

## **The Study of the Effects of Knowledge Management on Innovation and Organizational Performance: A Case Study in Small and Medium Enterprises in Qom**

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### **Abstract**

This study aimed to evaluate the effects of knowledge management on innovation and organizational performance. The study was conducted by using descriptive method. The sample consisted of experts and managers of small and medium enterprises in Qom province that were selected by using stratified random sampling method. 160 questionnaires were distributed and 150 questionnaires were received and evaluated. The survey questionnaire was used to gather information. Cronbach's alpha was used to assess reliability. The results show that knowledge management has a positive and significant impact on innovation and firm performance of Qom province.

**Keywords:** knowledge management, innovation, organizational performance, small and medium enterprises

### **Introduction**

Past human societies are undergoing many changes and developments that have led to the increase of population. Now that is known as the era of information and knowledge, the main advantage lies in knowledge capital (Consulting Company, 2006) and in order to maintain a competitive position within the company, knowledge is considered as an important strategic resource. Knowledge which is created within a company and distributed on the whole has the ability to strengthen the company's response to new situations and has extraordinary impact on increasing corporate value. There is evidence to show that companies are increasingly investing in novel issues of knowledge management and knowledge management systems are the best source (Sarvari, 1999). At the threshold of the third millennium, knowledge management is regarded as a strategic need for institutions, organizations and service agencies, councils. Knowledge management ensures long-term advantages for organizations and communities. Knowledge management is a concept that can be implemented by the management of organizations with little flexibility and competitiveness in the future, leading in new products and services, conquering and creating new markets and accessing to the knowledge of capital losing. Knowledge management is an emerging topic of discussion, which is highly popular in management of organization and it is considered as a spirit of corporate actions (Hamzee, 2012). According to the information provided above, the present study aimed to examine the effect of knowledge management on innovation and organizational performance in small and medium enterprises of Qom province.

### **Theoretical study**

#### ***Knowledge Management***

Undoubtedly, knowledge and innovation is cornerstone of the management of the resources. According to Lemmon et al "useful innovation helps an organization remain competitive in an uncertain environment" (Jafari, 2007). Knowledge management cannot be defined easily. Various authors from different perspectives and with different approaches have focused on the definition

Knowledge management. From Rabitz's perspective, knowledge management includes all the ways in which organizations manage their knowledge assets including how to collect, store, transfer, use, and update and create knowledge. Grover and Medohavem manage explicit knowledge, systematic management, critical knowledge and processes for creating, organizing, sharing and using knowledge discovery (Alipur, S2-3). Hamel, tried to develop innovative concept based on the idea that "every organization on the planet has tried in recent years to improve the efficiency, speed of operation and business processes". Radyng (2002), states that knowledge management is a process by which organizations learn, codify, distribute and transmit the knowledge. Abtahi and Salvati (2006) demonstrate the process of knowledge management, approval, delivery, and distribution. These five factors are needed to use knowledge: education, feedback provides training, retraining, or removed, usually for the creation, maintenance and restoration of the capabilities. Gantt (1999) and Zargar (2003) have considered knowledge management under the control of the individual's experience and knowledge of the organization and timely dissemination of experiences among organizations. Perez believes that knowledge management is the collection of knowledge and intellectual capabilities and experiences of individuals and organizations for their recovery capacity are as a corporate asset. Newman believed that knowledge management is a set of phenomena that the realization, diffusion and application of knowledge in an organization involve subjective and objective efforts. Mansour Dehghan Najm, (2009) for a proper understanding of these definitions explains and defines knowledge from the data. Data is the reality of a situation or a case of a particular field unrelated to other things

**Table 1. Different definitions of knowledge management from the perspective of experts (Jamshidi and Abdullahi, 2013)**

Researcher	Definition
Jones (2005)	Integrated and systematic approach to identify manages and shares all intellectual property, including the Web of data, documentation, procedures, and policies and practices in mind.
Don Ram (2005)	Systematic and objective criteria to guide and control the use of tangible and intangible assets of the organization with the aim of using existing knowledge within and outside the organization to create new knowledge, value, innovation and improvement.
Owell (2000)	Knowledge management is a systematic approach to find, understand and use knowledge to create value.
Smith (2003)	A mechanism to create a working environment in which knowledge and expertise can easily be distributed and created a situation where knowledge and information at the right time can be given to individuals so that they are able to work more effectively and efficiently.
Cho (2005)	Framework for imposing structures and processes to the individuals, group and organization in order that the organization can learn from what they know, and acquires new knowledge to create value for customers and stakeholders. Such a framework manages people, processes and technology for sustainable development of the integrated function.
Beckman (2004)	Mechanism for accessing to expertise, knowledge and experience that provide new capabilities; it leads to better performance and innovation and encourages stakeholders to increase the desired value.

