Evaluation of the Effective Factors on the Success of Knowledge Management in Jahad Nasr Contracting and Construction Company in Sistan Baluchestan

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Abstract

Success of knowledge management in Contracting and Construction Company through high volume and variety of activities, wide geographical spectrum and limited intervals for executing the projects, requires recognition of effective factors and comprehensive programs. The purpose of the present research is to recognize and prioritize the effective factors on the success of knowledge management in Sistan and Baluchestan’s Jahad Nasr Contracting and Construction Company to help managers create programs to face the challenges and a more effective management of knowledge in this company. For this purpose, firstly the research literature was reviewed, then a list of effective factors on the success of knowledge management was prepared and based on the perspective of the experts in the target population, the most important factors were recognized and were classified in three areas: employees, organization, and technology. Then the paired comparative questionnaires were distributed and the obtained data was analyzed by using the hierarchal analysis method and the main areas and factors were recognized and were prioritized and weighed based on the views of managers and senior experts of Jahad Nasr contracting and Construction Company. According to the research results, the main areas were recognized as "organization", "employees" and "technology" in order of importance. Among the fifteen recognized factors, "support of senior management" was recognized as the most effective factor of knowledge management in the studied area and the factors "culture of sharing and creating knowledge", "organizational structure" and "systemized processes based on the purposes of knowledge management were in the next ranks.

Keywords: Knowledge Management, Basic Factors of Success, Contracting and Construction Companies, Sistan and Baluchestan’s Jahad Nasr Company, Hierarchal Analysis Method.
Introduction

Today, the competitive space of the organizations has become more complicated than ever and is rapidly changing; in such way that this speed is far more than the speed of responding and the ability to compare them for most organizations. This matter has made organizations to start joining the knowledge process. Emergence of new concepts such as knowledge work, knowledge employees, knowledge management and knowledge organizations and so on emphasize this issue. Experts mention these words to provide information about the creation of a new type of organizations where the power of mind rules not the power of arm. Accordingly, in the future, societies with more knowledge can expect development and improvement (Abtahi, Salavati, 2006).

As experts say, knowledge management includes processes which help the organizations to recognize, select, organize, distribute and transfer information and individual skills which are potentially and nonstructural available in the texture of the organization and lead to an efficient solution of issues, constant learning and programming with the intention of sharing and reusing the knowledge and provides a new knowledge. Knowledge management is highly important in the current organizations, but executing the programs of knowledge management is not as easy as buying a software package. Successful execution of knowledge management requires the long-term commitment of senior managers, proper leadership for preservation and directing organizational culture, employees, and committed and educated managers and ultimately proper usage of information technology (Bargaroon, 2003). Using advanced information technology enables the organizations to exploit their intellectual scores (Najafgholi, and Sadegh Zadeh, 2010). Nonetheless, the available technology at the service of knowledge management cannot be considered as a single project which responds to the needs of each organization; because systemized management of knowledge requires special expertise which go further than applying and using technologies of knowledge management. In most organizations, technologies supporting knowledge management are not considered in the frame of a single systematic and comprehensive project and organizations are mostly dependent on special sections of the structure of knowledge management (Murphy, 2008). Undoubtedly, knowledge management in the organizations, like other management aspects, will face various challenges and obstacles in the respect of
realizations of the expected purposes and requirements in this area. Awareness of the presence of these obstacles and recognition of the effective factors on successful and effective knowledge management are crucially important in the organization. On the other hand, the rate of importance of several factors that affect the success of knowledge management in various organizations is different and programs in this area shall be created with the focus on factors which are a priority in each organization.

