

The Study of Relationship between Knowledge Management and Organizational Innovation in Isfahan Steel Company

Mohamadreza Neyestani¹, Farzane Aminayi²*Salman Darabi³

¹Assistant Professor, Department of Educational Administration, University of Isfahan, Isfahan, Iran,

²MA Student, Department of Educational Administration, University of Teharn, Tehran, Iran

³MA student, Department of Educational Planning, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran.
salman.darabi@yahoo.com

Abstract: The main purpose of this research is to study the relationship between knowledge management and organizational innovation in Isfahan steel Company. This study was descriptive and its type was correlation. The statistical population of this study includes 1124 experts of Isfahan Steel Company that 286 of them were selected randomly. In order to collecting data, two researcher-developed questionnaires of knowledge management and organizational innovation have been used and their stability was respectively 0.87 and 0.85 respectively that has been calculated through Cranach's alpha coefficient. In order to analyzing data, descriptive and inferential methods such as Pearson correlation coefficient and one sample t-test have been used. The results of this study indicated that status of knowledge management and organizational innovation in Isfahan Steel Company located in relatively favorable. Also the results indicated that there is relationship between knowledge management and organizational innovation and its value was 0.56 (with sig= %1). Also the results indicated that there is significant direct relationship among components of knowledge management (knowledge creation, knowledge sharing, knowledge application and knowledge storage) with organizational innovation.

[Neyestani M, Aminayi F, Darabi S. **Department of Educational Planning, Faculty of Educational Sciences and Psychology, University of Isfahan.** *J Am Sci* 2012;8(8):383-390]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>. 59

Keywords: knowledge management, knowledge creation, knowledge sharing, knowledge storage, knowledge application, organizational innovation, Isfahan steel Company

1. Introduction

Increasingly changes and revolutions in the nowadays world lead that continuous process of change and revolution considered as one of the most basic processes that influence the human beings. With respect to this, which organizations and companies those want to create and maintain competitive advantages should be flexible and adopt these changes and revolutions. In such period, innovation is the main base for organizations. The growth nature of global economic has been changed with expedition of innovation and then this is more probably to rapid development of technology, shortage of product life cycles, and increasing new products development. Nowadays which organizations are more successful and survive in competitive world are those have ability to adapt with the created changes and continually effort to applying new thoughts and thinks in their organizations [1]

Complexity of innovation has been increased with growth and increase of available knowledge in organizations. The process of innovation is depended on the amount of available knowledge in organizations. Because of this, the created complexity through knowledge and wealth should identify and manage in order to providing and

attaining successful innovation. In order to this, knowledge is usable instrument for organizations to developing their intellectual capital and encouraging innovation [2]. Though it is considered as the main key to attaining competitive advantages in organizations during later periods, but attaining knowledge, competency, and creativity considered as one of the main factors to maintaining competitive advantages in the knowledge-based societies [3]. Nowadays knowledge management increasingly consider as the main and critical factor in the organization's strategies. The organizations that encourage knowledge sharing among their employees successfully ensure improvement of their organizational performance [4].

Knowledge management

Knowledge management is very important issue for organizations and leads to integration of resources and organizational abilities innovatively and creates more values for the organization than other competitors. For example, the individual knowledge commutated to organizational knowledge through sharing employee's knowledge and then organizational innovation formed that this maintains competitive advantage for the organization [5]. Nowadays knowledge entered to many of

organizational gorges and it consider as one of the main factors to creating strategic and competitive situation. Gupta & Gavindarja (1999) indicated “the process of tacit and explicit knowledge is the critical blood of innovation in the organizations”. The knowledge sources should continually provide and are adaptable with environmental changes, in order to that knowledge management processes have ability to providing backgrounds of knowledge creation and these knowledge sources continually are valuable. Indeed, existence of knowledge sources is necessary and critical to perception and outbreak of knowledge. The coordination of innovations in organizations not only should be in line of existence resources, but also should be in line of which potential services that they offer. As indicated at the following section, organizational innovation is depended on ability of organization in terms of utilizing knowledge sources closely. Knowledge management is an approach to active utilization of knowledge and skills in order to creating and elevating organizational effectiveness [7].

Knowledge management is the approach to creating which organization that its members can acquire, share, and creates knowledge or applies it in their decisions activities [8]. Gloet and Terziovski [8] defined knowledge management as the formality of attaining to experiences, knowledge, and expertise that creates new competencies and abilities, encourages innovation, and finally increases costumer values[8]. Knowledge management defined as the method of simplification; development and improvement of knowledge creating, acquiring, collecting, sharing, and publishing process [9].