Information is regarded as adding context and interpretation of the data and their relationship to each other, thereby forming the data. Knowledge and understanding of memory add the natural

development of information after the data. A summary of the more (accumulated) raw data leads into knowledge. Efficient knowledge helps remove unwanted data. (MPC Norouzian, 2005)

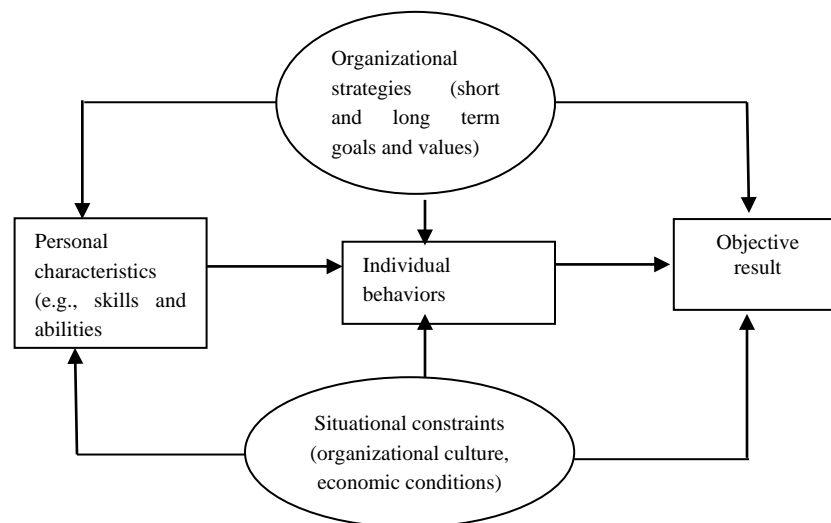
### **Innovation**

Literature of strategic management and innovation as a critical factor for organizations creates value and competitive advantage in today's complex and changing market. Organizations will be more successful that respond to environments' variations and the development of new capabilities with more innovation (Montes et al., 2004).

"Innovation" has a great history. Recent researches have focused on innovative organizational capability to respond to internal and external changes (Hall, 1982). The next innovation shows distinction between varieties. Despite the urgent need for change, innovation on the ability of organizations is necessary for innovation of products, services and processes (Kanter, 1988). Yet, the ability of organizations to promote innovation in goods and services was not enough that the third innovation was introduced. This kind of innovation is well-known as "innovation strategy" or "business concept innovation". This type of innovation is essential for growing needs of today's organizations that are very active (Hamel, 1996).

### **Organizational Performance**

Organizational performance is to perform the functions of the job performance of an employee and it shows how an employee to perform job requirements of a cycle (Byers, 2008: p. 216). Most of the "efforts" refer to the considered energy and the performance is measured based on the results of operations. For example, a student may apply a lot of effort in preparing for the test, but in this case, receives a low score, so, the yield is low. According to Byers Vero (2008) function in a situation can be considered as a result of interaction among effort and strength and perceptions of the role. "Trying" which comes from the excitation point to the energy (physical or mental) that is used by an individual in the line of duty. "Enablers" is personal characteristic that is used for carrying out a job. "Perceptual role" points to the routes that people believe they should direct their efforts in order to do their jobs. New and others (2008) the function of personal characteristics such as the skills and know is converted into concrete results. The employees use the knowledge, skills, abilities and other characteristics necessary to perform a job to demonstrate their behavior. Figure 1 shows the characteristics of the behavior of employees.



**Figure 1. Performance and evaluation model in organizations (New et al., 2008)**

Decisions and actions of the organization represent the success and achievements. Costs are central to the performance. However, the performance is based on competitive purpose and spiritual uplift such as reliability, flexibility, quality and speed (Tangn, 2004). According to Bolendor Snell (2007) and New (2008), the purpose of evaluating staff development goals and objectives of administrative enforcement is divided into two categories which are indicated in Table 2.

