

Process Model of Knowledge Management in Government Organizations (Case Study: Iran's Customs Administration)

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Abstract: Today world is associated with expansion of features such as increased levels of complexity, globalization and dynamism, development and maintenance of internal skills and capabilities, and for competition creating changes is very important both in the knowledge base and in the way the organization uses the current knowledge. Therefore knowledge management in many organizations is in the key investment priorities. In the present study which is analysis - development study, it has been tried to study the features of various process models presented in the knowledge management to provide a compatible model for the systematic use of knowledge in the Iranian Customs Administration. Therefore, based on research literature review, nine processes were proposed in the form of theories and its assumptions were examined using (SPSS) software. Results showed that the final processes are consistent with our expectations. Knowledge management processes that were identified in this study for Iranian customs include: setting and developing the knowledge goals, culturalization, knowledge acquisition, knowledge sharing, knowledge creation, knowledge storage, use of knowledge, assessment and feedback of knowledge and empowerment of human resources. The importance of these processes were determined using the Friedman test and their prioritizations were evaluated so that knowledge sharing, culturalization and knowledge development allocated the first to third place in terms of the amount of importance in knowledge management.

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1. Introduction

Knowledge management as a prerequisite for improving productivity both in the private and public sectors has been considered. Clark and Turner indicate that due to the intensified competitive, countries and organizations in decision making and competitive strategies do not rely only on limited resources within the organization or random data from the environment, and in fact having the right influential and updated information from the environment is considered as one of the powerful tools at organizational and national level. Hence, organizations are trying to achieve the best sources of information about the business environment and about their activities and use them effectively in their strategic planning (Mousavi, 2011, 45).

But knowledge and human understandings cannot be easily managed and observed (Mehralizade; Abdi, 2009, 58). Knowledge management as a process by creating and acquiring, maintaining and sharing and applying the intellectual capitals (human capital, structural capital and relational capital), helps organizations to change and adapt the new knowledge-based economy and leads to create and maintain sustainable competitive advantage through innovation and learning and increased business performance. Knowledge management capabilities in knowledge economy are

vital. Creating and sharing knowledge have become important competitive factors (Ghlichlee, 2010, 38).

If knowledge management is planned, designed and implemented intelligently, it can improve the ability of organizations and companies to fulfill their mission, competition, efficiency, effectiveness and transformation (reviewing, engineering, architecture of the organization and searching for new methods). (Mehralizade; Abdi, 2009, 58). In this study it has been tried to present a proper model for effective use of knowledge management in Iran's Customs.

2. Theoretical study

The twenty-first century has become the century of knowledge economy and knowledge assets have been an important source of capital in public life (Zhao et al, 2007). Intangible resources such as knowledge create sustainable competitive advantages (Ju et al, 2006). In the current environment with features such as increased levels of complexity, globalization and dynamism, development and maintenance of internal skills and capabilities, creating competition changes is very important both in the knowledge base and in the way the organization uses the current knowledge. (Singh & Sharma, 2011). Therefore knowledge management in many organizations is in the key investment priorities

(Wong, 2005). Knowledge management forms part of the overall process in the organization and involves itself with the understanding of knowledge and includes the know-how, and dealing with promotion and applying such knowledge requires recruitment, motivation, communications and behavior. In summary it can be said that: to be able to manage knowledge in organizations, we must first understand what knowledge is and how to use it appropriately and effectively. Also formal and informal communication structures and networks for knowledge transmission and distribution should be created in the organization (Omerzel et al, 2011).

According to a study by Bahra (2001), knowledge management implementation is not only necessary but also is crucial because it helps economical saving. He believes that as organizations are geographically dispersed, most probably their required knowledge will remain distributed outside

the organization, therefore to solve this problem they need effective mechanisms for sharing knowledge. (Chawla and Joshi, 2011).

