

Investigating And Explaining The Role Of Information Technology-Based Knowledge Management On The Development Of Knowledge-Based Economy

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Abstract

In the current era, along with the advancement of technology and information technology and the knowledge of the global economy, the knowledge-based economy is one of the most important issues of the country's day to face crises in various economic, political, security, social and cultural spheres. This paper aims to investigate the effect of KM and IT in developing knowledge-based economy. The present research is a descriptive survey research in a community of 431 managers and experts (financial, human resources, information technology, research and development) of knowledge based companies in Isfahan. The data gathering tool was a Likert scale. In order to confirm the factual and content validity of the questionnaire from the viewpoints of the professors and experts, the factor analysis was used to determine the explanatory value of each variable by questionnaire. To measure its reliability, Cronbach's alpha method was used. In addition, to test the hypothesis of the KMO index, Structural Equation Modeling Method and Bartlett Test have been used. Data analysis was done by SPSS and LISREL software. Results: The first three hypotheses related to the significant effect of knowledge management and information technology dimensions on the development of knowledge-based economy were confirmed. The second hypothesis, however, was that the direct effect of knowledge comedy on information technology and the fourth hypothesis on the indirect effect of knowledge management through information technology on the growth and development of knowledge-based economy were not confirmed.

Keywords: knowledge management, information technology, economy, development

1. Introduction

By entering the third millennium, organizations need their new strategies to cope with the rapid and dramatic changes in the world to survive and to maintain competitive

advantage in the world. Technology and knowledge management is one of these strategies, and organizations are required to implement the correct management of changes and Turning it into golden On the other hand, in the current era, organizations have been influenced by information every year, which needs to be taken with the various analyzes, take the necessary information and take the decisions necessary to achieve the goals. In this regard, organizations of competitors By using modern technologies and various management tools, they will take advantage of opportunities and organize and manage their knowledge. Hence, today we are faced with an unbreakable link in knowledge management and information technology. Knowledge management is a collection of activities related to production, compilation and transfer of knowledge (Dehim et al., 2016).

The purpose of KM tools is to assist the process of collecting and formulating group knowledge in order to make it available in a collaborative way in the organization. These tools can influence the flow of knowledge through network communications, technology transfer to a path, and the transformation of knowledge into knowledge.

The role of information technology in knowledge management is an important issue for organizations that want to exploit the technologies for managing their intellectual capital. Many organizations use information technology in a particular way or in a variety of ways to manage their knowledge (Azadi Ahmad Abadi, 2009). The concept of knowledge management has been widely studied over the past two decades, Pete and Clark (1999), Carrollo et al. (2003), Wang (2005), Dratchch (2005), Lin and Tangg (2005), Tan Rivers (2005) has taken. In the past two decades, increasing the amount of information in organizations and the need for effective use of them in organizational decision-making, has led to the emergence of a phenomenon called knowledge management. (Pribianto and colleague, 2013).

The experts have introduced four effective elements in the advent of knowledge management: 1) the transition from the era of domination of material capital to the domination of intellectual capital; 2) an extraordinary increase in the volume of information, electronic storage and access to information; 3) change the age pyramid of the population and the risk of loss of organizational knowledge by retirement of employees; 4) more specialized activities (Mortazavi, 2011).

2. Knowledge management

In today's global economy, knowledge and skills are key to the success of organizations and as the most critical and resource for maintaining and increasing competitive advantage. Knowledge can have the necessary effect to be properly managed (Ross, 2009). Knowledge is valuable asset to be managed. The basis of knowledge management is to find strategies that give the right knowledge to the right people at the right time (Milton, 1997).

Knowledge is a perception and understanding that is obtained through experience, reasoning, and direct understanding of reading. When people share their knowledge, knowledge of each one increases, and the combination of one's knowledge with other people brings new knowledge (Van et al., 2009). Knowledge management is a new initiative for converting information system patterns from data processing and information approach to collecting and using knowledge in organizations that utilize the accumulation of expertise and accumulated skills in the minds and hidden sides of individuals to convert them into written and written resources.