**Table 2. Performance evaluation purposes (Bolendor Snell, 2007)**

Executive administrative purposes	Development goals
-Documentation relating to personnel decisions	-Providing performance feedback
- Determination of the promotion candidates	-Identify the strengths and weaknesses of individual
-Identify the duties and responsibilities	-Identification of individuals
-Identification of poor performance	-Helping to identify targets
-The decision on expulsion or maintenance	-Assessing the achievement of objectives
-Validation of selection criteria	-Identifying the educational needs of individual
-Evaluation of educational programs	-Identifying the educational needs of the organization
-Deciding on compensation and reward	-Strengthening the power structure
-Meeting legal requirements	-Improving communication
- Planning staff	-To provide context to help managers and employees

### **Knowledge management, innovation and performance**

Organizational innovation as a source of sustainable competitive advantage is important and including business process innovation, dissemination, and application of new knowledge. Innovative utilization of organizational ability operates closely with relevant knowledge resources. Knowledge, attitude and practices of effective diffusion of knowledge and expertise create value and enhance organizational effectiveness. Organizations that demonstrate a greater level of knowledge management capacity influence learning experiences which can feature them in reinventing react and responding quickly to the changes, improving and creating new ideas and innovations. Effective management of knowledge transfer and exchanging the required knowledge can facilitate the innovation process and innovation performance through the development of new insights and capabilities or capacity. Therefore, knowledge management capacity and accelerating innovation plays an important role in protection. Knowledge management in the innovation process is complex (Boroumand & Ranjbari, 2009). Knowledge sharing collective beliefs or origins of behavior associated with the spread of learning among different individuals or departments within an organization. Previous research has shown that the sharing of knowledge can lead to an innovative organization. In particular, academic researchers indicate that the combination of knowledge sharing with new knowledge that is already available separately and individually leads to the improvement process. When individuals are willing to share and exchange knowledge, it can make learning and exchange of knowledge and resources to take advantage of the synergies process (Nonka and Kano, 1998). Application of knowledge management is a key component of the process. The knowledge-based view is the value of individual and organizational knowledge to tacit knowledge and the key lies in its application. Innovation requires special knowledge and proprietary applications and combination of inputs from different areas. The effective application of knowledge cause people makes fewer mistakes or improves their effectiveness. The organization may eventually be able to create more innovative processes or management systems (Sarin & Mac Dormont, 2003).

## Review of Literature

Vazife Dost et al (2014) have investigated the impact of knowledge management as a strategic innovation on brokerage firms of Tehran Stock Exchange and concluded that codified knowledge management strategies influence the Tehran Stock Exchange brokerage firms directly and indirectly (through increased innovation capability). Personal knowledge management has no effect on the innovation and performance of brokerage firms. Given the positive impact of innovation and knowledge management the documented results of this study can help managers of brokerage firms and academics in strategic planning, knowledge management to achieve greater innovation, effectiveness, efficiency and profitability. Hosseini (2012) has conducted a market-oriented research to investigate the role of market-oriented exchange diet and innovation in food companies. The market-oriented innovation has positive impact on the performance of companies. Furthermore, it was found that the mediator market-oriented innovation affects performance. In fact, the major impact was on performance due to market-oriented innovation. Ghanbari Nejad and Mohammadi (2012) have investigated the effect of technology on development (comprehensive innovation management) and the performance of innovation and have examined the role of technology, research and development to predict the performance in terms of quality and innovation. The results showed that the management of technology, research and development (comprehensive innovation management) has predictive power on quality of performance, but the predictive power of innovative performance is higher. Bayong et al (2013) in an ethical climate research have considered the innovation and performance (supporting innovation and performance evaluation). The purpose of their study was to examine how positive ethical climate of the organization's financial performance has been done with regard to innovation, supporting innovation and performance evaluation. The results showed that the moral atmosphere was positively associated with financial performance. Carmen and Joyce (2008) have studied the role of technological innovation and enterprise in the relation to market orientation and performance in cultural organizations to provide evidence for the mediating effect of technological innovation. Results showed that although the relationship between market orientation and performance is remarkable, but they are the best variables to increase performance, technological and organizational innovations.

### Conceptual model

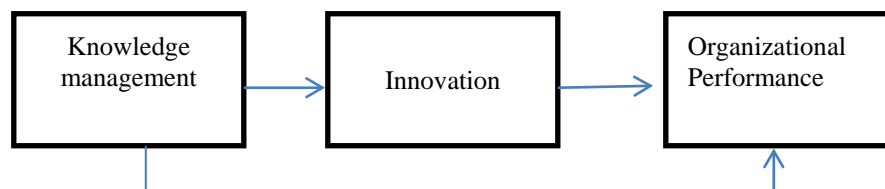


Figure 2. Conceptual model of research

### The main hypothesis

Knowledge management has an impact on organizational performance in small and medium enterprises with innovation mediator variable of Qom province.