2.1 Knowledge management process model

Knowledge management processes in an organization are concentrated in line with access, sharing, storage and using knowledge. These processes are created to facilitate the flow of knowledge between individuals and consequently teams (Sandhwalia & Balcher, 2011).

Knowledge processes enables organizations to acquire new knowledge, use it, store it, share it and protect vital knowledge resources which will lead to enhance the impact of knowledge to achieve strategic objectives (Schiuma et al, 2012). Many researchers have examined processes of knowledge management and presented a variety of models with different views, and the most notable of these models are shown in the table (1).

Table 1. Comparison of knowledge management models

| Row | Processes | Related researches |
|-----|--|----------------------------------|
| 1* | knowledge sharing, knowledge creation, knowledge composition, use of knowledge | (Nonaka & Takeuchi,1995) |
| 2 | knowledge acquisition, knowledge sharing, knowledge utilization | (Nevis,1995,79) |
| 3 | Reviews, problem solving, generalization, diffusion, absorption, impact | (Boisot,1998,52) |
| 4 | Identification, acquisition, development, dissemination and publication, application of knowledge, storage, memory | (Abecker et al,1999,193) |
| 5 | Knowledge creation, maintenance / classification knowledge, storage, knowledge sharing, reuse, inference | (Depress & Chauvel,1999,6) |
| 6 | Knowledge capture, organize, formalize, distribution of knowledge, applying knowledge | (Nissen,1999,62) |
| 7 | Knowledge creation, organization of knowledge capture, access, use | (Gartner Group,1999,185) |
| 8* | Knowledge creation, encoding, sharing | (Mc Elroy,2000) |
| 9* | Share, access, absorption, application | (Tannenbaum & Alliger,2000) |
| 10 | Identification, maintenance, obtaining, acquiring, storing, sharing, application, knowledge creation | (Rastogi,2000,33) |
| 11 | Developing and sharing, capture, and possession, knowledge creation, collaboration, use, communication, culture | (Grover & Davenport,2001,19) |
| 12 | Knowledge creation, validation, knowledge construction, distributing and applying knowledge | (Bhatt,2001,82) |
| 13* | Knowledge creation, storage, dissemination, application | (Heising,2001) |
| 14 | Goals of knowledge, identification, knowledge acquisition development,, sharing, maintenance, use, evaluation, feedback | Probes (Raub & Romhardt,2001,18) |
| 15 | Acquisition, conversion, application and protection | (Gold,2001,180) |
| 16 | Knowledge acquisition, development, formalize, sharing, applying | (Lee & Hong,2002,70) |
| 17 | Knowledge creation, sharing, storage, application | (Lee & Choi,2003,411) |
| 18 | Knowledge creation, acquisition, identification, adaption, organization, distribution of knowledge, application | (Ward & Aurum,2004,8) |
| 19* | identification, capture, selection, storage, distribution, utilization, creation, commercialization | (Buckman,2004) |
| 20 | Determine strategic objectives for knowledge, acquire the needed education, evaluation and organization of knowledge, sharing knowledge, empowerment and sustainable development of energy | (Sarabi: Esmacili,1386,8) |

| | | |
|----|--|-----------------------------|
| 21 | Determine strategic objectives for knowledge, acquire the needed education, evaluation and organization of knowledge, sharing knowledge, empowerment and sustainable development of human resources |)Aalam Tabriz,1387,100(|
| 22 | Access, organization, distribution, storage and reuse, feedback | (Roknuzzaman et al,2009,12) |
| 23 | Application / use of knowledge, produce / creation of knowledge, storage, maintenance, distribution, acquisition | (Fong & Choi,2009,9) |
| 24 | Use of knowledge, knowledge acquisition at the individual level and corporate level, storage of knowledge, effective measurement of knowledge implementation, knowledge transfer and motivation for application of knowledge | (Omerzel et al,2011,14) |

*. From the book of Knowledge management with MBA approach, author: (Babak Sohrabi and Hadi Darmi, 2010, 108:113)