Contracting and construction companies are among organizations which special conditions in the domain of knowledge management. A variable spectrum in the type of activities, various locations of the execution of the projects, intervals of execution, execution teams of the project and etc. are considered only as a part of items which have created special conditions for this type of companies. Jahad Nasr Company of Sistan va Baluchestan, in the recent years, with the purpose of promoting the processes of knowledge management, has done various attempts. Nonetheless, preliminary studies and observations of the researcher, which were possible through the activity in this company, indicate that the mentioned attempts have not responded to the expectations of the managers in relation with the processes of knowledge management in this organization. In fact, the investment in this regard has not had the expected return due to the presence of some challenges and obstacles. Studying and recognizing the effective factors on the success of knowledge management in this company and also their priorities make a proper programming for a more effective and more successful management of knowledge possible in this company.
Definition of the concept of knowledge management

In terms of the concept of knowledge management, various definitions have been provided by the researchers and experts and each of them has introduced knowledge management from one or some aspects. In this section, we refer to various definitions of this concept.

- Carl Wig (2002) believes that knowledge management is creating necessary processes for recognizing and attracting data, information and knowledge required by the organization of their internal and external environment and transferring them to the decisions and attempts of the organization and individuals.

- Odel and Grayson (1998) define knowledge management as a strategy that shall be created in an organization so that we would make sure that proper individuals get knowledge at proper times and those individuals share that knowledge and use the information to reform the performance of the organization.

- Bon For (2003) defines knowledge management as a series of processes, infrastructures and management and technical tools which have been designed in the respect of creating, sharing and using information and knowledge inside and outside of organizations.

Effective factors on the success of knowledge management

Success in the field of knowledge management requires creation of a proper work environment where knowledge and experience can easily be shared. In order to fulfill this purpose, the required technology and related work processes shall be considered. Organizational behaviors shall be aligned so that knowledge and information would be merged and would be given to proper individuals at proper times so that they would be able to perform more efficiently. Knowledge management shall relate the individuals to the information they need. This connection includes processes and encouragements which are necessary for the individuals not only to trust one another and to use the available
information, but also for them to distribute their information and experiences in databases. In addition, employees shall be connected to other individuals and they should be able to find one another and seek and find the required help easily and publish the obtained experiences in the next step. This matter makes the individuals feel that they are participating in the fulfillment of the purposes of an organization (Entezari, 2006). In order to achieve this and in relation with the success factors of the projects of knowledge management, various researches have been conducted some of which are referred to in the following section:

Table 1 – success factors of knowledge management from the perspective of researchers and experts (Talebi and Salimi, 2008)

<table>
<thead>
<tr>
<th>Success factors</th>
<th>Conducted researches and studies</th>
</tr>
</thead>
</table>
Organizational infrastructures  

Activities and processes  

Stimulating encouragements  

Sources  

Research questions

1. In the opinion of the managers and employees of Jahad Nasr Contracting and Construction Company of Sistan va Baluchestan, what are the effective factors on the success of the knowledge management in this company?

2. In the opinion of the managers and employees of Jahad Nasr Contracting and Construction Company of Sistan va Baluchestan, what is the relative importance of each of these effective factors on the success of knowledge management in this company and how is the recommended prioritization for programming in the area of knowledge management?

Research methodology

Since the purpose of this research is to recognize and prioritize the effective factors on the success of knowledge management in Sistan and Baluchestan’s Jahad Nasr contracting and construction company, given the provided classifications regarding the types of researches and studies, the present research is a descriptive and applies research and the survey method has been used in this research in order to collect the data and information. Since the present research has been done in a specified interval, in terms of time horizon, it is a cross-sectional study. The statistical population of this research is the
Jahad Nasr Contracting and Construction Company of Sistan and Baluchestan. The number of the selected persons who filled out the questionnaire of the present research was eleven and includes the CEO, senior managers and experts. In this research, library studies and review of the background and theoretical principles about the topic of the research, have been done with the purpose of recognizing the effective factors and components on the success of knowledge management. In addition, in-person interviews with experts and specialists have been done in the studied population. According to the opinion and views of the experts and professors, the effective factors on the success of knowledge management have been extracted from the Top model. According to this model, the effective factors on knowledge management are classified in three general areas including technology, institution and people. After determining the factors, in order to determine their weigh and prioritization based on the views of the managers and employees of the studied company, the paired comparative questionnaires is used which has been designed based on the hierarchal analysis process. In the following sections, the questionnaire used in this research is introduced as the basic tool for collecting data. In order to measure the reliability of the questionnaire, the rate of incompatibility has been used and it has been equal to 0.04 which is less than 0.1; therefore, the reliability of the questionnaire is confirmed. In this research, in order to analyze the information, the AHP test has been used and this test is done through the Expert Choice software.