To be In fact, knowledge management is associated with the exploitation and development of knowledge belonging to organizations for the purposes of that organization (Azad Ahmadabadi and colleagues, 2018). Knowledge is a broad concept of information and is divided into two categories: 1) written knowledge (knowledge which is expressed as information); 2) unwritten knowledge (includes skills such as insight, creativity and judgment, and the ability to Writing or not yet written). Our written knowledge is divided into four types: knowledge, knowledge of knowledge, knowledge of how, knowledge. In general, what is knowledge and knowledge a part of knowledge and in economics, these two are used to utilize economic resources or commodity markets in determining the functions of production, and the other two types of knowledge (who knows how and what knowledge) is more knowledge Implicit and coding and measuring is very difficult on the basis of them. Knowledge is in fact derived from information and results from comparisons, identification of consequences, and building relationships. Davenport and Prussack (1998) define knowledge as a

fluid mix of experiences, values, underlying information, intelligent insights, and intuitive expressions that provide an environment for evaluating and confronting new experiences and information. From knowledge management, different definitions have been made, and some of these definitions are referred to below.

Karl Weig (2003) believes that knowledge management is the creation of processes to identify and capture data, information, And the knowledge of the organizations from the external and internal environment and their transfer to the decision and actions of the organization and individuals (Dehim et al., 2016).Gold et al. (2001) expressed effective knowledge in terms of organizational capabilities. This view states that the foundation of knowledge, including technology, structure, and culture, along with the process of acquiring, transforming and applying knowledge, are prerequisites for effective knowledge management and are essential for supporting organizational resources. Say et al. (2005), KM involves three interdependent processes: acquisition of knowledge, knowledge conversion and application of knowledge. Accordingly, knowledge is not just an important source for a company, but as a major source of competitive advantage. Therefore, knowledge management capabilities refer to knowledge management processes in an organization that develops and uses knowledge in the company (Berger et al., 2011). Knowledge management is a process that helps organizations identify, select, organize, publish, and pass on important unstructured information and expertise that is part of the organization's memory. Researchers have provided various categories of KM process, for example, some of them will be listed below:

- ✓ Obtaining knowledge: acquisition of knowledge is the first process of knowledge management that pays particular attention to the ability of individual knowledge in organizations and when knowledge becomes useful for the organization. Acquiring knowledge should be tailored to the needs of the organization and to the perspective of the organization's strategies.
- ✓ Creating Knowledge: Creating Knowledge is a new knowledge that relates to the motivation, attitude, expertise and insight of the staff. Nonaka and Tacchi (1995) stated that the creation of knowledge should be taught through one person and the lessons taught and shared experiences of people working together in the organization. In fact, the creation of knowledge is the interaction of knowledge between tacit knowledge and explicit knowledge or what is referred to as the SECI model.

- ✓ Knowledge storage: The knowledge that is created should be stored and systematically sorted so that it can be easily retrieved. Knowledge, in order to be saved, requires redress to be valuable to the organization (Gold et al., 2001).
- ✓ Application of Knowledge: Knowledge utilization is the final stage in the process of knowledge management, which increases the effectiveness of knowledge management in an organization and refers to the transfer and use of knowledge. The use of knowledge does not increase as long as the knowledge is not used, and at this stage, knowledge flows into work processes and decisions of the organization (Hamzzadeh and Fellow, 2017).

In general, knowledge management in the organization pursues various goals, including the use of explicit and implicit resources for achieving the goals of the organization, enhancing creativity and innovation, providing the fields for converting information into knowledge and producing new knowledge; The association of individuals with each other; the association of individuals with information and, ultimately, the purposefulness and economic use of existing resources (Alipour Hafezi, 2007).