Nonaka and Takeuchi consider knowledge management as a process of knowledge creation. According to this model knowledge creation always start from the individual. Private or personal knowledge which is usually hidden becomes a valuable organizational knowledge. Making available the personal knowledge for many people in the organization, is located in the center of knowledge management models of Nonaka and Takeuchi. (Ghlichlee, 2010, 99), Lee and Choi, based on their comparative study believe that knowledge management processes include creating, sharing, storage and application of knowledge. The seven "S" model of Grover and Davenport is based on seven words that their first letter is "S" and thus it has been called the seven S model. Mc Elroy and Mark in collaboration with other members of the International Knowledge Management Consortium in 2002 has defined an intellectual framework called "knowledge lifetime" in which in addition to the theory of Nonaka and Takeuchi another important point is also emphasized: "Knowledge exists only after it was produced and then it can be contained, encoded or shared". Tannenbaum and Alliger look at knowledge management effectiveness with a systematic look and by examining four aspects, accomplish this look. Tannenbaum believed that the results and benefits of knowledge management are gained from the application of knowledge. The proposed process of Boisot for development of knowledge is based on the belief that knowledge is extendable to different situations (Sohrabi: Darami, 2010, 109). Abecker and colleagues have presented a model to map memory of organizational knowledge that can be useful for activities associated with knowledge management. In this model of knowledge memory of the organization is located at the center of all knowledge activities of the organization. Probst and his colleagues have

developed a specific conceptual model for knowledge management. This model is comprised of two basic dimensions. The first dimension is the core operational processes of knowledge management (knowledge identification, knowledge acquisition, knowledge development and dissemination and sharing of knowledge, use and maintenance of knowledge), and second dimension are the main strategic processes of knowledge management (knowledge objectives, knowledge assessment). The processes of "knowledge objectives" and "knowledge assessment" are the main differences between Probst model and the Hysig model. (Mehralizade; Abdi, 2009, 33)

3. Method

3.1 The proposed conceptual model and research hypotheses

Diversity in the methods of knowledge management has created these questions: how knowledge successfully and coherently can become a value? what are the appropriate processes for managing knowledge resources? Table 1 shows 26 process contained in the 24 models. Given the institutional features of Customs, the appropriate processes for the organization are provided and the reasons are stated:

