Knowledge Management in Petrochemical Industry

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Abstract: On a global basis, organizations are recognizing the importance of knowledge as a mean to gain or sustain competitive advantage. He impact of KM implementation in terms of performance improvement and related benefits are still elusive. The ambiguity comes largely from the absence of empirically-based assessment of KM implementation. The main purpose of this study is to develop a better understanding of the critical success factors affecting the successful implementation of KM in Iran petrochemical industry. Seven critical success factors were chosen to be tested in the research: management and leadership support, organizational culture, information technology, KM strategy, performance measurement, training and education, and processes and activities. Analytical hierarchy procedure (AHP), a multi-criteria decision making method based on fuzzy logic, was used as the methodology to have a percentage of success of critical success factors. A total of 250 questionnaires were collected from knowledge based employees. Results shows a 75% possibility of success for KM implementation in Iran’s petrochemical industry. Management, organizational culture and IT, have the greatest weight among the variables.

Key words: knowledge management, knowledge management implementation, KM critical success factor, Analytical hierarchy procedure

INTRODUCTION

Today, knowledge is known as the key assets and effective tool by which the organization can gain competitive advantage (Michailova and Nielsen 2006). Emphasize on knowledge management (KM) has resulted from the industrial, economic, and cultural developments which added competitive advantage to products and services by the application of human knowledge. This is the process through which knowledge is, synthesized, generated, and used from the employees to employees at the right time. Some of the main reasons for implementing Knowledge Management Systems (KMS) in business organizations are globalization, restructuring, competition, and downsizing, sharing of best practices, and successful Innovation (Skyrme 2000).

Hence, knowledge management has become a growing concept in today’s managerial world that all industries intend to apply it in order to gain competitive advantage. This applies to Iran’s petrochemical industry as well. In today’s competitive market to keep competitive advantages among regional and global competitors, Iran’s petrochemical industry wants to follow all new managerial techniques. Thus knowledge management as an emerging concept which has a main role in today’s competitive business is an appealing issue for Iranian petrochemical industry managers. In addition, a recent National Iranian petrochemical company (NIPC) report indicated that a basic part of the knowledge oriented workforce in the organization would come to retirement age or will retire in next five to ten years. Hence, planning for the workforce is vital to ensure that petrochemical companies have appropriate and sufficient staff to account for this retirement (2011). In addition, lack of training, high staff turnover, and a tendency to maintain the status quo, will impact and prevent the success of knowledge management and growth for the organization as well. Therefore application of knowledge management became a critical issue for Iranian petrochemical industry authorities.

Although there are variety of research on KM critical success factors, but none of them went through these factors using AHP which is a modern multiple decision making method. Researcher believes that using AHP will bring much more confidence for organization to accept results of the research. Analytical hierarchy procedure (AHP) will sort all extracted factors and according to the goal which is successful KM implementation weigh factors. This will allow the researcher to know extent to which each factor influenced success of KM implementation. In addition, it is important to note there is no research about KM success factors in NIPC which is a huge gap for an organization which aims to implement KM as a tool for success. Therefore, this research aims to fill the gap in KM implementation research which has never used a Fuzzy approach like AHP to evaluate the success rate. In this study, major critical success factors in application of knowledge management among petrochemical companies in Iran have been identified from various literature. The research aims to address which critical factors can influence the successful application of KM implementation and
determine level of importance for each factor to help executives to make priorities in their actions during the KM implementation.