3. Knowledge management and information technology

Knowledge management is a collection of activities related to the production, compilation and transfer of knowledge. The purpose of KM tools is to assist the process of collecting and forming group knowledge in order to make it available to the organization in a collaborative way. These tools can be effective through network communications, technology transfer to a path, and the transformation of knowledge into the knowledge flow of knowledge. Knowledge management can have very important results with the proper use of information technology. Information technology can play a critical role in creating knowledge management processes (Izadi et al., 2016). The role of IT in knowledge management is an important issue for organizations that want to exploit the technologies to manage their intellectual capital. Many organizations use information technology in a particular form or form to manage their knowledge. One of the key issues in knowledge management is the rapid and growing advances in information technology one after the other. This has led to great attention and investment by organizations. It is that organizations are unilaterally investing in information technology regardless of all aspects and related aspects. This leads to the focus and approval of that part of the knowledge base that can be easily compiled, and in spite of the undeniable role of tacit knowledge in the context, which maintains and improves

the competitive advantage of the organization, simply because of the lack of In fact, the incorrect use of electronic equipment and facilities leads to an increase in the contradiction between tacit knowledge and explicit knowledge (neels, 2010). Information technology supports the process of coding and storage of knowledge. Information technology facilitates the standardization and automation of specific tasks and supports the transformation of tacit knowledge into explicit knowledge (Anand et al., 1988).

Also, information technology supports the mechanisms necessary for data storage and storage, but the storage of knowledge is useful and useful (sherif, 2006). They must be accessible to the members of the company in such a way as to enable each member to interpret them in the same way, and thereby become part of the knowledge base of the entire company. Information technology, with its platform protocols and standards, provides an ideal mechanism for connecting people very diffuse and remotely through a shared system, enabling company members to more easily know what's stored in memory slots. So that new information can be interpreted and merged with existing knowledge (scarbrough,2001).

In this way, it can be admitted that the effectiveness of knowledge management requires the integration and logical integration of technical, cultural and human infrastructure, and IT as a major processor of knowledge management with great speed and accuracy, greatly improves the implementation of this process. It is a phenomenon that is the phenomenon that has arisen from the widespread use of computer systems in organizations and communities. This technology includes multimedia technologies such as software, software, the Internet, e-mail, satellite, and more.

3-1. Knowledge-based economy

An economy that has a significant share of the net domestic production of knowledge-based activities, such as high and medium technology, and knowledge-based financial and business services. Knowledge is more productive than traditional factors such as labor and capital, and the value of many software and technology companies, not from their physical assets, but from non-capital assets, such as knowledge, licenses and scientific privileges (Emadzadeh and others, 2006). The economics-based economy is directly based on the production, distribution, and use of knowledge and information. Knowledge-based economics has transformed all areas of business, economic structure, productivity, management, etc., with features such as trade liberalization and business globalization, information and communication technology, knowledge management, structural change in the economy, changes in location and strength Work is an

increase in consumers' right to choose, reduce government and e-business (e-commerce).

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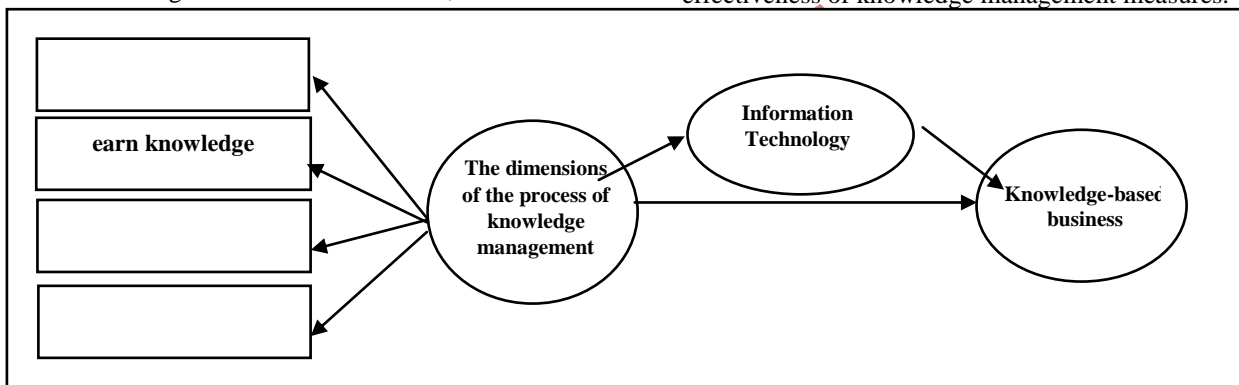
Knowledge-based economics has transformed all areas of business, economic structure, productivity, management, etc., with features such as trade liberalization and business globalization, information and communication technology, knowledge management, structural change in the economy, changes in location and strength Work is an increase in consumers' right to choose, reduce government and e-business (e-commerce). Generally speaking, in knowledge-based companies, the use of knowledge has been raised as the main source of production and profitability, and plays a greater role than capital, raw materials, and even human resources. In addition, due to continuous changes in the field of science, innovation and