Determining Knowledge Purposes

Culturalizing

Knowledge Acquisition

Knowledge Sharing

Knowledge Creating

Knowledge storage

Usage of Knowledge

Measuring and Getting Feedback

Enabling Employees

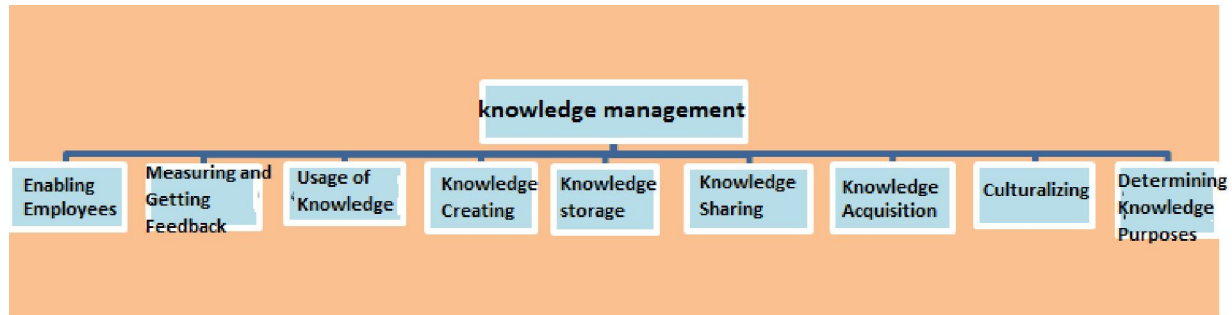


Figure 1. The proposed knowledge management model

3.2 Research hypotheses

1. Setting and development of knowledge goals are considered as the main stages of knowledge management in Iranian customs.
2. Culturalizing is considered as one of the main stages of knowledge management in Iranian customs.
3. Knowledge acquisition is considered as one of the main stages of knowledge management in Iranian customs.
4. Knowledge sharing is considered as one of the main stages of knowledge management in Iranian customs.
5. Knowledge creation is considered as one of the main stages of knowledge management in Iranian customs.
6. Knowledge storage is considered as one of the main stages of knowledge management in Iranian customs.
7. Using knowledge is considered as one of the main stages of knowledge management in Iranian customs.
8. Measuring and getting feedback of knowledge is considered as one of the main stages of knowledge management in Iranian customs.
9. Enabling employees is considered as one of the main stages of knowledge management in Iranian customs.
10. It is possible to design a process model of indigenous knowledge management for Customs Organization in Iran.

3.3. The knowledge management processes presented in the conceptual model

Determining knowledge purposes: there are many goals that organizations focus their knowledge management activities to achieve them, there are generally three ways for determining knowledge management objectives which all are based on empirical studies.

1. Business goals of knowledge management
2. knowledge management strategic activities
3. attention to detail of objectives in knowledge management

Culturization: according to the definition of Hassan Ali (2002), culture is a combination of history, expectations, unwritten rules and social customs that affect organizational behavior (Sohrabi: Darami, 2010, 198). For implementing appropriate knowledge management, organizations must understand the necessity of creating a knowledge sharing culture among employees through a process known as "knowledge management culturalizing". Institutionalizing of knowledge management is important because firstly it corrects the incorrect understanding of employees from knowledge management and secondly it helps them to understand the benefits of knowledge sharing in the organization.

Knowledge acquisition: There are two forms of knowledge acquisition: internal knowledge acquisition and external knowledge acquisition. Internal knowledge acquisition comes from job rotation, transferring the useful and valuable knowledge of staff to written form, and evaluating the experience of projects. External knowledge acquisition comes from special staffs that are responsible for communication with outside the organization or hiring people outside the organization (Fong & Choi, 2009).

Sharing knowledge: knowledge sharing refers to knowledge transfer between individuals in the organization, both within sectors and between hierarchical levels of sectors (Bhatt, 2001). Employees may acquire knowledge that with formal training and education have developed capabilities, qualifications and skills and can better perform the tasks (Dakhli and De Clercq, 2004). Knowledge sharing helps organizations to use the existing resources in the best way, through transferring the best practices from one unit to another unit, or from a project or customers to another (Andreeva & Kianto, 2011).

Knowledge creation: knowledge creation is one of the important steps in knowledge management, which is closely related to creativity. The knowledge creation action does not only include

data processing, but also involves the creation of new knowledge, and creativity includes using intelligence, tacit knowledge and information and in fact the interaction between behavior and action (Forcadell & Guadamillas, 2002).

Organize, store and maintain knowledge: knowledge organization systems include a range of methods that organize, manage and re-used the information and / or knowledge of the organization (Roknuzzaman, 2009).

Using and applying knowledge: powerful and effective use of knowledge is considered as a business tactic to overcome competitors, and employees use their knowledge to solve problems, generate new goods and services, do other projects, promote and develop their career in their organizations (Fong and Choi, 2009). Efficient use of knowledge boosts competitive advantage and causes the organizational success. Measurement, evaluation and feedback: in the present time that there are constraints in budget and lacks economic certainty, knowledge management practitioners need to measure the commercial value that is associated with knowledge sharing and reuse of knowledge. Strasman (1999) believes that in order to have the best performance and application of knowledge management systems, organizations must be able to measure their performance, and this subject have been much discussed and stressed (Shannak, 2009).

