3		Neutral 2		Disagree 1		arithmetic mean	standard deviation
	repetition	%	repetition	%	repetition	%		
X1	15	37.5	15	37.5	10	25	2.12	0.79
X2	19	47.5	15	37.5	6	15	2.32	0.72
X3	19	47.5	16	40	5	12.5	2.35	0.69
X4	17	42.5	11	27.5	12	30	2.12	0.85
X5	17	42.5	19	47.5	4	10	2.32	0.65
X6	25	62.5	12	30	3	7.5	2.55	0.63
X7	27	67.5	8	20	5	12.5	2.55	0.71
X8	22	55	12	30	6	15	2.4	0.74
X9	31	77.5	9	22.5	0	0	2.77	0.42
X10	25	62.5	10	25	5	12.5	2.5	0.71
X11	29	72.5	7	17.5	4	10	2.62	0.66
X12	31	77.5	9	22.5	0	0	2.77	0.42
overall index	68		29		12		2.43	0.66

Source: Electronic calculator results according to software Spss N = 40 * P <= 0,05

2-2-Description and diagnosis of the variable processes of knowledge management and its dimension:

2-2-1-Knowledge creation: Table (6) data indicate that the responses of individuals in the College to this dimension through its indicators (X13-X18) were in the Agreement and in the proportion (56%), while the negative trend (disagreement) was in the proportion of those responses (8%), while the proportion of neutrals (36%), all with an arithmetic mean of (2.45), and a standard deviation of (0.60). Table (6) data revealed that the individuals in the College sample research possess expertise with all the possibilities and qualifications to create knowledge. This is confirmed by the responses of individuals in the phrase (13X), which came with an agreement ratio of 77.5%, with an arithmetic mean of 2.77, and with a standard deviation of 0.42. This expertise is available in our faculty and prepares workshops for organizational education. These workshops are considered as one of the effective ways to create knowledge by creating an environment that blends ideas and interacts to get everything new. This was endorsed by the responses of the investigators in paragraph (x16), which received an agreement ratio of 65%, a arithmetic mean of 2.6 and a standard deviation of 0.59. It is clear from the foregoing that the science of knowledge creation in the faculty, the sample of the study, is as clear as it is. What this explains is all that happened in the indicators of the study, that is, that this process has been positive according to the answers of individuals in the faculty of the study sample.

Table 6. Iterative distributions, percentages, arithmetic means and standard deviations to create knowledge

x	Agree 3		Neutral 2		Disagree 1		arithmetic mean	standard deviation
	repetition	%	repetition	%	repetition	%		
X13	31	77.5	9	22.5	0	0	2.77	0.42
X14	23	57.5	13	32.5	4	10	2.47	0.67
X15	17	42.5	18	45	5	12.5	2.3	0.68
X16	26	65	12	30	2	5	2.6	0.59

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X17	11	27.5	21	52.5	8	20	2.07	0.69
X18	23	57.5	15	37.5	2	5	2.52	0.59
overall index	56		36		8		2.45	0.60

Source: Electronic calculator results according to software Spss N = 40 * P <= 0,05

2-2-2- Storage of knowledge: Table (7) data indicate that the responses of individuals in the College to this dimension through its indicators (X19-X24) were in the Agreement and in the proportion (59%), while the negative (disagreement) was in the amount of (12%), while the proportion of neutrals (29%), all with an arithmetic mean of (2.34), and a standard deviation of (0.69). Table 7 data revealed that the individuals in the College research sample not only stop at the creation of knowledge but document it continuously and hopefully in future use. This is confirmed by the responses of individuals in the phrase (19X), which came with an agreement of 75%, an arithmetic mean of 2.47, and a standard deviation of 0.64. In addition, the faculty's knowledge documentation and retrieval process is flexible and user-friendly. This is approved by the responses of the investigators in paragraph (x21), which received an agreement ratio of (70%), an arithmetic mean of (2.3) and a standard deviation of (0.79). It is clear from the foregoing that the science of knowledge storage in the faculty is characterized by the study sample to the extent of its work. This is explained by all that occurred in the indicators of the study, that is, that this process has been positive according to the responses of individuals in the faculty sample study.

Table 7. Repeated distributions, percentages, arithmetic means and standard deviations of knowledge storage

x	**Agree 3**		**Neutral 2**		**Disagree 1**		**arithmetic mean**	**standard deviation**
	repetition	%	repetition	%	repetition	%		
X19	30	75	5	12.5	3	7.5	2.47	0.64
X20	25	62.5	10	25	5	12.5	2.37	0.7
X21	28	70	4	10	8	20	2.3	0.79
X22	16	40	20	50	4	10	2.3	0.64
X23	19	47.5	16	40	5	12.5	2.35	0.69
X24	18	45	16	40	6	15	2.3	0.72
overall index	59		29		12		2.34	0.69

Source: Electronic calculator results according to software Spss N = 40 * P <= 0,05

