THE IMPACT OF KNOWLEDGE MANAGEMENT TECHNOLOGIES (KMTs) ON ORGANIZATIONAL LEARNING: CASE STUDY IN YAZD ELECTRICAL DISTRIBUTION COMPANY (YEDC)

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ABSTRACT
The main goal in the present study is to create a comprehensive framework in order to evaluate the process that knowledge management technologies apply in organizational learning. The empirical evidences indicate that despite enormous investments in software and hardware mechanisms for establishing knowledge based system in organizations, most of them have not reached the expected results. The present study is conducted in order to find out about the factors that influence the successful establishment of knowledge management technologies and pave the way for learning in organizations; in addition, this study investigates the approaches on which organizations can rely in order to take advantage of competitions based on their key resources. The population includes staff in Yazd Electrical Distribution Company (YEDC). This study is a field research in which cross-correlation method is applied and the goals are practical. Random sampling was used in this study and data was gathered through a standard questionnaire (which has been tested regarding reliability and validity). The obtained results indicates that deployment of knowledge technologies in organizations is influenced by personality traits of the staff and individual learning will directly affect the overall learning within the organization. Moreover, the results of the overall fit of the model reveals that the deployed model in this study is an appropriate one for investigating the impacts of knowledge management technologies in organizational learning.

Keywords: Individual Learning, Organizational Learning, Knowledge Management, Knowledge Management Technologies

INTRODUCTION
Based on strategic approaches, the most valuable property and capital in one organization in today's world is its intellectual capital, knowledge production and integration within an organization. Regarding the strategic importance of knowledge, most of the organizations have deployed a new type of Its in order to support their knowledge management and organizational learning which has consequently led to many limitations and challenges for the organization. Deploying KMTs such as portals, groupware and data stores can be helpful in gathering and using the organization intelligence (Graham, 2003). Organizations cannot survive in today's world unless they try to go along the world changes quickly. The most important role that can be given to KMT is to consider it as a change methodology. By attracting new knowledge and efficiently managing that knowledge, KMT can be seen as the most important factor that can bring changes within an organization (Hales, 2001). Bellant (2001) believes that knowledge management is a process through which organizations deploy their gathered information. However, organizational learning is a tool by which the knowledge is protected so that others (in addition to knowledge producers) can use them (Qorbanizade, 2008, 50). This study aims at investigating KMT impacts on organization learning, and determining the effective factors in developing knowledge in an organization.

STATEMENT OF THE PROBLEM
The global competition, fast technological changes and privatization are among the factors that lead organizations to constantly review and update their strategies and activities. Thus, in order to ensure the
survival of firms in a dynamic and complex environment, companies must constantly learn and be creative (Graham, 2003). When organizational learning theories were proposed in 1970s, learning was considered as a key factor that is necessary for each organization that intends to survive in the new economic world (Senge, 1990). In an economical system that has its roots in knowledge, producing and developing knowledge plays an important role in wealth creation. Today, knowledge is considered as a valuable property, which is completely different from physical properties in nature. Therefore, managing such intangible property has been increasingly taken into consideration by managers. In addition to benefiting from KMT advantages and facilitating work processes, YEDC established a comprehensive financial system based on ERP in 2005, which was regarded as a type of data store. This system was used by the sample population within the company in 2006 and in 2009; it was established all over the organization. Investigating the success and benefits of establishing such knowledge-based system in the said organization and its obstacles and challenges can pave the way for other organizations which would like to enter the knowledge millennium through deploying KMT and knowledge capital management.

LITERATURE REVIEW

Some of the studies conducted in this regard are as follow:

1. Vandenbosch, B. And Higgins,C. (1996) in their study investigated the relationship between behavior and learning. Based on their empirical evidence, they found that there is a positive and direct relationship between learning behaviors (focus on verification and research) and individual learning (making and maintaining mental model). Currently, the empirical evidence seems to confirm the collaborative model by Vandenbosch, B. And Higgins,C.