Empowering employees: In the definition of empowerment, most authors agree that the key element of empowerment is giving freedom to employees in connection with related activities. Dennis Kinla in definition of empowerment says: empowerment is a process to achieve continuous improvement in organizational performance which is attained through the development and expansion of influences of appropriate and qualified individuals and teams in most of their duties, and this in turn affects the performance of the organization (Gorji, 2009, 3).

3.4 Materials and Methods

In order to achieve the desired results and proper conduct of the research method the following methods were used:

1. Library study: to formulate the principles, definitions and theoretical concepts library resources were used.

2. Field research: to gather the desired information, questionnaires have been used. Thus at the first, processes and priorities of the steps for knowledge management implementation which have been obtained during the literature review were designed in the form of the questionnaire and were provided to respondents who were managers of the organization. Given that in this study data are used to describe and make decisions about the existing conditions, from the point of data collection this research is a descriptive study.

Two statistical populations are used in this study:

The first statistical population: include academic experts in Iran which has been used in validation of the model and there were eight of them.

The second statistical population: include all of Iran's Customs headquarters managers that were used to measure and verify the proposed model and assess the current state of Iran's Customs Administration in the processes of knowledge management. There were 22 of these managers.

4. Research findings

4.1 Validity of measurement tools

This questionnaire in this research has been developed based on careful and comparative study about the stages of knowledge management processes from the views of various researchers and writers. Then the obtained factors and indices were discussed with some of the experts in knowledge management and then these experts were asked to comment on the assessment ability of each of the indicators in knowledge management processes and also the importance of each of the knowledge management processes based on Likert scale.

4.2 Reliability of measuring tools

Using SPSS18 statistical software, the reliability coefficient was calculated by Cronbach's alpha which was 0.93 for the questionnaire that was distributed among headquarters administrators of Iran. The Cronbach's alpha for the experts' questionnaire by the separation of questions was obtained 92% and by separation of number factors was obtained 82%. These show the high reliability and validity of the questionnaire.

Table 2. Central index and dispersion of the dependent and independent variables

| Variable | Valid sample size | range | mean | standard deviation | variance | skew | strain |
|--------------------------------|-------------------|-------|---------|--------------------|----------|--------|--------|
| Determining Knowledge Purposes | 22 | 9.00 | 16.9545 | 2.39995 | 5.760 | 0.172 | -0.416 |
| Culturalizing | 22 | 13.00 | 19.8182 | 3.91136 | 15.299 | 0.449 | -0.732 |
| Knowledge Acquisition | 22 | 13.00 | 14.5455 | 3.09727 | 9.593 | -0.090 | 0.566 |
| Knowledge Sharing | 22 | 18.00 | 27.0455 | 4.48784 | 20.141 | -0.280 | -0.231 |

| | | | | | | | |
|---|----|-------|---------|---------|--------|--------|--------|
| Knowledge Creating | 22 | 10.00 | 12.1364 | 2.31549 | 5.361 | -0.562 | 1.162 |
| Knowledge storage | 22 | 7.00 | 9.5909 | 1.89383 | 3.587 | 0.331 | -0.223 |
| Usage of Knowledge | 22 | 13.00 | 13.0455 | 3.22899 | 10.426 | -0.157 | 0.239 |
| Measuring knowledge and Getting Feedback | 22 | 12.00 | 11.4091 | 3.15714 | 9.968 | -0.565 | 0.221 |
| Empowering human resources | 22 | 13.00 | 17.0455 | 3.01547 | 9.093 | 0.583 | 1.157 |
| Total valid sample size | 22 | | | | | | |

According to the above table (2), it is concluded that the mean for the variable of Determining Knowledge Purposes is 16.95, for the variable of culturalizing the mean is 19.81, for the variable of Knowledge Acquisition the mean is 14.54, for the variable of Knowledge Sharing the mean is 27.04, for the variable of Knowledge

Creation the mean is 12.13, for the variable of Knowledge Storage the mean is 9.59, for the variable of Usage of Knowledge the mean is 13.04, for the variable of Measuring knowledge and Getting Feedback the mean is 11.40, and for the variable of Enabling Employees the mean is 17:05.