KM Critical Success Factors:
In Knowledge Management (KM), critical success factors are those activities and practices that can engender successful enforcement. (Motwani, 2001; Samson & Terziiovski, 1999). Numerous studies have attempted to explain the CFSs for KM. To name a few: a knowledge-friendly culture, a technical and organizational infrastructure, changing the motivational practices, and top management support are identified as the most complex and the most significant ones. (Davenport, 1998; Davenport, et al., 1998; Grover & Davenport, 2001; Kumar, Maheshwari, & Kumar, 2002). In 1999 Liebowitz listed six significant key components for making successful KM in organizations. (D. Liebowitz, Criminisi, & Zisserman, 1999; J. Liebowitz, 2001; J. Liebowitz & Wright, 1999) He represented the need for these factors as follows: senior leadership, the role of chief knowledge officer, knowledge ontologies and repositories, KM systems and tools, incentives to encourage knowledge sharing and a supportive culture. On the other hand, Hasanali in 2002 suggested five key critical factors: culture, roles and responsibilities, leadership, structure, measurement and IT infrastructure. Furthermore, the APQC (1999) used culture, measurement, strategy and leadership, and technology in their framework as a support for operating of KM. (Valmohammadi, 2010; Wong, 2005).

Based on the various literature on KM critical success factors, they can be generally grouped into seven categories as follow:

Management Support:
To represent the true demeanor for KM, leaders play a very important role as role models. The leaders should be zealous to share their knowledge with others in the organizations and googling for up to date information. (Davenport, et al., 1998; C. Holsapple & Joshi, 2000; Mårtensson, 2000; Wong, 2005) Without a doubt it is very important that they should implement what they say rather than just talking. By doing so, they can obviously affect their employees and make their tendency awake for participating in KM. (Chong, 2006; C. Holsapple & Joshi, 2000; Rosacker & Olson, 2008; Wong, 2005). Furthermore, support and commitment from senior management are very censorious to a first step of KM. (Davenport, et al., 1998; Mårtensson, 2000). As reported by Storey and Barnett in 2000, support from the management should be continuously use in a specific manner. (Chong, 2006; Davenport, et al., 1998; C. Holsapple & Joshi, 2000; Mårtensson, 2000; Rosacker & Olson, 2008; Wong, 2005).

Organizational Culture:
A longitudinal study of CFSs by some researches reports that organizational culture is another authoritative factor for successful KM. (Ashkanasy, Broadfood, & Falkus, 2000) It is the act of individuals who behave in the organizations, their believes, social customs, and norms. Generally, this is the culture which cause creation sharing and application in an organization and support the successful KM. Several studies have revealed that culture is the biggest challenge for creating a successful KM. (Cameron & Quinn, 2011; Hofstede & Hofstede, 2005; Long & Fahey, 2000; Mårtensson, 2000). Another axiomatic facet of a friendly culture is Trust. (Ashkanasy, et al., 2000; Homburg & Pflesser, 2000) When there is no trust between people, they will doubtful about the incentive and behavior of others, so they will deprive their knowledge. Having an open knowledge sharing process requires trust that should be built between individuals and groups. (Long & Fahey, 2000; Mårtensson, 2000; Schein & Pettigrew, 2005) Otherwise, for encouraging begetting new knowledge, ideas and solutions ceaselessly, an innovative culture should be fostered among individuals. In 2002 Goh illustrated that culture can be emphasis problem seeking and solving. Furthermore, individuals should have permission to interrogate current practices and implement their empowerment. Empowering individuals cause more opportunities to scout out new approaches. (Ashkanasy, et al., 2000; Hofstede & Hofstede, 2005; Wong, 2005)

Information technology:
Incontestably IT is one of the key components of KM accomplishment. The capability of IT is its information which can connect one human to another. Rapidly searching, accessing and recovering of information can be possible by IT and also it can support coordination and communication between organizational members. In fact, IT plays a diversity bunch of roles to corroborate KM processes in an organization. There is a vast collection of information technologies that bears out KM that can be desegregated into the platform of organizational technologies. Luan and Serban (2002) categorized a group of IT to business intelligence, knowledge base, collaboration, content and document management, portal, customer relationship management, data mining, workflow, search and e-learning. On the other hand, Dewett and Jones (2001), Sher and Lee (2004) and Wong (2005) proposed 5 IT factors that should be taken into account as important factors that can improve the KM system of an organization. They are simplicity of technology, ease of use, suitability to users’ needs, relevancy of knowledge content and standardization of knowledge structure or ontology.
KM strategy:
Liebowitz in 1999 represented that one of the most crucial factors for having a successful KM in an organization is the need of well-planned and clear strategy. Strategy of the organizations can help them to find their capabilities and resources which lead them to meet the KM goals. Variety of strategies has been suggested in several literatures for enforcing KM in an organization. The one which is more popular and essential for the organization is a well-adjusted strategy for the current situation of that organization. (D. Liebowitz, et al., 1999; J. Liebowitz & Suen, 2000; J. Liebowitz & Wright, 1999). According to the concept of strategy, it is an irresistible vision for pursuing Knowledge Management. Obviously it is eminent that this view affects most employees in an organization and they believe it. (Rosacker & Olson, 2008) Moreover, a clear strategy can be recognizable for everyone and they can understand the objectives, purposes and goals of the strategy. To flourish this factor, the concept of KM has to be completely dictated in order to make enthusiasm among employees and management to implement it. (Chong, 2006; C. Holsapple & Joshi, 2000)