2-2-3- Distribution of knowledge: Table (8) data indicate that the responses of individuals in the College to this dimension through its indicators (X25-X30) were in the Agreement and in the proportion (55%), while the negative (disagreement) was in the amount of (19%), while the proportion of neutrals (26%), where all came in an arithmetic mean of (2.26), and a standard deviation of (0.73). Table 8 data revealed that the individuals in the College are not only stopping at the creation of knowledge but are documenting it continuously and hopefully using it in the future. Accordingly, the College undertakes to communicate information to individuals in a timely manner. This is confirmed by the individual's answers in the phrase (25X), which came in an agreement ratio of 65%, an arithmetic mean of 2.17, and a standard deviation of 0.78. In addition, the College has the distinction of spread and distributing knowledge based on follow-up and continuous classification. This was endorsed by the responses of the investigators in paragraph (x29), which received an agreement ratio of (62.5%), an arithmetic mean of (2.4) and a standard deviation of (0.67). It is clear from the foregoing that the science of the distribution of knowledge in the faculty of the study is as clear as it is to be done. What this explains is all that happened in the indicators of the study,

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that is, that this process has been positive according to the answers of the individuals in the faculty of the study sample.

Table 8. Repeated distributions, percentages, arithmetic means and standard deviations of knowledge distribution

x	Agree 3		Neutral 2		Disagree 1		arithmetic mean	standard deviation
	repetition	%	repetition	%	repetition	%		
X25	26	65	5	2.51	9	22.5	2.17	0.78
X26	21	52.5	15	37.5	4	10	2.42	0.67
X27	20	50	13	32.5	7	17.5	2.32	0.76
X28	24	60	12	30	4	10	2.5	0.67
X29	25	62.5	11	27.5	4	10	2.4	0.67
X30	10	25	11	27.5	19	47.5	1.77	0.83
overall index	55		26		19		2.26	0.73

Source: Electronic calculator results according to software Spss N = 40 * P <= 0,05

2-2-4- Application of knowledge: Table (9) data indicate that the responses of individuals in the College to this dimension through its indicators (X31-X36) were in the Agreement and in the proportion (51%), while the negative (disagreement) was in the amount of (12%), while the proportion of neutrals (37%), where all came in an arithmetic mean of (2.37), and a standard deviation of (0.68). Table 9 data revealed that individuals in the College sample research not only apply knowledge according to instructions, but also provide guidance and orientation as one of the effective ways of applying knowledge. This is confirmed by the responses of individuals in the phrase (32X), which came in an agreement ratio of 62.5%, with an average calculation of (2.55) and with a standard deviation of (0.63).

What supports the process of guidance and orientation in the application of knowledge is the involvement of employees and those involved in the college in cognitive development courses that enable them to apply knowledge well in order to achieve the desired goals. This was endorsed by the responses of the investigators in paragraph (x34), which received an agreement ratio of (62.5%), an arithmetic mean of (2.52) and a standard deviation of (0.67). It is clear to us that the science of applying knowledge in the faculty of study is as clear as it is done. What this explains is all that happened in the indicators of the study, that is, that this process has been positive according to the responses of individuals in the faculty of study.

Table 9. Repeated distributions, percentages, arithmetic means and standard deviations of knowledge application

x	Agree 3		Neutral 2		Disagree 1		arithmetic mean	standard deviation
	repetition	%	repetition	%	repetition	%		
X31	23	57.5	10	25	7	17.5	2.4	0.77
X32	25	62.5	12	30	3	7.5	2.55	0.63
X33	13	32.5	23	57.5	4	10	2.22	0.61
X34	25	62.5	11	27.5	4	10	2.52	0.67
X35	20	50	15	37.5	5	12.5	2.37	0.70
X36	15	37.5	18	45	7	17.5	2.2	0.72
overall index	51		37		12		2.37	0.68

Source: Electronic calculator results according to software Spss N = 40 * P <= 0,05

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3-Testing of research hypotheses.

3-1-Main hypothesis I: Table (5) data revealed a positive correlation at the micro level between EL and KMPs, which was the most robust relationship with "Application of knowledge" as the coefficient of association (0.68) at the significance standard (0.05) is the final result of the interaction of KMPs with each other, followed by the relationship of EL with the "Knowledge Storage" as its correlation coefficient (0.56) is valued at the significance standard (0.05) and comes after the relationship of EL with "Distribution of knowledge", the value of which is the coefficient of association (0.51) at the significance standard (0, 05) EL was less associated with knowledge creation and a ratio of (0.50) at the significance standard (0, 05) Which means that the organization's EL and KMPs have a good ratio between them in determining the degree of correlation between the variables of the phenomenon under study at a significance standard (0.05).

Table 10. Correlation coefficient between research variables at the micro level

Adopted dimension / Independent Variable	Creation knowledge	Storage knowledge	Distribution knowledge	Application knowledge
EL	0.50	0.56	0.51	0.68

Source: Prepared by researchers based on results (spss.v24) N=40 p<= (0.05)

Regarding the correlation between EL and KMPs at the macro level, it turns out that there is a degree of correlation (0.58), which explains that between EL and KMPs combined, although there is a disparity in their correlation at the micro level, this is what is indicated in table (6).