Introduction of effective factors on the success of knowledge management in this research

In order to fulfill the purposes of the research, after studying the conducted researches on knowledge management, the most important effective factors on the success of knowledge management and also the challenges the organizations face in terms of knowledge management were reviewed and the recognized factors were classified based on the Top Model. The mentioned hierarchal structure includes 3 main areas and 15 effective factors which have been presented in figure 1.
Prioritization of the effective factors on the success of knowledge management in the studied area

Technology
- Technology infrastructures
- Easiness of using knowledge management systems
- Speed of knowledge management systems
- Safety of knowledge management systems
- Structural design of systems in proportion with the needs of users and organizations
- Support of senior manager
- Financial supports and sources
- Evaluation system of the performance of knowledge management
- Organizational structure
- Systemized processes based on the purposes of knowledge management

Institution
- Culture of sharing and creating knowledge
- Constant learning and education
- Motivational supports of employees
- Rate of popularity of information technology and knowledge management systems
- Employees' ability in using information technology

Employees
- Technology infrastructures
- Easiness of using knowledge management systems
- Speed of knowledge management systems
- Safety of knowledge management systems
- Structural design of systems in proportion with the needs of users and organizations
- Support of senior manager
- Financial supports and sources
- Evaluation system of the performance of knowledge management
- Organizational structure
- Systemized processes based on the purposes of knowledge management
- Culture of sharing and creating knowledge
- Constant learning and education
- Motivational supports of employees
- Rate of popularity of information technology and knowledge management systems
- Employees' ability in using information technology

Figure 1 – hierarchal structure of the effective factors on the success of knowledge management
Calculation of the relative weight of the basic areas affecting the success of knowledge management

The results obtained from the analysis of the findings of the first paired comparison table of the factors in the questionnaire of the research related to the main areas affecting the success of knowledge management indicate that managers and experts of Jahad Nasr Contracting and Construction Company of Sistan and Baluchestan in the main provided areas, the area of "organization" with the relative weight of 0.54 is considered as the most important area affecting the success of knowledge management in this company. After institution, the general area of "employees" with the relative weight of 0.297 and then the area of "technology" with the relative weight of 0.163 are crucial.

The rate of incompatibility of the comparison in the first table of the questionnaires of the research is 0.01 which has been calculated by using the Expert Choice software. Given that this rate is less than 0.1, the incompatibility of the obtained results in this section is at an acceptable level. The results related to this section have been presented in the frame of table 2.

Table 2 – relative weight of the main areas affecting the success of knowledge management

<table>
<thead>
<tr>
<th>Main areas affecting the success of knowledge management</th>
<th>Relative weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>29 / 0 / 7</td>
</tr>
<tr>
<td>Institution</td>
<td>54 / 0 / 0</td>
</tr>
<tr>
<td>Technology</td>
<td>16 / 0 / 3</td>
</tr>
</tbody>
</table>

Calculation of the relative weight of the basic areas affecting the success of knowledge management in the area of employees

After analyzing the data obtained from the second paired comparison table of the elements of the research, in relation with the effective factors on the success of
knowledge management in the area of employees, it was specified that in the opinion of the participants of the research results, among the factors put in these five classes which were five factors, the criterion "culture of sharing and creating knowledge" with the relative weight of 0.492 and the factor "constant education and learning" with the relative weight of 0.181 is more important than other factors.