Performance Measurement:
Another critical success factor for KM which is like data collection system is measurement. KM can be suffered from the management fad, if the measurement hasn’t done. As some researchers illustrated before “it cannot be managed what it cannot be measured” and “the things that are measured is the one which is getting done”. These are true for KM. investigated that to be ensuring about the predicted objectives which are attained, it is necessary to utilize measuring KM. Measurement makes possible for the organizations to follow the improvement of KM and to adjust its effectiveness and benefits. As Ahmed et al (2001) mentioned in their previous studies, measurement contributes an assumption for organizations to assess, compare control and progress upon KM’s performance. Measurement should illustrate the value of KM to the management and stockholders. One of the key facets of measurement is to assess the influence of KM on the bottom line financial results. Although, interrelating Knowledge management activities to the results of finance is very difficult, at the same time there are many variables which can impact the financial performance of an organization. But it should be taken into account not to claim a clear causal relationship.

Training and Education:
Having a successful KM needs a lot of critical factors, Training and education is the one which is very consequential. For a survival of the company, any organization needs its members be aware of the needs of KM and also know it as a key resource. These goals can be met by the organizations if suitable initial training is accommodated for the employees. By having a correct training, employees can better comprehend the concept of KM. These trainings also can adjust a mutual language and comprehension of the KM definitions. (Akhavan, Jafari, & Fathian, 2006; Chourides, et al., 2003). Moreover, by utilizing KM system and other KM technological tools, employees could be educated and trained. These issues can contribute employees for using their potential and capabilities which they find through these tools. (Akhanv, et al., 2006; Chourides, et al., 2003; Ju, et al., 2006; Nelson & Cooprider, 1996) Furthermore, using training is very important for individuals because they can understand their new duties for accomplishing knowledge-oriented tasks. At the same time it is very eminent to provide employees with the skills to expand innovation, knowledge sharing, and creativity. In addition, they illustrated that training linked to team building, problem solving, creativity, and documentation skills had a positive impact on the Knowledge Management process. (Yahya & Goh, 2002)

Process and Activities:
Johanssen (2000) said that KM process related to something which can be done with knowledge in an organization. There are various types of processes that can characterize KM. a considerable amount of authors has been suggested variety number of processes and activities which are in line with KM. As an example, found four crucial processes that are: (Alavi & Leidner, 2001) creation, storage/retrieval, transfer and application. Being sure about KM process that are in line with a systematic and structured manner, a suitable mechanism and intervention are needed. As Holsapple and Joshi (2002) mentioned, coordination is also very significant for KM processes to be applied. Likewise, these processes can be merged among employees’ daily activities so they will be routine practices in the organizations. (C. Holsapple & Joshi, 2000, 2004; C. W. Holsapple & Joshi, 2003; C. W. Holsapple & Joshi, 2002)

Theoretical framework and AHP:
Theoretical framework of this research is based on a fuzzy approach for multi criterias decision making, named analytical hierarchy procedure (AHP). The most crucial superiority of this method is the proportional reassurance with which it covers multiple criteria. It involves principle of decomposition, pairwise comparisons, priority vector generation and synthesis. AHP is a common solution that could convert complex problems into simple structure, like assessment of knowledge management by Ngai & Chan in 2005 and also project screening.
by Chin, Xu Yang & Lam in 2008. By doing a pair-wise comparison between multiple-criteria, a decision maker could adjust the weights. (Chin, Xu, Yang, & Ping-Kit Lam, 2008)