2. Another study conducted in this regard was "knowledge management systems: obstacles and challenges" by Alavi and Linder (1999). In this study, the gaps between technical, behavioral and organizational theories of these technologies were investigated. In their study, they pointed out that most of the scholars have conducted studies with respect to technical aspects of implementing KMT in organizations while only a few have analyzed the staffs' behaviors which is the result of implementing this system within the organization.

3. Another study was again conducted by Alavi and Linder (2001), which reviewed and revise knowledge management systems; in this study, they reviewed and revised their own study in 1999.

4. Graham (2003) also studied the KMT effects on organizational learning. His study was conducted in 4 governmental organization in Canada; in these organizations, the effects of new knowledge technologies such as portals, groupware and data store) on the rate of organizational learning were investigated (with respect to the fact that individual learning is the base of organizational learning

Individual and Organizational Learning

The literature on learning is very rich. Around 100 years ago, this topic was considered as a philosophical one. However, nowadays, it carries the theme of change in its definition. Kambil (2008) defines learning as a constant change in the potential behavior that can be strengthened through practice. Robins (2007) defines learning as follows: "any constant and permanent change as a result of experience in people's behavior" (p.65). In addition, individual learning is defined as a kind of change in their intellectual models. Intellectual models are actually one's image from the environment around him or her which can be seen as a tool not only for the person but also for the organization to understand the environment events properly (Vandenbosch, B. And Higgins,C, 1996)

Organizational learning is considered as the integration of individual learning. According to Riding, "individual learning is necessary for the constant changes of the organization, development of the fundamental potentials and preparing every one for the vague future." The process of changing individuals' mental model happens gradually or fundamentally. The gradual change of mental model is coined as mental model maintenance (MMM); it is actually a gradual change, which happens during the
process of new information interpretation based on the individuals’ knowledge background. However, fundamental change is defined as mental model building (MMB); it is a fundamental change that occurs when new rules and regulations are presented in different conditions (Vandenbosch, B. And Higgins, C, 1996).

Menon and Varadarajan three ways to influence the behavior of learning on offer:
First: using the knowledge in performances and functions happens when it is directly used in order to solve the problems.
Second: using the knowledge in promoting individuals’ level of information happens when the perceived knowledge by the individuals change their behaviors in future.
Third: efficient use of knowledge happens when the use of knowledge enhances more satisfaction in comparison with the previous behaviors.

In this article using knowledge has been defined in two aspects: actual use and potential use.
Actual Use: it means that kind of use in performance and their application in the process of decision-making. In the actual use, the goal is to use KMT capabilities in order to pave the way for the process of decision-making. Here, effective and optimal use of KMT (such as securing the content on the final decision etc) is not focused. This case has been studied as the impact of deploying KMT in the process of decision-making.

Potential use: it means to use the knowledge in order to reach a higher information level that subsequently helps the organization's creativity in future. It has two aspects:
1. Individuals’ plan for new uses of KMT in their activities
2. Individuals’ plans for finding potential methods in using information as a result of KMT.

Knowledge Analysis Interpretation (KAI)
Knowledge analysis refers to the process during which new interpretation and definitions are determined for new information. It actually depends on one's work activities. This process is categorized into two activities: verification and discovering the knowledge. In the process of verification, individuals determine the algorithm and in the process of discovery, the existing knowledge in data stores will determine which algorithms are more appropriate for them.

According to the definitions in the literature, organizational memories are tools by which information are kept and prepared for the future. Therefore, KMT can be regarded as a kind of organizational memory that supports organization knowledge-based activities.

Based on what has been mentioned above about KMT as an organizational memory, this study is conducted in an attempt to investigate the rate of KMT deployment and the factors influencing learning, sharing and analyzing knowledge in organizations.