Table 3 - Results of the chi-square statistic by spss software

| Variable | Error level | significant level of the test | Chi-square statistic | Correlation coefficients with knowledge management | Confirmation of hypothesis |
|--|-------------|-------------------------------|----------------------|--|----------------------------|
| Determining Knowledge Purposes | 0.05 | 0.6 | 5.81 | 0.63 | H0 |
| Culturalizing | 0.05 | 3.09 | 0.9 | 0.67 | H0 |
| Knowledge Acquisition | 0.05 | 11 | 0.3 | 0.7 | H0 |
| Knowledge Sharing | 0.05 | 5.27 | 0.9 | 0.77 | H0 |
| Knowledge Creating | 0.05 | 10.27 | 0.2 | 0.69 | H0 |
| Knowledge storage | 0.05 | 5.36 | 0.4 | 0.78 | H0 |
| Usage of Knowledge | 0.05 | 6 | 0.8 | 0.73 | H0 |
| Measuring knowledge and Getting Feedback | 0.05 | 12.36 | 0.13 | 0.75 | H0 |
| Empowering human resources | 0.05 | 4.18 | 0.8 | 0.53 | H0 |

According to Table 3, it is clear that the significant level in all the processes of knowledge management is higher than 0.05 and therefore all the hypotheses are confirmed and Determining Knowledge Purposes, Culturalizing, Knowledge Acquisition, Knowledge Sharing, Knowledge

Creating, Knowledge storage, Usage of Knowledge, Measuring knowledge and Getting Feedback, Empowering human resources respectively are considered as knowledge management processes in customs.

Table (4) - prioritizing the independent variables in terms of their importance in knowledge management

| Variables | Rank mean | Prioritization |
|---|-----------|----------------|
| Knowledge Sharing | 8.93 | 1 |
| Culturalizing | 7.45 | 2 |
| Determining Knowledge Purposes | 6.41 | 3 |
| Empowering human resources | 6.30 | 4 |
| Knowledge Acquisition | 4.91 | 5 |
| Usage of Knowledge | 3.84 | 6 |
| Knowledge Creating | 3.14 | 7 |
| Measuring knowledge and Getting Feedback | 2.59 | 8 |
| Knowledge storage | 1.43 | 9 |

Given the above table (4), it is concluded that among the independent variables in terms of

influence on knowledge management, the variable of knowledge sharing with rank mean of 8.93 is in the

first priority, the variable of Culturalizing is in the second priority, and the variable of Knowledge storage with rank mean of 1.43 is in the ninth priority from the perspective of Iran's Customs Administration managers. Others prioritizations are presented in the table above.

5. Conclusion and debates

Given that all of the research hypotheses (presented in Table 3) are confirmed and according to the results of the Friedman test which indicates that all independent variables of knowledge management are important and their importance level are given in table (4), so it can be concluded that the hypothetical conceptual model is approved and accepted. On the

other hand as previously mentioned based on the Friedman test knowledge management processes from the view of Iran's Customs experts are ranked and prioritized as below (the importance of each factor are measured from the size of the circles):

1. Sharing Knowledge
2. Culturalizing
3. Determining Knowledge Purposes
4. Empowerment of human resources
5. Acquisition of knowledge
6. Use of knowledge
7. Creation of Knowledge
8. Measuring knowledge and Getting Feedback
9. Knowledge storage