The table below represents the major procedures of AHP: (Chin, et al., 2008; Kulak & Kahraman, 2005; Lombardi, et al., 2007; Saaty & Vargas, 2001)

Table 1: AHP Procedure

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Determine the objective and the attributes of evaluation</td>
</tr>
<tr>
<td>2</td>
<td>Develop hierarchical structure levels with goals, contractive, criteria and the alternatives</td>
</tr>
<tr>
<td>3</td>
<td>Find out the importance of different attributes with respect to the goals</td>
</tr>
</tbody>
</table>

Although AHP traditionally known as a tool for managerial decision making, but researcher believes there is a huge uncovered potential for using AHP as a research tool in any criteria. In fact AHP can play role of a mirror in front of managers of Iranian petrochemical industry to see their own beliefs in a systematic order. By this they can be able to recognize if their own organization believe in success of KM or not.

According to AHP three elements should be identified to form the framework: Goal, criteria, and alternatives. This study’s goal is to predict possibility of successful KM implementation in Iranian petrochemical industry. For criteria seven critical success factors mined from the literature used and alternatives are either being successful or unsuccessful KM implementation. Each factor in criteria part linked to both success and failure of KM and will allocate a percentage to them. Putting these percentages together it’s possible to predict extent to which knowledge management in Iranian petrochemical industry can be successful in percentage.

Fig. 1: Framework

**Methodology:**

Survey method was adopted for this study. A sample of 250 middle managers from 6 petrochemical in Iran petrochemical industry was selected to answer questionnaires. The questionnaire is divided into four sections. Section A is related to demographic data of the respondents. Second section consists of 8 questions about the current state of knowledge management in the organization as well as evaluation of employee’s belief in the success of KM projects evaluated. These questions are mainly derived from a globally accepted questionnaire developed by (Alavi and Leidner 1999). Section C begins with an example to make an understanding of type of questions and prevent confusion. In this part respondents asked to compare seven critical success factors with each other according to their importance in a successful knowledge management implementation. Because answers to these questions will be balanced through “Experts choice” it is important to avoid contradiction to have more accurate results. These answers will make weight of each factor in the framework. Section D asks about respondent’s opinion about importance of each factor in order to a successful knowledge management implementation.

A total of 25 samples were collected from one of the most important petrochemical companies in Iran as pilot study. Results of this study helped researcher to rearrange some questions and shorten some parts of
questionnaires in order to gain more appropriate results. Overall Cronbach’s Alpha value was 0.876 and therefore the data was considered reliable.

As the basis of this study is to evaluate the critical success factors of knowledge management using Analytical hierarchy procedure, priority of each variable collected from questionnaires are entered in “Expert’s choice” and balanced. Then, mean of all the variables are converted to a scale that can be entered in AHP and compared to variable priorities. Software will then give a percentage for both independent variables and as a result dependent variable, which is “success” or “failure” of KM implementation in the organization. The extent to which knowledge management can be successful in the organization is measured in terms of percentage computed through AHP method.

Findings:

According to Table 2, 75.2% are male respondents while 24.8% are females. This is normal for petrochemical industries in Iran to have a majority of male in employees. 44% are between age 40 and 49, and 22.4% are above 50. This shows that majority of the respondents are experienced employees. Most of respondents have degree grade, representing 44% and 55.2% are having either master or doctoral degree. Hence, it can be concluded that majority of the respondents have high educations background.