Table 3 – relative weight of the main areas affecting the success of knowledge management in the area of employees

<table>
<thead>
<tr>
<th>Row</th>
<th>Main areas affecting the success of knowledge management in the area of employees</th>
<th>Relative weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Culture of sharing and creating knowledge</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Constant learning and education</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Motivational supports of employees</td>
<td>06</td>
</tr>
<tr>
<td></td>
<td>Rate of popularity of information technology and knowledge management systems</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Employees' ability in using information technology</td>
<td>12</td>
</tr>
</tbody>
</table>

Calculation of the relative weight of the basic areas affecting the success of knowledge management in the area of organization

In terms of the effective factors on the success of knowledge management in the area of organization, the research findings, based on 10 paired comparisons among the factors of this section by the participants, show that "support of senior management" is more effective the other factors affecting the success of knowledge management. After this factor with the weight of 0.433, the criterion "organizational structure" with the relative weight of 0.24 and criterion "systematic process based on the purposes of knowledge management" with the relative weight of 0.151 are the second and third priorities in the area of organization. According to the obtained results in this section, "financial supports and sources" with the relative weight of 0.111 and "evaluation system
of the performance of knowledge management" with the relative weight of 0.065 are the fourth and fifth priorities.

Table 4 – relative weight of the main areas affecting the success of knowledge management in the area of organization

<table>
<thead>
<tr>
<th>Main areas affecting the success of knowledge management in the area of employees in the area of organization</th>
<th>Relative weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support of senior manager</td>
<td>0.030</td>
</tr>
<tr>
<td>Financial supports and sources</td>
<td>0.011</td>
</tr>
<tr>
<td>Evaluation system of the performance of knowledge management</td>
<td>0.006</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>0.0024</td>
</tr>
<tr>
<td>Systemized processes based on the purposes of knowledge management</td>
<td>0.0015</td>
</tr>
</tbody>
</table>

Calculation of the relative weight of the basic areas affecting the success of knowledge management in the area of technology

The last table in the research questionnaires, which is related to the comparison of the effective factors on the success of knowledge management in the area of technology, through 10 paired comparisons, five recognized factors in this section were evaluated by the participants. The rate of incompatibility of the comparisons in the final table of the research questionnaire is 0.06 which is less than 0.1.
Table 5 - relative weight of the main areas affecting the success of knowledge management in the area of technology

<table>
<thead>
<tr>
<th>Row</th>
<th>Main areas affecting the success of knowledge management in the area of employees in the area of technology</th>
<th>Relative weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technology infrastructures</td>
<td>23 0/4</td>
</tr>
<tr>
<td></td>
<td>Easiness of using knowledge management systems</td>
<td>12 0/2</td>
</tr>
<tr>
<td></td>
<td>Speed of knowledge management systems</td>
<td>09 0/6</td>
</tr>
<tr>
<td></td>
<td>Safety of knowledge management systems</td>
<td>17 0/3</td>
</tr>
<tr>
<td></td>
<td>Structural design of systems in proportion with the needs of users and organizations</td>
<td>37 0/5</td>
</tr>
</tbody>
</table>

As it has been presented in table 5, the analysis of the data obtained from the paired comparison of these factors is indicative of the fact that the criterion "structural design of the systems in the proportion with the needs of users and organization" with the relative weight of 0.375 is the most effective factor in the area of technology. In this section, the factor "speed of knowledge management systems" with the relative weight of 0.096 is the least important recognized factor.

**Calculation of the final weight and prioritization of the effective factors on the success of knowledge management**

The results obtained from the calculation of the final weight and prioritization of the factors affecting the success of knowledge management in Jahad Nasr Contracting and Construction Company of Sistan and Baluchestan indicate that as senior managers and experts say, in this organization, as the views of the experts responding the research questionnaire, out of the fifteen recognized items, "support of senior management" has been recognized as the most effective factor on the success of knowledge management in the studied area. After support of senior management, the factors "culture of sharing and creating knowledge", "organizational structure", "and systemized processes based on the
purposes of knowledge management" and "structural design of the systems in proportion with the needs of users and organization" are respectively the second to fifth priority. According to the obtained results the criterion "speed of the knowledge management systems" is less effective than the other recognized factors on the success of knowledge management in the studied area. The ultimate factors calculated for the effective factors on the success of knowledge management has been presented in table 6 based on the classification presents in the hierarchal tree of factors according to figure 1.