Newman offered the general model of knowledge that knowledge organizes in the four areas based on it and includes: 1) creating and acquiring knowledge, 2) organizing and storing knowledge, 3) sharing and transferring knowledge and 4) implementation of knowledge [10]. These have been described at the following section.

1) **Creating and acquiring knowledge:** this is the process of acquiring new knowledge in the internal or external environments. Much of knowledge creating occurs in organizations, while knowledge addition process is depended on external resources. Knowledge acquiring is a social process that occurs among individuals[11]. Therefore the role of organization is to provide appropriate conditions and situations in order to acquiring knowledge based on organizational goals[12], and the most important activity of management is to integrate and recombine them with respect to environmental changes[13].

2) **Knowledge sharing:** this is the basic function of knowledge management [14].

Different and continuous communications and interactions among technology, professions, and individual’s skills are necessary that organization develops new knowledge effectively. The main purpose of knowledge sharing process is to create knowledge through different combinations of the existence knowledge and better exploitation of it. In order to creating effective process of knowledge sharing, individuals should have high levels of ability and tendency [15]. Bailey and Clarke believed that the main purpose of managers in the organization or between individuals and organizations is to create competitive advantages. Therefore the necessity of identification and application of effective methods to sharing and transferring internal knowledge that is very important than later [16].

3) **Organizing and storing knowledge:** This refers to transforming knowledge to perceptible format of machines in order to its future utilization. Generally this step refers to documentation of new knowledge and its storage so that all of stakeholders utilize this knowledge. The main purpose of organizing and storing knowledge is to retrieval and attaining to knowledge and utilizing it and also includes some processes such as documentation, development, outsourcing, translating, classification, and updating the knowledge [17].

4) **Implementation of knowledge:** This refers to the latest process of knowledge management. But based on Fifer and Souten, this is the main step of knowledge management. They indicated that the most important competitive advantage is for which organizations that utilize the best form of their knowledge in action, not the organizations that have the best form of knowledge assets. Knowledge management activities and processes are abortive and unfaithful if the knowledge don’t apply and utilize in action. Based on the knowledge-oriented perspective, action was focus on knowledge. On the other hand, organizations are able to identify their future needs and also adjust their strategic goals based on these needs with respect to feedback of knowledge implementation process[18].

Organizational innovation

Nowadays the post-industrial organizations are knowledge-based and their survival and situation is depended on their creativity, innovation, discovery, and devise [19]. Nowadays innovation considered as one of the important factors of organization’s long-term successfulness in competitive markets. The main reason of this is which organizations those have competency to creating innovation and are able to response environmental challenges rapidly and better [20]. In nowadays flexible and knowledge-oriented world, only the innovative organizations could

maintain their existence and response their costumers and stakeholder's needs and wants timely. Indeed, it is should remembered that the innovative organizations answer environmental challenges and needs better and rapidly than other organizations. Innovation is the window that provides new opportunities for organizations. Based on this, it is necessary that organizations attend their innovative activities and also identify existence resources and limitations in terms of this and then strive to improve these resources and remove such limitations. Indeed, organizational innovation considered as one of the basic advantages for organizations with respect to the complexity of competition. Generally organizations need new and modern ideas to survival in nowadays competitive world. The new and modern ideas are spirit for organizations and reclaim then from nothing and doom. The innovation not only leads them to attaining competitive advantage than their competitors, but also offers fruitful instrument to organizational performance excellence [21]. Herkema defined innovation as the process of knowledge that its purpose is to creating new knowledge in order to developing commercial and growth-able resolutions. Innovation is the process that the knowledge acquires, share, and combine with purpose of creating new knowledge [6].

Also organizational innovation refers to development or adoption of an idea or behavior in businesses activities that are new and modern for all departments of organizations. The creation of value from new technology or modern official activities is based on the new products or processes [22].

In order to this, we select the dominant components of other studies and research our main components after reviewing later studies and researches in terms of organizational innovations and also models of them. The official, production, and process components are the most important components among them and these components have been considered as the main dimensions of organizational innovation in this study that describe at the following section.