The Effect of Individual Differences in Utilization of KMT
Most of the researchers believe that in addition to the necessary organizational infrastructures, individual characteristics also play a crucial role in describing and predicting people's behavior. The planned behavior theory focuses on indicators of predicting individuals’ behavior. In this theory, Ajzen states that the behavioral perceives depend on two factors of controlling and intending that behavior. Controlling the perceived behavior actually means individuals' beliefs, which determines the difficulty of one behavior and its performance from their perspective; it is also considered as an indicator for accepting, observing norms and other's reaction. Regarding the fact that people are different from each other in many aspects, here only those personality traits are required to be studied that are related to the domain of learning; therefore, individuals’ interest in acquiring knowledge.

**Individual’s interest in acquiring knowledge**
The studies indicate that people's different personality traits have a crucial role in how they utilize the technology especially IT. These variables can be categorized in three groups: 1. One’s knowledge
Individual's knowledge background actually refers to his information with respect to the organization's goals and functions (such as one's experience as an employer in post office, the duration of employment, number of years he has deployed computer or KMT. One's ability and interest in learning KMT actually means how much one individual likes to learn IT. While the environment organization is regarded as an external factor in his learning, his internal interest is seen as an internal motivation (Agarwal and Prasad, 1998). Regarding computer skills, we mean one's judgment on his abilities in deploying IT in his work activities (Graham, 2003). Thus, one's interest in acquiring knowledge has been studied with respect to these three factors.

KMTs and Organizational Learning

Knowledge management and organizational learning have long been thought to be separated from each other in practice. However, there are some special common features between these two subjects. Knowledge management has been developed in order to cover the learning organization and producing knowledge. Knowledge in organizations will be depicted not only in their documents and sources but also in their activities, processes, event and norms (Graham, 2003). Knowledge management with respect to organizational learning means facilitating the process of producing and sharing knowledge along with providing positive work environment and effective rewarding system. If in one organization there is a strong motivation for learning, I creates structures and processes which can go on not only within the organization but also outside the organization in order to reach and compound knowledge with their balanced and complement effort (Sobhani Njead, 2006).

Knowledge use (Organizational learning: actual and potential)
- Its impact on decision-making
- Tendency towards creativity
- Tendency towards
- Tendency toward searching in work activities

Individual Learning
- (MMM)
- (MMB)

Individuals' interest in acquiring knowledge
- Individual creativity in IT
- Using computer
- Related knowledge background

Figure 1: The Conceptual Model

Knowledge management has a crucial role in supporting the organizational learning because it facilitates sharing the collective wisdom of the organization. Knowledge management is a coherent and systematic
process, which deploys an appropriate combination of information technologies, and human interactions in order to identify, manage and share the organization's information capitals. These capitals include databases, documents, policies and approaches. In addition, it covers both explicit and tacit knowledge of staff with a wide variety of ways to capture, store and share knowledge within an organization (Babaee, 2004).

Learning in organizations requires individuals to share the information with those who can also use them (Aggestam, 2006). Organization learning needs knowledge management. A learning organization focuses on the process of learning and knowledge management concentrates on results and output of learning. The main goal in knowledge management is to create values for the organization that includes activities such as organizing, sharing and benefiting from the knowledge. Most of the staff that does the KMT activities within the organization is required to do these activities in their daily routines, too. Therefore, one organization learns and produces knowledge and creates its structure through different methods.

Based on what said above, you can see the conceptual model of the research in figure [1]:

METHODOLOGY
The present study is a practical field research that is conducted based on descriptive method. In addition, as the relationship between variables in this study is investigated (not the cause and effect relationship), it is also regarded as a correlation study.

The population contains all staff in Electricity Distribution Company in Yazd. Since the purpose of the present study is to investigate knowledge management technologies in the organization all the staff was selected as the statistical population. In addition, because the number of the staff is fixed and the entire have the equal chance to be selected, thus random sampling has been used here in this study.

As mentioned in literature of the study, four testable hypotheses have been considered as follows:

Hypothesis 1: There is a positive relationship between staff's interest in acquiring knowledge and the rate of using KMT in Electricity Distribution Company in Yazd.