Table 6 – ultimate weight of the factors affecting the success of knowledge management

<table>
<thead>
<tr>
<th>Main areas</th>
<th>Effective factors on the success of knowledge management in each area</th>
<th>Ultimate weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>Culture of sharing and creating knowledge</td>
<td>0/46</td>
</tr>
<tr>
<td></td>
<td>Constant learning and education</td>
<td>0/54</td>
</tr>
<tr>
<td></td>
<td>Motivational supports of employees</td>
<td>0/21</td>
</tr>
<tr>
<td></td>
<td>Rate of popularity of information technology and knowledge management systems</td>
<td>0/40</td>
</tr>
<tr>
<td></td>
<td>Employees' ability in using information technology</td>
<td>0/37</td>
</tr>
<tr>
<td>Organization</td>
<td>Support of senior manager</td>
<td>0/34</td>
</tr>
<tr>
<td></td>
<td>Financial supports and sources</td>
<td>0/60</td>
</tr>
<tr>
<td></td>
<td>Evaluation system of the performance of knowledge management</td>
<td>0/35</td>
</tr>
<tr>
<td></td>
<td>Organizational structure</td>
<td>0/30</td>
</tr>
<tr>
<td></td>
<td>Systemized processes based on the purposes of knowledge management</td>
<td>0/82</td>
</tr>
<tr>
<td>Technology</td>
<td>Technology infrastructures</td>
<td>0/38</td>
</tr>
<tr>
<td></td>
<td>Easiness of using knowledge management systems</td>
<td>0/20</td>
</tr>
<tr>
<td></td>
<td>Speed of knowledge management systems</td>
<td>0/0</td>
</tr>
</tbody>
</table>
Discussion and conclusion

Given the background and history of knowledge management, which is as long as the history of human civilization in the view of some experts, knowledge management has attracted attention in the recent years in the organizations with the modern method. The reviews done by the researcher indicate that the main cause of failure in executing the knowledge management projects is that the authorities and managers of the organizations has only focused on special and limited aspects and other effective factors on the success of execution of the knowledge management systems and projects have been ignored. Thus, we can only help the promotion of the position of knowledge management in the organization when we consider various dimensions whether individual aspects or internal and external aspects and when the programs in this regard include all of the important aspects. In addition, we shall also pay attention to this point that various organization face very different conditions in comparison with one another given their differences in the areas of activity, market and industry, geographical area, cultural and economic conditions and tens of other factors. This creates a different condition for the organizations and companies in various management areas including knowledge management. Therefore, given the unique condition of each organization, helping the promotion of the position of knowledge management in the organization requires the recognition of the effective factors with the case study method.

As it was mentioned before, the findings of the present research show that the factors affecting the success of knowledge management are classified in three general areas: employees, organization and technology. The area of employees refer to the human dimension of the effective factors on the success of knowledge management and it includes the role and quality of human force in the fulfillment of the purposes of knowledge management and refers to the role, importance and responsibilities of employees of the organization for achieving the successful system of knowledge management. Employees who are educated or self-educated can promote the individual
and organizational knowledge well. In this regard, the evaluation system and successful measurement can increase the motivation of the individuals in addition to reward and motivational factors. Area of organization includes the management dimension to. By focusing on the aspect of organization and management, this dimension is indicative of the responsibilities and importance of organization management and also basic features of the organization. In order for the knowledge management to be successful, organization shall have a proper structure and culture and values governing the organization and mission of the organization shall support this system. In terms of the area of technology, it shall be mentioned that life in the current age and vastness and volume of information has made usage of advanced technologies unavoidable for the organizations and organizations are forced to use modern information technologies in the available competitive spaces so that they would be able to transfer their intangible assets in the organization and share it with the employees. The purpose of knowledge management systems shall be determined with the purposes and strategies of the organization. In fact, the area of technology reviews the presence of information technologies and required infrastructures for saving, arranging and sharing knowledge and also quality of knowledge management systems.
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