1) **Production innovation:** this provides instruments of production [23], that also refers to developing and offering new and improved products and services. Indeed, it is should remembered that the production innovations refers to which level that the organization is vanguards in terms of offering new services, allocating financial resources to research and development and related areas.

2) **Process innovation:** this provides instruments to maintaining and improving quality and saving cots [20], and also includes adopted new or improved methods of production, distribution, and

delivery. Indeed, process innovation refers to which level that the organization applies new technologies and also experiment new methods of doing work.

3) **Official innovation:** this refers to procedures, policies, and new organizational structures [20], and also includes which changes that influences policies, resources allocations, and other factors that are related to organization's social structure [24]. Indeed, official innovation refers to which level that the organization's managers utilize managerial modern systems in order to administrate their organizations.

Research backgrounds

Chang et al., [5] in their study entitled "the relationship between knowledge storing and organizational innovation" indicated that the competency of knowledge acquiring influences positively the production and process innovations. They also resulted that the competency of knowledge improvement has significantly positive effect on official innovation (Chang et al., 2008). Darroch [25] in his article entitled "the examination of relationship between knowledge management processes and types of innovation" studied the relationship among knowledge acquiring and answering knowledge with innovation (radical or incremental). The results of his examination indicated that there is significant positive relationship among these variables. Also he indicated that there is more incremental innovation than radical innovation in the market-oriented companies, because this type of innovation could leads to effectively acquiring, distribution, and responding to knowledge and finally leads to elevating organization's abilities and competencies [25].

Isfahan steel company as one of the important production areas in Iran needs to organizational creativity and innovation with respect to its conditions. One of the effective factors in terms of this is applying appropriate knowledge management systems. Therefore the present study was aimed to study the relationship between knowledge management and organizational innovation in Isfahan steel company.

In this study we effort to answer these following questions:

1: is there relationship between knowledge management and organizational innovation in Isfahan steel company?

2: what is status of knowledge management and its components in Isfahan steel company?

3: what is status of organizational innovation and its components in Isfahan steel company?

4: are there relationships among the components of knowledge management (including creating knowledge, storing knowledge, sharing

knowledge, and applying knowledge) with organizational innovation in Isfahan steel company?

2. Material and Methods

Statistical population, sample, and sampling method

The statistical population of this study includes all of 1124 experts of Isfahan steel company. The size of sample was determined based on Kokran table of sampling (286 experts) and then sampling conducted through random sampling method.

Data collecting methods

Knowledge management questionnaire

In order to collecting data about knowledge management, the researcher-developed questionnaire has been used that consists of four dimensions (including creating knowledge, storing knowledge, sharing knowledge, and applying knowledge) that each of these dimensions had respectively 7, 6, 5, and 7 questions. In order to measuring stability of this questionnaire, Cronbach's Alpha has been used that its value was 87% and indicated that this questionnaire has acceptable stability.

Organizational innovation questionnaire

The second instrument of data collecting data was another researcher-developed questionnaire that has been used to measuring organizational innovation. This questionnaire consists of three dimensions (including production, process, and official innovations) with 17 items. This questionnaire was based on Jimenez- Jimenez [20] and Plisses [6] Cronbach's Alpha indicated that stability of this questionnaire was 85% that shows appropriate stability.

Methods of data analysis

In order to analyzing the findings, descriptive and inferential statistics have been used that includes Pearson correlation coefficient and one sample T-test.

3. Results

In this section based on the collected data, questions have been analyzed. With respect to this fact that the normal distributions of samples were accepted through K-S test, then Pearson correlation coefficient and one sample T-test have been used to analyzing questions and concluding results.

In order to answering the first questions that indicated there is relationship between knowledge management and organizational innovation in Isfahan steel company, Pearson correlation coefficient has been used that its results has been indicated at the table 1.

Table 1: The results of Pearson correlation coefficient between knowledge management and organizational innovation in Isfahan steel company

Variables	Correlation coefficient	sig
knowledge management and organizational innovation	0.562	0.01

As indicated at the table 1, there is significant positive relationship between knowledge management and organizational innovation ($R = .562$) with sig 0.01. In other words, the existence of knowledge management in each organization leads to organizational innovation.

In order to examining and answering second question of this study that indicated what is status of knowledge management and its components in Isfahan steel company, it is should remembered that determining decisions about favorably of unfavorably of knowledge management and its dimensions status in the organization can be conduct only through one sample T-test, we utilize which standard that developed by Bazargan et al., (2007), in order to describing status of knowledge management and its dimensions. The results of this test have been indicated at the table 2.

