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Research Article

THE RELATIONSHIP BETWEEN KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL INNOVATION IN GACHSARAN OIL AND GAS COMPANY

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ABSTRACT
This research was doneto examine the relationship between knowledge management and organizational innovation in Gachsaran Oil and Gas Production Company in 2014. Method of research is descriptive-correlative and its purpose is application. For this research data was collected using questionnaires of knowledge management and organizational innovation, which their reliability were assessed by Cronbach's alpha respectively obtained 0.899 and 0.881 and overall reliability is 0.920. The study population consists of 6000 people in which 256 samples were obtained using Cochran formula. For statistical analysis of the data with respect to the normal one-sample t test, Pearson correlation and simple linear regression was performed using SPSS software. The results of the study indicate that knowledge management and its components have significant relationship with and impact on organizational innovation.

***Keywords**: Knowledge Management, Knowledge Creation, Knowledge Sharing and Organizational Innovation*

INTRODUCTION
Disaggregation of knowledge with environment and related economic, political, social and cultural institutions is considered as such important challenges in many developing countries. The anachronism can be analyzed by two attitudes including:

A- Sociological Approach B- Management Approach

From a sociological perspective, the lack of continuity and generality of Science with mentioned institutes are taken into consideration, while the management approach considers relationship between science and other social institutions (Ghanei, 2003).

A comparative study between the developed countries and the Third world countries specifies that the discrepancy between educational centers, creative people and thinkers on one hand and supportingdevelopment institutions on the other hand leads to dissociation between the two parts and there is no defined strategy for communication and coordination among them, signs of this dissociation are: (Ghanei, 2003).

A) Lack of communication of science with the decision-making, services and production systems
B) Lack of power of theory and policy analysis
C) Lack of communication between the various levels of education textbooks with needs of society, resulting in the inability of the education system to train the manpower and expertise in all fields.

Based on the quantitative analysis of the results (which is done by theSupreme council of the Cultural Revolution) of the obstacles to the development of science and technology, some of important points are noted such as:

1. The Country's economy is not knowledge-based because of historical reasons, so science and technology is not business. Therefore, it is not cost-effective and the stimulus is not sustainable.
2. The Country's management is not knowledge-based.
3. The system of science and technology of the country lacks internal unity and coordination and there is not much synergetic cooperation between them.

Presenting a suitable method for removing mentioned barriers resulting from the non-synchronization of science and society, leads every analyst thinkers to the term "knowledge management". Bearing in mind that nowadays, the essential element in maintaining a competitive advantage of people and organizations is the powerof knowledge, the concept of knowledge management becomes more significant (Iranshahi, 2003).

Knowledge management involves identifying and determining the intellectual capital of an organization,generatesa new knowledge to sustain its competitive advantage, providing access to a large volume of information, sharing best practices using technology that allows obtaining all cases (Barkley *et al.*, 2006).

The innovation term in a broad sense can be used as the process for using knowledge or information in order to introduce or make useful things. In other words, innovation is creating something new that followsand runs a specific target (Holt, 1987).

For this reason, in the present study we examined the relationship between knowledge management and organizational innovation and will be referred to the impact of knowledge management initiatives on innovation.

Literature Review

Knowledge Management

Knowledge management is achieving organizational goals through motivating knowledge workers and providing facilities for them according to the company's strategies, in order to increase their ability to interpret the data (using the results of information, experience, skills, culture, personality characteristics, emotions, etc.) by means of the data and information. Knowledge management is explicit and systematic management of vital knowledge and processes for creating, organizing, sharing and use of knowledge discovery (Madhavm and Grover, 1998).

Principles of Knowledge Management

Principles of knowledge management, from Davenport and Prozac (1998) perspective are:

1. Knowledge is rooted and located in the minds of people.
2. Knowledge sharing requires trust.
3. Technology enables new knowledge behaviors (knowledge behaviors are the behaviors for the creation, development, distribution and enrichment of knowledge).
4. Knowledge storage should be encouraged and rewarded.
5. Management support and resources allocation (knowledge management) is essential.
6. Knowledge has a self-creative nature and people'sencouragement leads knowledge to spread unexpectedly.
7. Knowledge management programs must begin with a pilot program (Davenport and Prozac, 2000) and also Davenport has presented ten following principles as principles of knowledge management: (Davenport, 1997).