knowledge, they lose value after a while, and the organization must strive to create a new knowledge. In the knowledge-based economy, knowledge is the main driver of growth, wealth creation and employment in all fields of activity.

According to this definition, the knowledge-based economy only depends on the limited number of industries based on the most advanced technology, but in this type of economy, all economic activities rely on knowledge, even activities such as mining and agriculture, which are called old economies (nonaka,2000).

4. Conceptual model of research

Using Gold and others (2001), the present study uses four knowledge management processes, including knowledge acquisition, knowledge conversion, knowledge deployment, and knowledge storage to measure the effectiveness of knowledge management measures.



This research seeks to examine how the impact of IT management knowledge dimensions on knowledge economy is in the economy.

4-1. Research hypotheses

1. Knowledge management dimensions have a significant effect on the development of knowledge-based economy.
2. Knowledge management dimensions have a significant effect on information technology.
3. Information technology has a significant effect on the development of knowledge-based economy.
4. Knowledge management dimensions have a significant effect on the development of knowledge-based economy through information technology.

5. Research Methodology

In terms of purpose, this research is descriptive in terms of research method and in terms of collecting survey data. Also, due to its aim to examine the fit and degree of approximation between variables, it is a type of correlation research based on the structural equation modeling

method. The statistical population of this research is 431 managers and experts (financial, human resources, information technology, research and development) of knowledge based companies in Isfahan. In this research, a simple random sampling method was used and the sample size was determined based on Cochran's formula of 223 people.

Also, a data collection tool is a Likert scale. Confirmation of the face and content validity of the questionnaire was used through reviewing the views of professors and experts. The confirmatory factor analysis model was used to determine the explanatory value of each variable by questionnaires. Reliability measurement was performed using Cronbach's alpha method. Its value for all questionnaire questions is 0.941, which has a good value. In order to test the hypothesis of the KMO index and the structural equation modeling method, Bartlett's test was used to determine the sample size of the sample size in order to determine the fitness of the model from the goodness-fit model and to verify the amount of explanation of each variable by the use of confirmatory

factor analysis method It turned out Data analysis was done by SPSS and LISREL software.

6. Findings of the research

6-1. KMO and Bartlett tests

In order to make sure that existing data can be used for analysis, there are a number of different issues, including the KMO test (the value is always fluctuating between 0 and 1). Also, to ensure that the data are appropriate, that the matrix of correlations in a society is not equal to zero, We use the Bartlett test to ensure that sampling is adequate. Given that the KMO index for each of the components is greater than 0.7, the Bartlett test Sig score is less than 5%, so we can say that the data is suitable for factor analysis. Results are shown in Table 1.

The estimated results for each of the variables in the first and second order factor analysis indicate the relative

suitability of the indices. According to the Laser Output, the value of the ratio 2χ calculated to the degree of freedom for the knowledge management, information technology, and knowledge-based economy is less than 3, and the RMSEA value was lower than the permissible limit of 0.88. Therefore, the indicators presented for measuring the components of knowledge management, information technology, and knowledge-based economy are appropriate and measuring models are in good condition in terms of fit and fit indices. With regard to the results of factor analysis, verification of the knowledge management structure, information technology and knowledge-based economy can be relied upon in this study. In addition, the second-order confirmatory factor analysis confirmed the above-mentioned components under the structures.