In order to examining status of knowledge management and each of its dimensions in Isfahan steel company, one sample T-test has been used and its results indicated at the table 3.

As indicated at the table 3, t-value of all dimensions (including knowledge creation, knowledge sharing, knowledge sharing, and knowledge storing) were significant with $P < 0.05$, and generally was relatively favorable.

In order to answering third question that indicated what is status of organizational innovation and its components in Isfahan steel company, with respect to above mentioned description, this method has been used and its results indicated at the table 4.

As indicated at the table 4, t-value of all of dimensions of organizational innovation was significant with $P < 0.05$, and generally was relatively favorable.

In order to answering fourth questions of this study that indicted there are relationships among the components of knowledge management (including creating knowledge, storing knowledge, sharing knowledge, and applying knowledge) with organizational innovation in Isfahan steel company, Pearson correlation coefficient has been used and its results have been indicated at the table 5.

Table 2: The standard of Bazargan et al., (2007) to measuring results

Standards	1- 2.33	2.34- 3.67	3.68- 5
	Unfavorable	Relatively favorable	Favorable

Table 3: The results of one sample T-test to examining status of knowledge management and each of its dimensions in Isfahan steel company

Variables	Average	Standard deviation	Standard error	t	Sig	Status
Knowledge management	3.25	0.71	0.04	5.27	0.000	relatively favorable
Knowledge creation	3.43	0.92	0.61	7.08	0.000	relatively favorable
Knowledge sharing	3	0.74	0.04	0.006	0.000	relatively favorable
Knowledge application	3.38	1.09	0.07	5.31	0.000	relatively favorable
Knowledge storing	3.18	0.96	0.06	2.83	0.005	Relativelyfavorable

Table 4: The results of one sample T-test to examining status of organizational innovation and each of its dimensions in Isfahan steel company

Variables	Average	Standard deviation	Standard error	t	Sig	Status
Organizational innovation	2.97	0.65	0.04	-0.65	0.000	relatively favorable
Production innovation	2.96	0.75	0.05	-0.69	0.000	relatively favorable
Process innovation	2.89	0.73	0.04	02.15	0.000	relatively favorable
Official innovation	3.05	0.85	0.05	0.97	0.000	relatively favorable

Table 5: The results of Pearson correlation confident between knowledge management and organizational innovation in Isfahan steel company

Variables	correlation confident	sig
Knowledge creation and organizational innovation	0.406	0.01
Knowledge sharing and organizational innovation	0.595	0.01
Knowledge application and organizational innovation	0.289	0.01
Knowledge storing and organizational innovation	0.492	0.01

With respect to the results that indicated at the table 5, it is should remembered that there are significant relationships among all of knowledge management dimensions (including knowledge creation, knowledge sharing, knowledge application, and knowledge storing) with organizational innovation. Values of correlation each of these variables were 0.40, 0.59, 0.28, and 0.49 with $P < 0.05$. In other words, it is should remembered that the organization could increase its organizational innovation through knowledge creation, knowledge sharing, knowledge application, and knowledge storing.

4. Discussions

Nowadays which organizations are successful and can survive in the competitive world that have ability to confront with changes and adapt with them and continually apply new and modern thoughts and thinks in their organizations. The

companies concentrate on reconstruction and restoration in their products and follow modern businesses strategies in order to creating and reinforcing competitive advantages. These companies could reinforce their competitive situations only through offering new products rather than increasing their incomes, profits, and direction in line of improving companies 'trust [2]. With respect to importance of knowledge management (including knowledge creation, knowledge sharing, knowledge application, and knowledge storing) in increasing and implementing innovations in organizations, the present study examined the relationship between knowledge management and organizational innovation in Isfahan steel company. The results of these examinations indicated at the following section.

The results of the relationship between knowledge management and organizational innovation (with sig 0.01) indicated that there is significantly positive relationship between these two

variables. The findings of Chopani (2011), Chang et al., [5], Jimenez- Jimenez [20], and Sopen Lin (2007) supported our findings in terms of relationship between knowledge management and organizational innovation. This result indicated that knowledge as the main source of organizational innovation and productivity has many important. Knowledge management provide and organizes environment that in which individuals develop their knowledge, interact with each other, combine their own knowledge with other's knowledge, and finally apply them. Knowledge application leads to innovation in their organizations. Therefore knowledge management introduced as the main resource and source of organizational innovation and as one of the main necessities of innovation process in organizations.