<table>
<thead>
<tr>
<th>Table 2:</th>
<th>Valid percent (%)</th>
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</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>75.2</td>
</tr>
<tr>
<td>Female</td>
<td>24.8</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>8</td>
</tr>
<tr>
<td>30-39</td>
<td>25.6</td>
</tr>
<tr>
<td>40-49</td>
<td>44</td>
</tr>
<tr>
<td>50 and above</td>
<td>22.4</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>0.8</td>
</tr>
<tr>
<td>Degree</td>
<td>44</td>
</tr>
<tr>
<td>Masters</td>
<td>39.2</td>
</tr>
<tr>
<td>Doctorate</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 3 shows the results of descriptive statistics for all the seven critical factors. All variables are tapped on a five-point scale. The mean shows the central tendency of respondent’s answers. It can be seen that the biggest average is for performance measurement with 3.66. This is followed by training with 3.618. Management and leadership support, KM strategy, and organizational culture have moderate averages which are 3.56, 3.53, and 3.49 respectively. Information technology (3.454) and processes and activities(3.435) have the least average among variables. Generally, all the averages are above 3 and this indicate that respondents are mostly agree on the positive effect of all critical success factors on successful KM implementation.

<table>
<thead>
<tr>
<th>Table 3:</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management &amp; leadership support</td>
<td>3.562</td>
<td>0.6088</td>
</tr>
<tr>
<td>Organizational culture</td>
<td>3.4933</td>
<td>0.6255</td>
</tr>
<tr>
<td>Information technology</td>
<td>3.4544</td>
<td>0.6106</td>
</tr>
<tr>
<td>KM strategy</td>
<td>3.53</td>
<td>0.5907</td>
</tr>
<tr>
<td>Performance measurement</td>
<td>3.66</td>
<td>0.6622</td>
</tr>
<tr>
<td>Training &amp; education</td>
<td>3.618</td>
<td>0.67706</td>
</tr>
<tr>
<td>Processes and activities</td>
<td>3.435</td>
<td>0.51706</td>
</tr>
</tbody>
</table>

Relationship between all the seven critical factors and successful KM implementation are summarized in the Table 4 below. Four out of seven critical success factors have moderate relationship with the successful KM implementation. Organizational culture has a high relationship, and process and activities has a low relation. KM strategy has no relationship with the successful KM implementation as level of significance is more than p>0.05.

From Section B of the questionnaire, ratings of each factor are mined. Each factor’s priority to other factors are computed from average rating of 250 respondents’ answer. Each couple of factors are rated in a 9 point scale, which is the standard for AHP use. For example, if organizational culture is extremely prior to IT in order to a successful KM implementation, organizational culture rated at 9 and IT rated at 1. Rating, then, computed from the subtraction of 9 to 1. Table 5 shows the average of 250 ratings taken from the questionnaires. This ratings will then be entered in “Expert’s choice” (AHP software) to get balance and get the priorities.
Table 4:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation coefficient</th>
<th>Level of significance</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management and leadership support</td>
<td>0.453</td>
<td>0.000&lt; 0.05</td>
<td>Moderate</td>
</tr>
<tr>
<td>Organizational culture</td>
<td>0.501</td>
<td>0.000&lt; 0.05</td>
<td>High</td>
</tr>
<tr>
<td>Information technology</td>
<td>0.499</td>
<td>0.000&lt; 0.05</td>
<td>Moderate</td>
</tr>
<tr>
<td>KM strategy</td>
<td>0.050</td>
<td>0.431&gt; 0.05</td>
<td>No relation</td>
</tr>
<tr>
<td>Performance measurement</td>
<td>0.474</td>
<td>0.000&lt; 0.05</td>
<td>Moderate</td>
</tr>
<tr>
<td>Training and education</td>
<td>0.478</td>
<td>0.000&lt; 0.05</td>
<td>Moderate</td>
</tr>
<tr>
<td>Processes and activities</td>
<td>0.315</td>
<td>0.000&lt; 0.05</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table 5:

<table>
<thead>
<tr>
<th></th>
<th>Org. Culture</th>
<th>Information technology</th>
<th>KM strategy</th>
<th>Performance measurement</th>
<th>Training &amp; education</th>
<th>Processes &amp; activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management &amp; leadership</td>
<td>1.1</td>
<td>2.3</td>
<td>4.0</td>
<td>4.1</td>
<td>4.8</td>
<td>7.3</td>
</tr>
<tr>
<td>Organizational culture</td>
<td>2.1</td>
<td>4.5</td>
<td>5.3</td>
<td>5.9</td>
<td>7.7</td>
<td></td>
</tr>
<tr>
<td>Information technology</td>
<td>3.4</td>
<td>3.9</td>
<td>4.4</td>
<td>5.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KM strategy</td>
<td>3.4</td>
<td>2.5</td>
<td>2.5</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance measurement</td>
<td>2.5</td>
<td>3.2</td>
<td>2.3</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training &amp; education</td>
<td>2.3</td>
<td>2.3</td>
<td>2.7</td>
<td>2.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before entering to the HP software, means of all the seven factors (from SPSS) need to be converted into AHP scale that is based on a 9 point scale (AHP scale can be both positive and negative). Table 6 shows the new AHP scale.

Table 6:

<table>
<thead>
<tr>
<th></th>
<th>Likert scale</th>
<th>AHP scale</th>
<th>Rounded AHP scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management &amp; leadership</td>
<td>3.3620</td>
<td>3.248</td>
<td>3.2</td>
</tr>
<tr>
<td>Organizational culture</td>
<td>3.4933</td>
<td>2.973</td>
<td>3</td>
</tr>
<tr>
<td>Information technology</td>
<td>3.4544</td>
<td>2.817</td>
<td>2.8</td>
</tr>
<tr>
<td>KM strategy</td>
<td>3.5300</td>
<td>3.12</td>
<td>3.1</td>
</tr>
<tr>
<td>Performance measurement</td>
<td>3.6660</td>
<td>3.664</td>
<td>3.7</td>
</tr>
<tr>
<td>Training &amp; education</td>
<td>3.6180</td>
<td>3.472</td>
<td>3.5</td>
</tr>
<tr>
<td>Processes &amp; activities</td>
<td>3.4352</td>
<td>2.74</td>
<td>2.7</td>
</tr>
</tbody>
</table>

After putting ratings and converted means of variables into “Expert’s choice, priorities for factors and in respect to the successful KM implementation can be seen in Figure 2. It shows the results which include weight of each factor and amount of its relation with either success or failure of KM implementation.

Figure 3 depicts the final results taken from “Expert’s choice” which shows the weight of each factor and amount of success predicted for KM implementation. According to the results of 250 questionnaires collected from employees of Iran petrochemical industry, 0.753 out of 1 (75.3%) the KM implementation in this industry can be successful. The remaining 0.247 (24.7%) is the possibility of failure of KM.

Figure 3 also shows that organizational culture with 0.297 out of 1 (29.7%) have the greatest weight among factors, which means most of employees believe that organizational culture is the most important factor among critical success factors of KM. Management support and leadership and IT with 0.285 (28.5%) and 0.186 (18.6%) have the next places respectively. Other factors stand far from these three factors. KM strategy, performance measurement, and training and education have a moderate weight, and processes and activities with only 0.028 (2.8%) has the least weight among all seven critical success factors.
Fig. 2:

Successful KM Implementation

Abbreviation | Definition
--- | ---
GOAL | Goal
FAILURE | Failure
IT | Information Technology
KM STRATEGY | KM Strategy
MNGMT SU | Management & Leadership Support
ORG CULT | Organizational Culture
PERFORM | Performance Measurement
TRAINING | Training and Education
PROCESS | Process and Activities
SUCCESS | Success

Fig. 3:
Discussion and Conclusions:

Knowledge management, however is a new concept especially in Iran’s industry, and is facing critical managerial and strategic issue. As KM is in the beginning of the road in Iran petrochemical industry, a research for evaluating possibility of success of KM seems necessary. According to the results, the most important factor is the organizational culture. Culture is an important issue that has been extensively discussed in the literature. Several studies have revealed that culture is the biggest challenge for creating a successful KM (Cameron & Quinn, 2011; Hofstede & Hofstede, 2005; Long & Fahey 2000; Mårtensson 2000). Culture is not something to buy, or to gain in a short term. According to results, it seems knowledge sharing culture in Iran petrochemical industry is acceptable to begin a KM project. But, it is absolutely essential to keep and improve the culture to precede success of the project. Improving the culture is possible through holding seminars, educating employees, and having appropriate behavior in managerial level.