Table 1. KMO and Bartlett test results

Meaningful number	Degrees of freedom	X ²	TestKMO	Component	
0/000	66	739/749	0/851	earn knowledge	knowledge management
0/000	28	854/635	0/795	Conversion of knowledge	
0/000	45	546/125	0/841	Application of knowledge	
0/000	66	488/051	0/869	Knowledge protection	
0/000	10	133/124	0/781	automation	Information Technology
0/000	15	269/851	0/765	Processing	
0/000	15	548/078	0/832	save	
0/000	21	399/495	0/809	Informing	
0/000	45	417/375	0/883	connections	
0/000	15	272/988	0/776	Economic incentives and institutional regimes	Knowledge-based economy
0/000	28	271/476	0/784	Innovation system	
0/000	21	398/471	0/812	Training and manpower	
0/000	45	271/496	0/744	Information and communication infrastructure	

6-2. Structural Equation Modeling

After reviewing the models for measuring and verifying their validity, using the confirmatory factor analysis, we can examine the relationships among the research variables based on the structural model. Considering that the conceptual model of the research seeks to investigate

the causal relationships between the three variables, in order to provide simultaneous analysis of the variables' relationships, and to investigate the validity of the research hypotheses, the causal relationships based on the modeling of structural equations are used.

graph 1. Model in standard mode

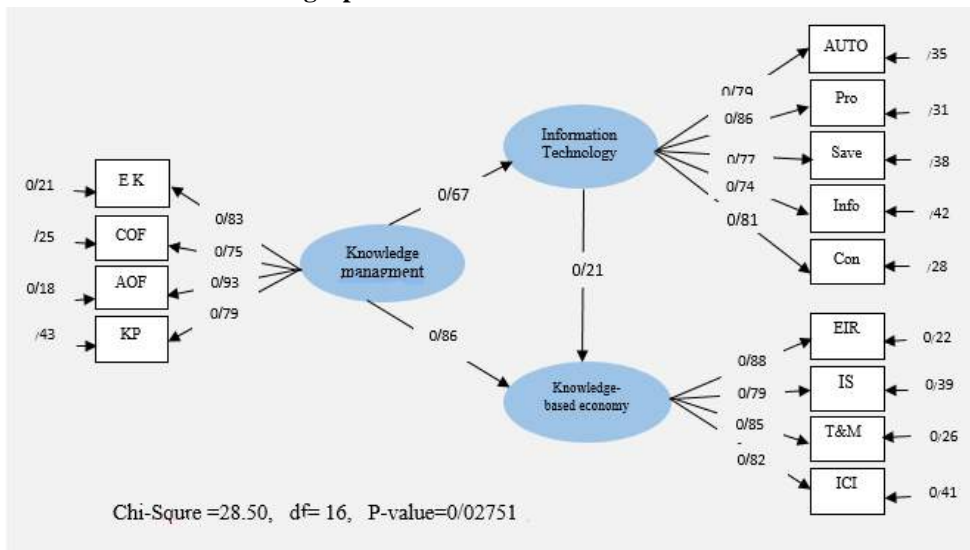


Table 2. Correlation results of structural model

Result	Amount calculated	Allowed amount	Indicator
acceptable	1/74	>3	
acceptable	0/95	< 0/9	GFI
acceptable	0/98	< 0/9	CFI
acceptable	0/81	< 0/8	AGFI
acceptable	0/97	< 0/9	NFI
acceptable	0/97	< 0/0	NNFI
acceptable	0/85	> 0/8	RMSEA

Based on the calculated results in the fit indices of Table 2, we can say that the model is in good condition in terms of fit and fit indices. Suitable fitness indexes of the model include chi-squares χ^2 , GFI (fitness index), AGFI (fitted goodness index), CFI (comparative fit index), NFI (softened fitness), NNFI (Soft softened fitness) and RMSEA (Root Mean Squares Estimated Errors) have an acceptable value, so theoretical model of the research is acceptable.

7. Test model assumptions

The main hypothesis of this study is to examine the impact of KM dimensions on the development of knowledge-based economy. According to the results (Table 3), the path coefficient of 0.67, as well as the t-statistic of 3.64, can be said that knowledge management dimensions have a significant and positive effect on the knowledge-based economy at 99% confidence level; therefore, the main hypothesis of the research is significantBe confirmed.