Hicks' Model

Hicks's model (2000) is one of the functional models; this model is composed of four processes:

Create: This refers to the ability to learn and communicate. Developing this ability, existing knowledge and the experience of sharing knowledge, linking ideas and making connections with other issues are of key importance.

Store: this is the second element required by knowledge management, through which, organized storage capability that enables fast data access and sharing of knowledge and information is provided for other employees.

In this system, necessary knowledge must be stored to be used easily by everyone.

Distribute: this process helps to develop a collective spirit in which people as partners in pursuit of common goals have a sense of continuity and related to each other in their activities.

Apply: the fourth process of this idea begins when creating more knowledge is possible through the application of new objective knowledge. This element completes unified knowledge management center with a circular process (Amberg, 2001).

Organizational Innovation

Counter (1989) considers innovation as a process of collecting any new and useful ideas for solving the problem and believes that innovation involves the idea of accepting and implementing it (Ahmadi and Pishdar, 2010).

Barighe and colleagues argue that innovation is the creation of new knowledge and business ideas to facilitate new products, to improve internal business processes, structure and elasticity of the market for the products and services.

Generally, innovation is the formation of ideas, adoption and implementation of new ideas in processes, products and services (Chavoshbashi and Kavoosi, 2008) and the desire for change through the adoption of technology, resources, skills and new management systems (Ushahava,2008).

Organizational Innovation Types

Product Innovation: product innovation provides a means of production (Ojasalo, 2008) which refers to development and providing new and improved products and services. In fact, it can be said that purpose of product innovation is to measure to what extent the production of new services, the allocation of financial resources to research and development are leading.

Process Innovation: process innovation provides tools in order to maintain and improve the quality and cost savings (Jimenez-Jimenez *et al.,* 2008) and includes the adoption of new or improved methods of production, distribution or delivery service. In fact, the purpose of process innovation is to what extent the new technologies and new ways of doing business is to provide test.

Administrative Innovation: administrative Innovation refers to procedures, policies and new forms of organization (Jimenez-Jimenez *et al.,* 2008). The purpose of administrative innovation is to what extent the managers apply modern management systems, etc., in managing organizations.

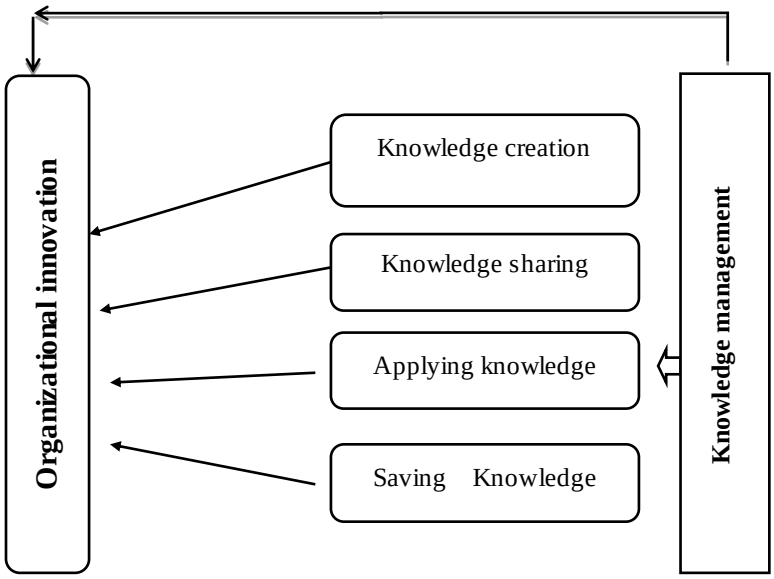

Figure 1: Conceptual model of study

Innovation Types from Betz Perspective

Betz (1987) explains that every innovation usually takes place in one of the following categories:

A) Foundation: innovation is basis and foundation of development. Innovation is the foundation for removing barriers that do not allow subsequent changes achieved an industry. Because, obviously, the risk of establishment of a new idea that will be a completely new thing becomes very high.

B) Organization: organization can become a place to commercialize innovation. Risk acceptance of innovation in this category, is less than foundation innovation.
C) Evolution: this category has the lowest risk acceptance and popularity of innovation. This phase includes going beyond completion and enhancing capacity for production (Betz, 1987).