Management, leadership and support are the second most important factor. Chong (2006), C. Holsapple & Joshi (2000), Rosacker & Olson (2008), and Wong & Aspinwall (2005) all were agree with the effect of management and leadership and support provided from the management on implementation of knowledge management. Hence, it is recommended that top management needs to have a comprehensive study over knowledge management concept, and spend time to be ready mentally for a KM project. Also, management should be aware of the fact that knowledge management is a procedure rather than a project and needs a long term view.

IT infrastructure is a must for implementing knowledge management. According to results of the study, Iran petrochemical industry is ready in terms of IT for KM application. However, as technology train never stops, it is IT department’s duty to follow technology trends and make sure that organization is never behind the train. However, it is also important to note that IT is just a tool not a decisive solution (Wong, 2005; Wong & Aspinwall, 2005), Several researchers including Levina & Ross (2003), Rosacker & Olson (2008), Sher & Lee (2004), and Wong & Aspinwall (2005) believed that IT plays a diversity bunch of roles to corroborate KM processes in an organization.

Based on the result, KM strategy has a special situation in Iran’s petrochemical industry as respondents do not agree on appropriate implemented KM strategies in their organizations. This is contradict with the results reported by previous literature (Liebowitz, 1999; Rossacker and Olson, 2008) that indicated that one of the most crucial factors for having a successful KM in an organization is the need of well-planned and clear strategy. Therefore, it is essential for top management of Iranian petrochemical industry to define some new strategies in line with knowledge management goals to reach the standards of this very important critical success factor.

Performance measurement, as reported by literature, is necessary and important to be utilized in KM implementation as to ensure whether the predicted organizational objectives are achieved (Ahmad et al., 2001; Arora, 2002). In addition, Ahmad et al. (2001) mentioned in their previous studies, measurement contributes an assumption for organizations to assess, compare, control and progress upon KM’s performance. Results from this study agrees with literature, however weight of performance measurement is not as high as preceding factors but still have a strong relationship with the success of KM implementation. Therefore, expanding systems that can help to a constant evaluation of performance in the organization seems to be necessary. Currently, performance measurement in Iran petrochemical industry is conducted with traditional method which needs to convert to new methods using new technologies and based on quality rather than quantity.

As supported by literature ((Akhavan, et al. (2006), Chourides, et al. (2003), Ju, et al. (2006), Nelson & Coopprider (1996), Nah, et al. (2003), Yahya & Goh (2002), training issues can contribute to the employees performance by using their potential and capabilities which they find through KM implementation. Results from this study show a small weight of 4.4% for training and education, but a positive relationship is detected among importance of KM and to feel themselves a part of this project. Improving the culture is possible through holding seminars, educating employees, and having appropriate behavior in managerial level.

KM process is related to something which can be done with knowledge in an organization. There are various types of processes that can characterize as KM. A considerable amount of authors has been suggested variety number of processes and activities which are in line with KM (Alavi and Leidner, 2001, Nissen et al., 2000, Wong and Aspinwall, 2003, Bhatt, 2000, Disperse and Chauvel, 1999, Marshall et al., 1997, Demarest, 1997). Processes and activities, however has the least relation and weight according to view of respondents of this study. This may due to the unfamiliarity with this term, and also being broad and general. There are several activities that organization can do to facilitate process of KM implementation. For example, they can mine experienced employee’s knowledge through short term projects and aligning some compensation for
participating in these projects. Also they can define a wiki inside the organization and train employees to enter their knowledge and experience in the wiki.

In summary, results taken from AHP show 75.3% possibility of success for knowledge management implementation, while 24.7% is possible failure. This is in fact a good news for advocates of knowledge management in NIPC. Findings of this research strongly recommend Iran petrochemical industry to go through knowledge management.

REFERENCES