Hypothesis 2: There is a positive relationship between the deployment of KMT and Yazd Electricity Distribution Company activities based on Knowledge Management and individual learning within the company.

Hypothesis 3: there is a positive relationship between individual learning and the practical application of knowledge in YEDC.

Hypothesis 4: there is a positive relationship between how much staff seeking knowledge and the practical application of knowledge in YEDC.

Reliability and Validity of the Questionnaire
In this study, standard questionnaires were used in order to analyze the research hypotheses. In order to assess the validity of the questionnaires, after they were complied, the researcher asked some scholars and experts to analyze and give feedbacks on the questionnaires. Then they were reformed again based on experts' ideas and applied in the study. In addition, the reliability of the questionnaires was estimated according to Cronbach Alpha. To this purpose, at first about 81 questionnaires were prepared as pre-test and then the gathered data were analyzed by SPSS19 software. The reliability estimated for all the questions was 0.87. The reliability for each variable was above 0.7, too. This test was again repeated after all the questionnaires were gathered (together 274 ones). The rates show that the questionnaire used is reliable enough. It also has the necessary validity. You can see the results of Cronbach Alpha test in table [1] for all the questionnaires.
Table 1: Cronbach Alpha for all questionnaires

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Questions</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>The rate of using KMT</td>
<td>22</td>
<td>0.836</td>
</tr>
<tr>
<td>Individual learning</td>
<td>8</td>
<td>0.777</td>
</tr>
<tr>
<td>The practical application of Knowledge (organizational learning)</td>
<td>11</td>
<td>0.883</td>
</tr>
<tr>
<td>Individual’s interest in acquiring knowledge</td>
<td>12</td>
<td>0.882</td>
</tr>
<tr>
<td>Total Questions</td>
<td>74</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Test of Normality for Variables
In order to test the normality of the variables, Kolmogorov-Smirnov test has been used. You can see the results of the test in the following Table [2]:

Table 2: Test of Normality for Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Significant Level</th>
<th>Error rate</th>
<th>Confirming the H</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>The rate of using KMT</td>
<td>0.249</td>
<td>0.05</td>
<td>H0</td>
<td>Normal</td>
</tr>
<tr>
<td>Individual learning</td>
<td>0.213</td>
<td>0.05</td>
<td>H0</td>
<td>Normal</td>
</tr>
<tr>
<td>The practical application of Knowledge (organizational learning)</td>
<td>0.213</td>
<td>0.05</td>
<td>H0</td>
<td>Normal</td>
</tr>
<tr>
<td>Individual’s interest in acquiring knowledge</td>
<td>0.168</td>
<td>0.05</td>
<td>H0</td>
<td>Normal</td>
</tr>
<tr>
<td>The rate of using KMT</td>
<td>0.176</td>
<td>0.05</td>
<td>H0</td>
<td>Normal</td>
</tr>
</tbody>
</table>

Testing Research Hypotheses
In order to answer the questionnaire, the 5-options Likert Scale is deployed. Considering the fact that the distribution of all variables' data is normal, parametric tests are used. In addition, in order to test the hypotheses, simple and multi-linear regression was applied. Multi-regression linear requires hypotheses which are evaluated according to ANOVA tests (linear regression), Watson camera (lack of correlation between errors), linear relationship between independent variables (tolerance) and

Hypothesis 1: There is a positive relationship between staff’s interest in acquiring knowledge and the rate of using KMT in Electricity Distribution Company in Yazd.

H0: The staff’s interest in acquiring knowledge does not positively correlate the rate of using KMT in YEDC.

H1: The staff’s interest in acquiring knowledge does positively correlate the rate of using KMT in YEDC.

If the significance level is more than 0.05, the H0 will be confirmed; but if it is less than 0.05, H1 will be confirmed.