MATERIALS AND METHODS

In this study, data is of qualitative type, the aim of the research is applied and the method of data collection is the cross-correlation. The study population consists of 6000 people including, managers, experts and senior experts of Gachsaran Oil and Gas Production Company. Samples were calculated using non-experimental research method and Cochran formula. Here, Z = 1.96, p= 0.5, q= 0.5, and d= 0.6 are included, also N=6000 study population and n is considered sample size.

$$n = \frac{6000*3.84*.25}{5999*.0036+3.84*.25} = 256 \qquad n = \frac{N\, z^2_{\alpha/2}\, pq}{(N-1)d^2 + z^2_{\alpha/2}\, pq}$$

In this study, in order to obtain the reliability of knowledge management and organizational innovation questionnaires Cronbach's alpha coefficient was used. After collecting the questionnaires, the Cronbach's alpha coefficient was calculated using SPSS software and as a result, thefollowing scales were obtained: questionnaire of knowledge management 0.0899, questionnaire of organizational innovation 0.881 and Cronbach's alpha coefficient of all questionnaires were equal to 0.920. For data analysis, Kolmogorov-Smirnov test, one-sample T test, Pearson correlation coefficient and simple linear regression were used to examine the assumptions.

Research Hypothesis

The Main Hypothesis

There is a significant and positive relationship between knowledge management and organizational innovation among operating units employees of Gachsaran Oil and Gas Company.

Subordinate Hypotheses

There is a significant and positive relationship between knowledge creation and organizational innovation.
There is a significant and positive relationship between knowledge distribution and organizational innovation.
There is a significant and positive relationship between knowledge application and organizational innovation.
There is a significant and positive relationship between knowledge storage and organizational innovation.

Data Analysis

1. There is a significant relationship between knowledge management and organizational innovation in Gachsaran Oil and Gas Company.

Table 1: Pearson correlation coefficient for knowledge management and organizational innovation

	Correlation	Significance level
Knowledge management	0.694	0.000
Organizational innovation		

Correlation table above shows the relationship between knowledge management and organizational innovation. As can be seen, the correlation coefficient (r= 0.694) in the (sig=0.000) level is significant and positive in relationship. Since the significance level is less than 0.05, there is a significant and positive relationship between these two variables.

2. There is a significant relationship between knowledge creation and organizational innovation in Gachsaran Oil and Gas Company.

Table 2: Pearson correlation coefficient for knowledge creation and organizational innovation

	Correlation	Significance level
Knowledge creation Organizational innovation	0.573	0.000

Correlation table above shows the relationship between knowledge creation and organizational innovation. As can be seen, the correlation coefficient (r= 0.573) in the (sig=0.000) level is significant and positive in relationship. Since the significance level is less than 0.05, there is a significant and positive relationship between these two variables.

3. There is a significant relationship between knowledge distribution and organizational innovation in Gachsaran Oil and Gas Company.

Table 3: Pearson correlation coefficient for knowledge distribution and organizational innovation

	Correlation	Significance level
Knowledge distribution Organizational innovation	0.586	0.000

Correlation table above shows the relationship between knowledge distribution and organizational innovation. As can be seen, the correlation coefficient (r= 0.586) in the (sig=0.000) level is significant and positive in relationship. Since the significance level is less than 0.05, there is a significant and positive relationship between these two variables.

4. There is a significant relationship between knowledge application and organizational innovation in Gachsaran Oil and Gas Company.

Table 4: Pearson correlation coefficient for knowledge application and organizational innovation

	Correlation	Significance level
Knowledge application Organizational innovation	0.606	0.000

Correlation table above shows the relationship between knowledge application and organizational innovation. As can be seen, the correlation coefficient (r= 0.606) in the (sig=0.000) level is significant and positive in relationship.

Since the significance level is less than 0.05, there is a significant and positive relationship between these two variables.

5. There is a significant relationship between knowledge storage and organizational innovation in Gachsaran Oil and Gas Company.

Table 5: Pearson correlation coefficient for knowledge storage and organizational innovation

	Correlation	Significance level
Knowledge storage Organizational innovation	0.684	0.000

Correlation table above shows the relationship between knowledge storage and organizational innovation. As can be seen, the correlation coefficient (r= 0.684) in the (sig=0.000) level is significant and positive in relationship. Since the significance level is less than 0.05, there is a significant and positive relationship between these two variables.

Test of Research Hypotheses using Simple Linear Regression Analysis

In this section, we work on the simple regression analysis to examine the research hypothesis (the relationship between the independent and dependent variables).

R Square shows the percentage of changes in dependent variable under the influence of independent variable.