Table 3. Test results of the first hypothesis

	Amount t	β	dependent variable	independent variable
0/67	3/64	0/67	Developing a knowledge-based economy	The dimensions of knowledge management

**P < 0/01

*P < 0/05

The second hypothesis of this research examines the impact of the knowledge management dimensions of information technology. Regarding the path coefficient of 0.86, the value of t statistic is 1.81 and considering that it

is not within the range of 1.96 to 1.96, it can be said that the dimensions of knowledge management of information technology do not have a significant effect. The second hypothesis is not approved (results in Table 3)

Table 3. Test results of the second hypothesis

	Amount t	β	dependent variable	independent variable
0/86	1/81	0/86	Information Technology	The dimensions of knowledge management

0/05>*P 0/01>**P

The third hypothesis examines the impact of information technology on the development of a knowledge-based economy. According to the path coefficient of 21/0, the t statistic is also 9.16, so it can be admitted that at 99% confidence level, information technology has a significant

and positive effect on the knowledge-based economy. Therefore, the third hypothesis of the research is significant and confirms Take (Table 4 results).

Table 4. Test results of the third hypothesis

	Amount t	β	dependent variable	independent variable
0/86	9/061	0/21	Developing a knowledge-based economy	Information Technology

**P< 0/01 *P< 0/05

The fourth hypothesis of this study examines the effect of KM dimensions on employee innovation performance indirectly. Considering the path coefficient of 0.25 and also the t-statistic of 1.93. Thus, and considering that it is

not within the range of 1.96 to 1.96, it can be said that the dimensions of knowledge management of information technology do not have a significant effect, hence The second hypothesis is not approved (Table 5 results).

Table 5. Test results of the fourth hypothesis

	Amount t	β	dependent variable	independent variable
0/86	1/93	0/25	Developing a knowledge-based economy	The dimensions of knowledge management

**P< 0/01 *P< 0/05

In the following, the relationship between the variables of the research according to which the assumptions of approval are accepted or rejected are shown in Table 6.

Table 5. Relationships between research variables

Test results assumptions	Meaningful number	Path (β)coefficient	assumptions		
			The dependent variable	Mediator	independent variable
Confirmation	3/46	0/67	Developing a knowledge-based economy	-	The dimensions of knowledge management
Reject	1/81	0/86	Information Technology	-	The dimensions of knowledge management
Confirmation	9/06	0/21	Developing a knowledge-based economy	-	Information Technology
Reject	1/93	0/25	Developing a knowledge-based economy	Information Technology	The dimensions of knowledge management

8. Conclusions and suggestions

In this research, the relationship between the dimensions of knowledge management, information technology and knowledge-based economy development was studied. With Considering the important role of knowledge-based companies in the field of development and advancement of science and technology in the country, this section was selected as the study population in this study.

The results of the main hypothesis of the research are based on the direct, positive, and significant effects of knowledge management dimensions and the development of a knowledge-based economy with the results of research by Houls et al. (2000), Barna (2003) and Hamzzadeh et al. (1396).

Studies done in this regard have shown that proper knowledge management leads to sustainable growth and the development of knowledge-based economics. The second result in this study did not show any significant effect of knowledge management on information technology. The rejection of this hypothesis is the realization of the hypothesis that the dimensions of KM through information technology affect the knowledge-based economy. This finding is consistent with Lee et al. (2003) and Wang (2005).

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The results of the third hypothesis study in this study indicate a direct, positive effect and the use of information technology on the realization of a knowledge-based economy. These results are consistent with Chen (2005), Einer (2003), Emadzadeh et al. (2007). Therefore, the following results are suggested:

- ✓ Increasing the contribution of collaboration in applied research between industry and academia and the serious efforts to change the nature of universities in becoming an entrepreneurial university;
- ✓ Continuing education and mobility and strengthening the culture of product and service knowledge among organizations;
- ✓ Improving the management systems of the country to the knowledge-based management and the pervasiveness of using knowledge management systems.
- ✓

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