Table 3: Regression Analysis results (individuals’ interest in acquiring knowledge)

<table>
<thead>
<tr>
<th>Non-standard Coefficient</th>
<th>Standard Co-efficient</th>
<th>T-Statistics</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>.348</td>
<td>.345</td>
<td>5.914</td>
<td>.000</td>
</tr>
</tbody>
</table>

Based on what illustrated in Table [3], the significance level is 0.000, which is less than the error rate (0.05). The absolute value of t-statistic is more than 1.96). Thus, with 95 %, H 1 will be confirmed. In other words, staff’s interest in acquiring knowledge stays in the model and significantly correlates the rate of using KMT.
Hypothesis 2: There is a positive relationship between the deployment of KMT in Yazd Electricity Distribution Company activities based on Knowledge Management and individual learning within the company.

H0: there is no positive relationship between the deployment of KMT in Yazd Electricity Distribution Company activities based on Knowledge Management and individual learning within the company.

H1: There is a positive relationship between the deployment of KMT in Yazd Electricity Distribution Company activities based on Knowledge Management and individual learning within the company.

If the significance level is more than 0.05, the H0 will be confirmed; but if it is less than 0.05, H1 will be confirmed.

Table 4: Regression Analysis results (Using KMT)

<table>
<thead>
<tr>
<th>Non-standard Coefficient</th>
<th>Standard Co-efficient</th>
<th>T-Statistics</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.154</td>
<td>-.117</td>
<td>-2.174</td>
<td>.031</td>
</tr>
</tbody>
</table>

Based on what illustrated in Table [4], the significance level is 0.31, which is less that the error rate (0.05). The absolute value of t-statistic is more than 1.96). Thus, with 95 %, H1 will be confirmed. In other words, using IT stays in the model and significantly correlates with knowledge-based activities and their impacts on individual learning.

Hypothesis 3: there is a positive relationship between individual learning and the practical application of knowledge in YEDC.

H0: there is no a positive relationship between individual learning and the practical application of knowledge in YEDC.

H1: there is a a positive relationship between individual learning and the practical application of knowledge in YEDC.

If the significance level is more than 0.05, the H0 will be confirmed; but if it is less than 0.05, H1 will be confirmed.

Table 5: Regression Analysis results (individual Learning)

<table>
<thead>
<tr>
<th>Non-standard Coefficient</th>
<th>Standard Co-efficient</th>
<th>T-Statistics</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>.287</td>
<td>.247</td>
<td>4.695</td>
<td>.000</td>
</tr>
</tbody>
</table>

Based on what illustrated in Table [5], the significance level is 0.000, which is less that the error rate (0.05). The absolute value of t-statistic is more than 1.96). Thus, with 95 %, H1 will be confirmed. In other words, Individual learning stays in the model and significantly correlates with practical application of knowledge.

Hypothesis 4: there is a positive relationship between how much staff seeking knowledge and the practical application of knowledge in YEDC.

H0: There is no positive relationship between how much staff seeking knowledge and the practical application of knowledge in YEDC.

H1: there is a positive relationship between how much staff seeking knowledge and the practical application of knowledge in YEDC.

If the significance level is more than 0.05, the H0 will be confirmed; but if it is less than 0.05, H1 will be confirmed.

Based on what illustrated in Table [6], the significance level is 0.00, which is less that the error rate (0.05). The absolute value of t-statistic is more than 1.96). Thus, with 95 %, H1 will be confirmed.
other words, staff's interest in acquiring knowledge stays in the model and significantly correlates with practical application of knowledge.

Table 6: Regression Analysis results (individuals' interest in acquiring knowledge)

<table>
<thead>
<tr>
<th>Non-standard Coefficient</th>
<th>Standard Co-efficient</th>
<th>T-Statistics</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.615</td>
<td>0.491</td>
<td>9.172</td>
<td>0.000</td>
</tr>
</tbody>
</table>

RESULTS
The obtained results of the study indicate that there is a significant and direct relationship between using KMT in organization knowledge-based activities and individual and organizational learning. It is revealed that by using knowledge-based technologies in the organizations; individual learning and knowledge are enhanced a little. So two hypotheses can be proposed here:

1. On one hand, one can say that the existence of knowledge-oriented systems in organizations cannot guarantee the enhancement of individual or organization learning; in other words, this factor cannot be crucial a lot.