### Sub-hypotheses

Knowledge management has an impact on organizational performance in small and medium enterprises of Qom province.

Knowledge management has an impact on innovation in small and medium enterprises of Qom province.

Innovation has an impact on organizational performance in small and medium enterprises of Qom province.

### **Methodology**

This study is applied in terms of purpose and descriptive and survey in terms of method. After reading the relevant literature, the conceptual model was developed based on research scholars and evaluation indicators were developed. The variables used in the research including knowledge management (independent variable) organizational performance (dependent variable) and innovation which were considered as a mediator. It was designed to assess the relationship between the patterns of research hypotheses.

The questionnaire was designed to measure variables and was distributed among samples. The final model was developed based on the hypothesis testing in which the relationship between variables was analyzed.

The statistical population included all Qom provinces' small and medium enterprises which were 150 enterprises selected by simple random sampling method.

### **Research Tools**

The research tool was two questionnaires, one for knowledge management and innovation, other for small and medium enterprises of Qom province to assess organizational performance with respect to the variables. The questionnaire consisted of two parts: demographic and measuring the variables which were developed by experts in the form of 5 option Likert scale. To determine the validity, AVE was used and to determine the reliability, Cronbach's alpha was used. The coefficients are given in Table 3. Since the index (AVE) for all components of the index is above 0.5 and for CR is 0.7, they are suitable for fitting measurement model. Also, by using descriptive statistics, every single question was examined by the Spearman correlation test.

**Table 3. Results of analysis of the validity and reliability of the components of knowledge management, innovation and organizational performance**

Component	Cronbach's alpha	The Average coefficient of variance extracted (AVE)	Composite reliability coefficient (CR)
knowledge management	0/74	0/65	0/83
Innovation	0/76	0/62	0/78
Organizational Performance	0/80	0/60	0/78

### **Data and Results**

Demographic profile of the sample indicated that 20% of respondents were female and 80% of them were men in the age range of 31-40 and 55% of them were educated and 4% were low literate.

#### ***The results of Spearman correlation test***

Spearman correlation test was used to test the relationship between the variables and SPSS software was used for data analysis. The results of Spearman correlation test results are shown in Table 4.

Given that the level of knowledge management and innovation variables was less than 0.05, it can be concluded that there is a relationship between two variables, second sub-hypothesis is confirmed. The area between knowledge management and organizational performance is less than 0.05 and there is a relationship between these two variables and therefore, sub-hypothesis is confirmed. There is a significant relationship between innovation and organizational performance because the report is less than 0.05 and it can be concluded that there is a significant relationship between these variables and the third sub-hypothesis is confirmed.



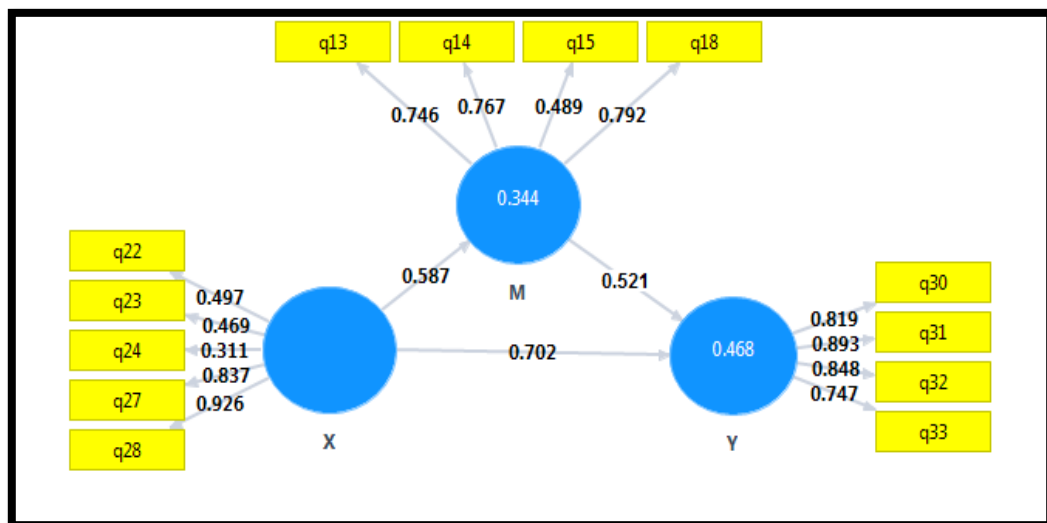
**Table 4. Correlation between knowledge management, innovation and organizational performance, mean and standard deviation**