Therefore it is should remember that there is relationship between ability of innovative-acceptance of Isfahan steel company with its ability to utilizing and applying its knowledge resources. Knowledge management is the perspective of effective influence and applying knowledge and expertise in order to creating value and increasing organizational effectiveness. When this company shows high levels of knowledge management capabilities, then will experience effect of learning that this could leads to reduction of reworking, rapid response and reaction to change, creating new ideas and increasing innovation. Effective knowledge management facilitates necessary transition and interaction of knowledge in the innovation process. This also leads to increasing innovative performances through creating and developing new insights and capabilities. Therefore the capability of knowledge management playsan important role in innovation supportiveness and its expedition.

Other results of this study indicated that the status of knowledge management andeach of its components and also organizational innovation and its components are relatively favorable in Isfahan steel company. Therefore managers of this company should strive to review their weaknesses through necessary and timely efforts and apply necessary and beneficial resolutions in their plans and decisions.

Other results of this study indicated that there are significant positive relationships among knowledge management components (creating knowledge, storing knowledge, sharing knowledge, and applying knowledge) and organizational innovation. These findings supported by other studies such as Chang et al[5],Jimenez- Jimenez [20], Vijjing (2010), and Sopen Lin (2007).

These findings indicated that creating knowledge from external market and also from internal employees provides opportunities for Isfahan

steel company in terms of recombination of knowledge and also creating new knowledge. The new attained knowledge has interaction with the existing knowledge and could adjust knowledge storing and also increase organization's knowledge, and therefore increase potential competencies for innovation's outcomes. The interaction between new attained knowledge and existing knowledge can leads to correcting organizational assets or storages of knowledge, increase depth and newness of organizational knowledge and finally increase the outcomes of innovative processes in organizations. Therefore knowledge creating leads to reduction of uncertainly and offering higher levels of differentiated products and services. Therefore it is resulted that there is significantly positive relationship between knowledge creating and organizational innovation.

If there is knowledge in different individuals and in different levels of organizations, organizational members need to share these in order to creating thought and mental styles. When Isfahan steel companies' experts have tendency to sharing their knowledge and exchange these, they can provide collective learning and also benefit from knowledge exchanges processes. When innovation created then the organizational members share their expertise, share their skills, and also explicitly transfer it in terms of products and services. Therefore when organization is able to share its knowledge among its members effectively, then will more innovative.

Knowledge application is the main and central component on knowledge management. Indeed, value of individual and organizational knowledge is in its application, because of its tacit nature. Organizational innovation needs to application and combination of knowledge from different sections. The knowledge that transfer to others or shared with them, applied in order to facilitate and create innovation. Indeed, knowledge application refers to process of applying knowledge in seven areas including new businesses, innovation in products and services, innovation in process, self-restoration, risk taking, voluntary, and assertive competition. Isfahan steel company should modify its products and services through applying knowledge and also offer new products that satisfy their costumer's needs and wants. So if this company utilizes the existence knowledge in order to offering its products and services, then can discover the ideas that consider as opportunities.

The capability of retrieval and attaining to individuals increase through knowledge organizing and storing processes. The knowledge will effective when codify and storage so that transfer especial

meaning and perception to the organizational members. Isfahan steel company should identifies beneficial information through evolution of its values and the codifies organizational operations with respect to learning needs. The stored knowledge should is attainable in the different functional territories. Therefore innovation needs to store not only based on subjective classifications but also based on employee's learning needs and organizational goals with purpose of continuous improvement and expertise allocation..

Corresponding Author:

Salman Darabi

Department of Educational Planning, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran. salman.darabi@yahoo.com