Table (11). Correlation Factor between Search Variables at Macro Level

Adopted Variable / Independent Variable	KMPs
EL	0.58

Source: Prepared by researchers based on results (spss.v24) N=40 p<= (0.05)

The foregoing confirms the introduction of the null hypothesis that there is a correlation between EL and KMPs at the macro and micro levels.

2) Second main hypothesis: The results of the regression analysis described in table (7) indicate a significant impact of EL on KMPs, which is valued (F) calculated (14.04) which is greater than the tabular value of (4.76) at a significant standard (0,05) and two free grades (1, 38), while the limitation factor was valued (R2) (0.51), this means that EL in the Faculty of Computer Science and Mathematics/University of Tikrit has contributed and interpreted (51%) of differences in KMPs the remainder of the variables were random, uncontrollable, or not essentially in the study model. By following up on the (B) coefficient and the (T) test, the calculated (T) value was (2.58) greater than the 1.734 (0.05) at a significant standard and two degrees of freedom (1. 38). This result will reject the alternative hypothesis and accept the null hypothesis (second main hypothesis), which states that "there is a significant impact of EL in KMPs ."

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Table 12. Impact relationship between research variables at macro level

Adopted Variable / Independent Variable	EL						
	B		T		R2	F	
	B0	B1	Calculated	tabular		Calculated	tabular
KMPs	0.519	0.568	2.58	1.734	0.51	14.04	4.76

Source: Prepared by researchers based on results (spss.v24) N=40 p<= (0.05)

In order to clarify the impact relationships of EL as an independent variable in both KMPs as adopted variables and in the light of the hypotheses arising from the second main hypothesis, the results of the table indicate (8) To the existence of an implied effect of EL in both (Knowledge creation, knowledge storage, knowledge distribution, knowledge application) That is, we will accept the sub-hypotheses that stemmed from the second main hypothesis, where the highest impact of EL was from the share of the knowledge creation process supported by the value of (F) calculated (13.716) which is greater than its overly tabular value (2.76) At a significant standard (0.05), the capability of the independent variable was interpreted through the determination coefficient (R2) value (0.89) in the approved variable and rated second to influence the knowledge application process supported by value (F) calculated (13.58) which is greater than the tabular value of (2.76) at a significant standard (0.05), The independent variable's interpretive capacity was achieved through the identification factor (R2) value (0.66) in the adopted variable, which came in third place to influence the process of storing knowledge supported by a value (F) calculated (10.615) which is greater than the tabular value of (2.76) at a significant standard (0.05). Finally, the influence of EL in the last-ranked distribution of knowledge is supported by the value of (F) calculated (8.015) is greater than the tabular value of (2.76) at a significant standard (0.05), and the capability of the interpretive independent variable through the determination coefficient (R2) amounted to (0.57) per adopted variable.

Table 13. Impact relationship between research variables at the micro level

Adopted Variable / Independent Variable	EL				
	R2	B1	F		B
			Calculated	Tabular	
Creation knowledge	0.89	1.655 (0.328)	13.716	2.76	0.298
Storage knowledge	0.62	0.697 (0.674)	10.615	2.76	0.467
Distribution knowledge	0.57	0.814 (0.592)	8.015	2.76	0.417
Application knowledge	0.66	0.719 (0.677)	13.58	2.76	0.513

Source: Prepared by researchers based on results (spss.v24) N=40 p<= (0.05)

Forth Axis: Conclusions and proposals

1-**Conclusions**: The research's findings can be summarized by the following points:

1-EL is a new model, and it is a new style of leadership where EL plays an important role using new and modern ICT.

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2- The electronic leadership of the College sample study is as clear as it is applied. This is explained by all that occurred in the indicators indicating that the EL is positive according to the responses of individuals in the College.

3- The individuals in the College sample research not only stop when creation knowledge but document it continuously and hopefully use it in the future.

4. There is a positive correlation at the micro level between EL and KMPs. This relationship has been most robust with "knowledge application". The correlation coefficient (0.68) is valued at the significant standard (0.05) as the ultimate result of the interaction of KMPs with each other.

5- The existence of a significant effect of EL in both (knowledge creation, knowledge storage, knowledge distribution, application of knowledge).

2-Proposals: Based on the research's findings, the following proposals may be made:

1. Distribution the culture of EL among the academic community in universities through holding training workshops and scientific seminars for the benefits they can offer to guide and guide the achievement of the organization's objectives.
2. Create appropriate infrastructure in universities to activate EL.
3. Encouraging academic leaders and individuals working in universities to participate in training courses and seminars internally and externally that contribute to the development of their abilities and skills to facilitate EL science and provide the necessary financial allocations to enhance EL.
4. The formation of a unit for KMPs in the faculty sample research because it leads to the formation and development of its distinctive capabilities and thus the achievement of its knowledge goals.

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