In Anova part, if sig is higher than 0.05, the equation is not linear regression and by use of Coefficients, linear regression equation can be written.

The Main Hypothesis

As table 6 shows, Anova (sig) is less than 0.05 which indicates the linear relationship between knowledge management and organizational innovation. R Square equals to 0.482 which states that 48.2 % of organizational innovation changes are under influence of knowledge management.

Table 6: Regression test between knowledge management and organizational innovation

Coefficients B	Anova sig	R Square	Dependent variable	Independent variable
Constand=-4.323 knowledge management=0.358	0.000	0.482	Organizational innovation	Knowledge management

First Subordinate Hypothesis

First hypothesis indicates that knowledge creation component has a positive impact on organizational innovation. As table 7 shows, Anova (sig) is less than 0.05 which indicates that there is a linear relationship between knowledge creation component and organizational innovation. R Square equals to 0.329 which represents that 32.9 % of changes in organizational innovation is affected by knowledge creation component.

Table 7: Regression test between the components of knowledge creation and organizational innovation

Coefficients B	Anova sig	R Square	Dependent variable	Independent variable
Constand=-8.874 knowledge creation=0.999	0.000	0.329	Organizational innovation	Knowledge creation

Second Subordinate Hypothesis

As table 8 shows, Anova (sig) is less than 0.05 which indicates that there is a linear relationship between knowledge distribution component and organizational innovation. R Square equals to 0.343 which represents that 34.3 % of changes in organizational innovation is affected by knowledge sharing component.

Table 8: Regression test between the components of knowledge distribution and organizational innovation

Coefficients B	Anova sig	R Square	Dependent variable	Independent variable
Constand=-11.352 knowledge distribution=1.999	0.000	0.343	Organizational innovation	Knowledge distribution

Third Subordinate Hypothesis

As table 9 shows, Anova (sig) is less than 0.05 which indicates that there is a linear relationship between knowledge application component and organizational innovation. R Square equals to 0.367 which represents that 36.7 % of changes in organizational innovation is affected by knowledge application component.

Table 9: Regression test between the components of knowledge application and organizational innovation

Coefficients B	Anova sig	R Square	Dependent variable	Independent variable
Constand=-9.208 knowledge application=1.446	0.000	0.367	Organizational innovation	Knowledge application

Fourth Subordinate Hypothesis

As table 10 shows, Anova (sig) is less than 0.05 which indicates that there is a linear relationship between knowledge storage component and organizational innovation. R Square equals to 0.468 which represents that 46.8 % of changes in organizational innovation is affected by knowledge storage component.

Table 10: Regression test between the components of knowledge storage and organizational innovation

Coefficients B	Anova sig	R Square	Dependent variable	Independent variable
Constand=-9.760 knowledge storage=1.034	0.000	0.468	Organizational innovation	Knowledge storage

RESULTS AND DISCUSSION

Main Hypothesis

To assess this hypothesis, one-sample T-test, Pearson correlation and simple linear regression was used and the results of all three methods, suggest the hypothesis has been confirmed. 95% is probable that the original hypothesis is confirmed based on the relationship between knowledge management and organizational innovation? So, it can be said that, people in society agree that knowledge management has been effective on organizational innovation.

First Hypothesis

To assess this hypothesis, one-sample T-test, Pearson correlation and simple linear regression was used and the results of all three methods, suggest the hypothesis has been confirmed. 95% is probable that the first hypothesis is confirmed based on the relationship between knowledge creation and organizational innovation? So, it can be concluded that, knowledge creation has been effective on organizational innovation.

Second Hypothesis

To assess this hypothesis, one-sample T-test, Pearson correlation and simple linear regression was used and the results of all three methods, suggest the hypothesis has been confirmed. 95% is probable that the second hypothesis is confirmed based on the relationship between knowledge distribution and organizational innovation?

Third Hypothesis

To assess this hypothesis, one-sample T-test, Pearson correlation and simple linear regression was used and the results of all three methods, suggest the hypothesis has been confirmed. 95% is probable that the third hypothesis is confirmed based on the relationship between knowledge application and organizational innovation? So, it can be concluded that, knowledge application has been effective on organizational innovation.

Fourth Hypothesis

To assess this hypothesis, one-sample T-test, Pearson correlation and simple linear regression was used and the results of all three methods, suggest the hypothesis has been confirmed. 95% is probable that the fourth hypothesis is confirmed based on the relationship between knowledge storage and organizational innovation? So, it can be concluded that, knowledge storage has been effective on organizational innovation.