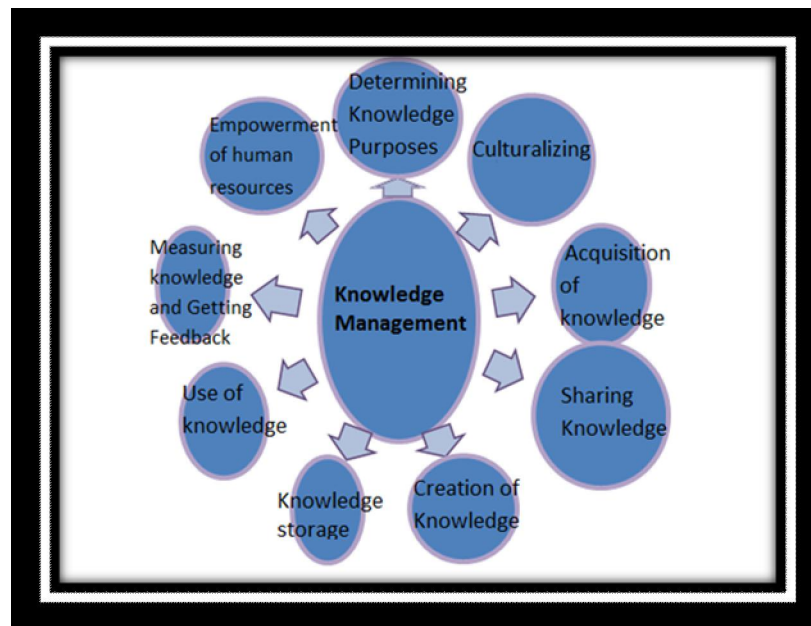


Figure 2. The finalized process model of knowledge management in Customs

The final model for process knowledge management in Iran Customs Administration, using SPSS software is available as above. The importance level of each process is determined based on the size of each circle.

Findings in this research show that knowledge management processes in the Iranian Customs include:

Determine Knowledge Purposes: Knowledge management objectives should be derived from the organization's main goals. Therefore, the organization must first be converted and maintained based on knowledge management and also needed culture and policies in this field shall be created, and then according to the goals, the ways to identify, use, distribute, apply, and maintenance of knowledge shall be determined and necessary plans to achieve them at a specific time shall be designed.

Culturalizing: to implement appropriate knowledge management organizations need to understand the importance of creating a culture of knowledge sharing among employees through a process known as "culturalizing knowledge management". Culture based on knowledge sharing is of high value due to the importance of intellectual capital in the organizational activities.

Knowledge acquisition: for knowledge acquisition the organization needs to know how and what is beneficial in the external environment and then attempt to identify it, and get it, distribute it and use it in commercial activities (Zahra & George, 2002).

Sharing knowledge: knowledge in the organization should be easily exchange, the issue becomes complicated when the major portion of the

organizational knowledge remains in the minds of the elite and its extraction requires specific processes.

Knowledge creation: is a process in which the needed knowledge is created within the organization. Organizations should focus on creating knowledge to prevent the rapid obsolescence of the existing knowledge.

Storage of knowledge: determines what knowledge where and how long stays and determines how should be this storage to provide maximum recovery capabilities. The way knowledge is stored is very important.

The use of knowledge: is a process that develops the knowledge taken from others regarding to its knowledge facilities, and also allows applying knowledge in different professional fields.

Measuring knowledge and Getting Feedback: formation of human resources balance sheet, intellectual capital balance sheet and ... leads the organizational managers to be able to compare themselves to other organizations in terms of intellectual and knowledge capital, and evaluate and improve their organization development in terms of these defining capitals. Appropriate criteria can help you to manage knowledge management establishment, and understand where you need to create compliance and where do you need to create and change and improvement (Vestal, 2002).

Empowerment of human resources: the ultimate goal is to create a learning organization which is achieved by empowerment of human resources through the use of knowledge, creating a creative and innovative environment, employee cooperation, involvement of employees, facilitating the structure, and creating commitment in the staff.

Suggestions for future research

It is necessary to apply the model presented model in this study in the Customs Administration and be corrected in a real environment, and it is expected from future researchers to review and reform this model.

In the Customs prospects for knowledge management, it is necessary to pay attention to the concept of learning and its applications, and researches conducted in this regard shall maintain the necessary connection and coherence with the topic of learning and the learning organization.

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