2. According to King (2008), the focus of organization learning is on the processes and the focus of knowledge management is on the knowledge content which one organization gain, create and finally use. In other words, organization learning must be considered as a goal of KM (King, 2008). Thus, the reasons why the relationship between these two variables is weak are the fragile policies in fulfilling organization Knowledge-based technologies of the organization in YEDC. It is clear that rejecting or confirming each of these hypotheses requires more research and study.

Moreover, the results of the represent study shows that there is a positive relationship between individual learning and practical use of knowledge in YEDC. The rate of this positive impact is 0.247. Thus the more an individual knowledge will be or the more the number of those who are interested in enhancing their knowledge will be, the more they tend to apply knowledge in their organization activities. Therefore, we can accept Wig (1978)'s theory that the organization learning is the integration of individual learning; however, the amount of organization learning is more than the knowledge of its staff. Also, in 2002, King et al, conducted a research in which they tried to determine individual motivations in using and sharing Knowledge in the organization. In their study, they found out that some of the individuals are not interested to share their knowledge. They suggested organizations identify such individuals and try to persuade and instruct them again so that they can go along with the new strategies of the organization (King et al, 2002). Without the staff learning and updating their knowledge, it is not possible to fulfill organizational learning goals and in turn having a learning organization.

Furthermore, the results indicate that when the staff tends towards knowledge, it positively correlates with the rate of using KMT in YEDC. In this study, individual features and personality traits are regarded as moderating variables. Actually, staffs that are creative, innovative or adventurous are regarded as the facilitators in the process of KM goals such as producing, sharing and using knowledge. In addition, knowledge application within the organization. The results of the study revealed that there is a direct and meaningful relationship with the rate of 0.345 between staff's interests in knowledge and using KMT within the organization. Reviewing the literature shows that the main cause of this result is the staff's internal interest in acquiring new knowledge and getting familiar with new technologies. On the other hand, the staff's interest in acquiring knowledge has a positive impact on practical usage of knowledge. It can be concluded that the innate differences between individuals under the title of staff's interest in knowledge acquiring is the main factor in enhancing knowledge application within the organization (organization learning). Individual internal interest in applying knowledge technologies and welcoming these technologies in the process of performing the activities would make them more eager share their knowledge with their colleagues and benefit from their experience. However, another reason here is that
KMT has been recently conducted in this organization and so in its first experience, it has grabbed the attention of those staff who are interested in acquiring knowledge.

CONCLUSION
Regarding the fact that we are now living in an environment with its quick every day changes, the organizations are expected to be more active in the existing competition. In this intense competition, the organizations are required to learn, increase and manage their knowledge capitals faster than their rivals. Among all, the most important responsibility of the management is to protect the organization knowledge and to make attempts in increasing organization learning and creating new knowledge along with their rivals' knowledge or even beyond their goals. Meanwhile, applying knowledge technologies such as portals, data stores and groupware clearly influence the integration of organization information in a safe and recoverable environment. On the other hand, another point, which should be carefully taken into consideration by organizations, is that each organization encounters unique challenges in implementing KMT and certainly, they have their own strategies in order to solve them. Thus, not one strategy can be prescribed for all organizations. Although the process in this study is based on studies from all around the world and it is observed in most of the organization, each organization must identify these obstacles while implementing KMT and provide the facilitators in order to pave the way. At the same time, it should avoid mere attention to future and KMT software. As the results of the study revealed, paying attention to individual's interest in using knowledge technologies is one facilitator of this process; thus, these individuals must be identified within the organization, employing the knowledge-oriented staff must be taken into consideration.

REFERENCES