	Knowledge management	Innovation	Organizational Performance
Knowledge management	1		
Innovation	0/69	1	
Organizational Performance	0/60	0/65	1
Significance level	0/001	0/001	0/001
Standard deviation	0/80	0/71	0/75
Average	0/31	0/28	0/34

**Research on Structural Equation Model**

This research investigated the effect of changing knowledge management (as independent variables) and organizational performance (the dependent variable) and innovation as a mediator by using software Smart-PLS and structural equation modeling technique which is presented in Figure 3.

The variable X represents the knowledge management, M represents organizational performance and the variable Y represents innovation.

**Figure 3. Structural equation modeling**

Standardized coefficients are used in the structural equation model (confirmatory factor loading coefficients) to evaluate the quality of the structural model in PLS GOF indices. Note that the three values of 0.01, 0.25 and 0.36 are introduced as weak, medium and strong values for GOF. Another way to check the fit of the structural model R<sup>2</sup> to show the impact of exogenous variables on the endogenous variables and three values of 0.19, 0.33 and 0.67 as the criterion for weak values, average and R<sup>2</sup> are considered to be strong.

**Table 5. Indicators and measures of structural equation modeling**

Component Index	knowledge management	Innovation	Organizational Performance
R <sup>2</sup>	0/68	0/67	0/60
Q <sup>2</sup>	0/25	0/27	0/23

Due to the structural equation model, knowledge management has a significant effect on organizational performance and innovation. The impact of knowledge management on

organizational performance as the first sub-hypothesis is also significant. The impact of knowledge management on innovation as the second sub-hypothesis is significant and the impact of innovation on organizational performance as the third sub-hypothesis is significant. The findings confirm the model which suggests a positive causal relationship between the variables of the main hypothesis and sub-hypotheses. Therefore, these hypotheses were confirmed. Table 6 presents the findings of causal analysis by using structural equation modeling to test the research hypotheses shows. Software PLS is shown to approve or reject the hypothesis with t-statistics. If the t-statistic to be greater than 1.96, a causal relationship exists between the variables and the hypothesis is confirmed. The results of this model are provided in Table (6).

**Table 6. Results of the factor analysis and structural equation**

Hypothesis	Path coefficient	t-statistics	Result
The main hypothesis: knowledge management has an impact on organizational performance with respect to the mediator innovation in small and medium enterprises in Qom.	0/55	6/11	+
The first sub-hypothesis: knowledge management has an impact on organizational performance in small and medium enterprises in Qom.	0/94	10/39	+
The second sub-hypothesis: knowledge management has an impact on innovation in small and medium enterprises in Qom.	0/57	7/07	+
The third sub-hypothesis: innovation has an impact on organizational performance in small and medium enterprises in Qom.	0/56	6/55	+

### Conclusion

Results of structural equation modeling and path analysis showed that all approved research hypotheses indicated a positive relationship between knowledge management and organizational performance according to the mediator innovation in small and medium enterprises in Qom and R2 structural model showed the influence of exogenous variables on the endogenous variables according to the application of the criteria for high-level components. GOF index was calculated as 0.6, which indicates the quality of the model structure. The mean and standard deviations of variables showed that the optimal level is moderate. The level of knowledge management and innovation has been reported less than 0.05. Thus, it can be concluded that there is a relationship between two variables and the second sub-hypothesis is confirmed. The area between knowledge management and organizational performance is reported less than 0.05, which indicates a significant relationship between these two variables and Sub-hypothesis is confirmed. The area between innovation and organizational performance is less than 0.05. Therefore, there is significant relation between these variables and the third sub-hypothesis is confirmed. In other words, knowledge management can be creative and innovative ideas which might ultimately lead to better stimulate innovation. To facilitate communication, knowledge management practices in innovation and optimal performance, manager's first need to understand the importance of knowledge management capacity. Then, it should be strategic action to stimulate a better level of knowledge management capacity to operate it in turn, which leads to desirable innovation outcomes. Directors emphasized the following important points:

- Emphasizing on the criteria of success factors of knowledge management system
- Emphasizing on the advantages of the use of knowledge management
- Considering the use of knowledge management tools and technologies



- Considering the application of knowledge management approaches

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