References

- [1]Salajeghe, Sanjari, Nazeri, Mojhgah, (2008), the Role of Tacit Knowledge on Creativity and Innovation, the first national conference on Creativity and innovation management and engineering, pp 35-52.
- [2]Akhavan, Peyman, Aboali, Morteza, (2010), the Examination of Knowledge Management Role on Innovation, the third conference on TRIZ, creativity, engineering, and innovation management, Tehran, pp 21-36.
- [3]Nonaka, I. Toyama, R. & Konno, N. (2000). SECI, BA and leadership: a unified model of dynamic knowledge creation, Long range planning. Vol.33, No.1, pp.5-34.
- [4]Argot, L. & Ingram, P. (2000). Knowledge transfer: a basis for competitive advantage in firms. Organizational behavior human decision processes. Vol.82, No.1, pp.150-169.
- [5]Chang, Su-Chao & Lee, Ming-Shang. (2008).The linkage between knowledge accumulation capability and organizational innovation Source: Journal of Knowledge Management. Volume: 12 Issue: 1.
- [6]Plisses, Marina Du. (2007). The role of knowledge management in innovation. Journal of knowledge management. Vol.11, No.4, pp.20-29.
- [7]Karkoulia, S, Halawi, L.A. & McCarthy, R.V. (2008).Knowledge management formal and informal mentoring; an empirical investigation in lebanese banks. The learning organization. Vol.15, No.5, pp.409-420.
- [8]Gloet, M. & Terziovski, M. (2004). Exploring the relationship between knowledge management practice and innovation performance. Journal of manufacturing technology management. Vol.15, No.5, pp. 402-409.
- [9]Abili, K & Narenji, F & Mokhtarian, F & Rashidi, M. (2011). The role of effective Factors on Organizational Knowledge Sharing. The 2nd International Conference on Education and Educational Psychology. Vol. 29. pp. 1701–1706.
- [10]Akbarpour Shirazi, Mohsen, Kazemisefat, Dorre, (2007), the Comparative Study of Reediness Evaluation Models to Adopting Knowledge Management, the first conference on knowledge management, Tehran, Iran, pp 78-99.
- [11]Nonaka, I & Takeuchi, H. (1995). The knowledge- creating company: how Japanese companies create the dynamics of innovation. Oxford University Press, New York.
- [12]Magnier-Watanbe, Re'my & Senoo, Dai. (2008). Organizational characteristics as prescriptive factors of knowledge management initiatives. Journal of knowledge management. Vol.12, No.1, pp.21-36.
- [13]Abbasi, Zohre, (2007), Review on Knowledge Management Implementation Models in Organizations, the first conference on knowledge management, Tehran, Iran, pp 34-52.
- [14]Nemati, Mohamadali, Jamshidi, Lale, (2007), The Examination of Relationship and Impact of Knowledge and Experiences Sharing on Social Capital Development among the Technology Centers of Shahid Behashti University, the first conference on knowledge management, Tehran, Iran, pp 16-33.
- [15]Battor, Moustafa & Zairi, Mohamed & Francis, Arthur. (2008). Knowledge-based capabilities and their impact on performance: a best practice management evaluation. Business strategy series. Vol.9, No.2, pp.47-56.
- [16]Abili, Khodayar, (2001), the Role of Effective factors on Organizational Knowledge Sharing, Journal of Management and Human Resources in Petroleum industry, 4(14).
- [17]Talebi, Kambiz, Mohamadi, Hamidreza, Rahimi, Mahdi, (2007), Offering the Framework to Implementing Knowledge Management in Small and Moderate Businesses, the first conference on knowledge management, Teharn, Iran, pp 35-52.
- [18]Bose, R. (2002). Customer relationship management: key components for it success. Industrial management and data systems, Vol.102, No.2, pp.89-97.
- [19]Martins, E.C. & Terblanche, F. (2003). Building organizational culture that stimulates creativity and innovation. European journal of innovation management. Vol.6, No.1, pp.64-74.

- [20]Jimenez- Jimenez, Daniel et al. (2008). Fostering innovation: the role of market orientation and organizational learning. *European journal of innovation management*. Vol.11, No.3, pp.389-412.
- [21]Dehghannajam, Mansour, (2009), Knowledge Management and its Role in Organizational Innovation, *monthly of automobile engineering and its related industries*, Vol 1, pp 27-44.
- [22]Wong,S. Chin, K. (2007). Organizational innovation management: an organizational-wide perspective. *Industrial management & data systems*. Vol.107,No.9, pp.1290-1315.
- [23]Ojasalo, Jukka. (2008). Management of innovation networks: a case study of different approaches. *European journal of innovation management*. Vol.11, No.1, pp.51-86.
- [24]Daft, R.L. (1978). A dual-core model of organizational innovation. *Academy of management journal*. Vol.21, No.2, pp.193-210.
- [25]Darroch, Jenny. (2007). Examining the link between knowledge practices and type of innovation. *Journal of intellectual capital*. Vol.3, No.3, pp. 210-222.

7/5/2012