Suggestions

In connection with the first hypothesis, the following recommendations are offered:

Strengthening Scientific, Educational and Value Power of Individuals

Management must ensure people can benefit from in-service training and with minimum cost can afford the cost of the training courses andwith minimum hassle and concerns, participate in the courses and benefit the most of what is derived from them and use it to improve their excellence and the organization's by giving the most constructive suggestions, etc. must be born in mind that when people's knowledge and awareness increases, their resistance to change will decrease.

Bringing Experts into Company: Companies often hire people to make use of their skills in providing products and services. Skilled people and the ones, who need those skills, find each other in numerous markets. The process of hiringexperts is a vital part of an integrated knowledge management policy.

Consultant: Rapid growth of use of consultants in knowledge management and in other areas Implies that the consultation has become an important way for companies to implement knowledge.

Limited Contracts: Temporary contracts, are increasingly replacing traditional permanent employment. Special skills are often useful in market for short or medium term. Temporary managers or contract agencies can help companies in the time of crisis. Some skills quickly lose their values or importance for companies or they do not have a certain importance for company's future, in these times, limited contracts have interesting ways to gain knowledge in the medium term.

In connection with the second hypothesis, the following recommendations are offered:

Create Interaction and Relationship

To the success of the organization, people'sknowledge about the relationship and interactions between individuals that constitute knowledge among them, are less important. But only if there is an interaction the knowledge is created and maintained.

Encourage Teamwork

In modern organizations, the most tolerant environment for the emergence of teamwork is a team. Organizations must concentrate their efforts on teams to identify the conditions that are impossible for the individuals. Therefore, organizations should seek to establish a collaborative research team to find conditions and requirements for group knowledge development.

Socialize

Socializing includes familiarizing employees with norms and values of organization and transferring basic behaviors and expectations of their role. Briefly, means teaching them the culture of the organization which happens through contact with colleagues and informal discussions.

Registration and Transfer of Expertise from the Personnel Department

This method is very valuable when competent and qualified people are retired or pension applications increase. In this method, several tools are used including: Video reports, using spontaneous reports of experts, training, and workshop (this method is useful especially when experts from various fields and occupations such as managers and local consultants are invited).

In connection with the third hypothesis, the following recommendations are offered:

Encouraging People to use Knowledge

Ensuring that the proper knowledge is obtained with difficulty, managers should create conditions so that users really benefit from this knowledge.Working environment must support the application of new knowledge andboth individuals and groups should be encouraged to use them. Asking questions should not be interpreted as a sign of inability, but rather as an indication of a desire to learn and be open to change.

Use of Knowledge while Working

A practical situation can be valuable for development. Training in the job is based on this belief that employees acquire knowledge easier where they can apply them immediately.

Creating Friendly Work Conditions

Whenthe work place is friendly and there are acceptable ways to do this, using knowledge increases. Countless surveys indicate that individual's use of knowledge; depend on its easiness on first place.

If it is needed for employeesto use remote storage elements of the organization more often, the best way to encourage them is to make knowledge bases and infrastructures friendlier.

Using more Interactive and Interesting Documents

Sometimes, some small things can make great changes by use of knowledge. Graphics, short summaries, and other similar tools can take advantage of the knowledge to make a significant difference.

In connection with the fourth hypothesis, the following recommendations are offered:

Applying Selection Rules

For selection, we need rules because documenting every useless thing is not wise. The main challenge is to select worthy experiences from others and transfer data, information and worthy skills to organization systems.

Establishment of a Digital Library System

Establishing a digital library system for distributing information in great volumes in a short time and without a need for a specific place, helps employees to use digital library and have access to professional subjects and books related to their professions, without needing a specific place or time but only by entering the Company's website.

Editing Professional Manuals

Professional Manual editing makes it easy for individuals and teams to access specialists. These manuals can be in written form or as some soft wares. Developing a software manual has this advantage that the employees can use them either inside the organization or outside it by the means of entering to the organizations website, activating the required file of whatever subject they need and by means of specified communication ways, such as e-mail or in person.

Identifying Key Employees

New technologies such as workflow and document management systems, suggest new ways for knowledge storage in organization. But, still, these are men that make reasonable or wretched decisions in critical moments. You cannot always replace the employee's with machines and computer systems. So, the surest way to preserve the memory of the group is to identify and keep them in the company.

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