

THE ROLE OF KNOWLEDGE MANAGEMENT PRACTICES IN DEVELOPING HUMAN CAPITAL

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Abstract

Organizations are constantly striving to develop and enhance knowledge of employees who involve in strategic business processes by which they aim for an organizational knowledge creation to achieve a competitive advantage. Accordingly, they encourage employees to involve in basic knowledge management (KM) processes and establish infrastructures for knowledge acquisition and sharing in order to broaden both human capital (HC) and organizational knowledge base. In this direction, the purpose of this paper is to describe creating and developing human capital in an organization through KM practices and to investigate whether there is an enforcing relationship between these two factors. The research method is descriptive design. The population of the research consists of 349 person of managers and senior experts of the Minister of Roads and Urban Development. A sample of 186 subjects was selected. According to the research findings it can be said that developing HC is occurring formally and informally in organization especially through the KM practices. And, there is an increasing relationship between KM and HC; so implementing an effective KM processes in organization will contribute to more developing HC.

Keywords: Knowledge management, Capital, Intellectual capital, HR, Human capital

INTRODUCTION

Today, most organizations are operating in a very competitive and dynamic environment. Under such conditions, successful and leading firms follow a wide variety of programs to a guarantee their survival, productivity and growth. These organizations have approached to develop their strategic assets for survival so they could obtain competitive advantage with the help of sources and intangible abilities (Amit & Schoerraker, 1993:35). Their ability to create and develop these assets is considered as a key capability and will be valuable if only it can help to create and apply new knowledge which has a competitive advantage. So management of employees is a knowledge in relation to strategic business processes such as new technologic products or developing processes, and has been taken into account by those organizations that follow KM as their main task (Monavarian & Asgari, 2008:190).

Ministry of Roads & Urban Development is one of the ministries of Iran. On 21st June 2011, by vote of parliament and confirmation of guardian council, ministry of roads and ministry of housing and urban development merged to form mentioned ministry. This ministry is responsible for administration of land, sea and air transport inside the country and links of transportation between Iran and the rest of the world . The purpose of this ministry was to develop comprehensive policy for transportation, development, equipping, maintenance and building infrastructure facilities according to requirements of economic, social, developmental and national defense. Therefore, constructing land and railway roads and waterways and providing transportation equipment and enacting rules and regulations of their proper use and anything related to transportation are considered of main objective of this ministry. His mission has changed this ministry to a knowledge-based organization where available knowledge of structure processes and reservoir of HC influences effective performance and achieving desired perspective. Thus, development of intellectual and intangible assets has become one of the strategic objectives of this ministry and to this end, research and technology, knowledge promotion and enabling employees, promotion of partnership culture and teamwork in line with accomplishment of organizational objectives and enhancing productivity.

One of the most important subsets of intellectual assets of organization is HC (Bontis,1998:66) that refers to factors such as knowledge, skills, capability and attitude of employees and can help to enhance profitability (Swart, 2006:160). This knowledge and skill lie in the minds of employees; if knowledge employees are not managed properly, the knowledge in their mind cannot be activated and will be become market value (Manning, 2009:88). The professional nature of most jobs and organizational processes of this ministry has made human factor an important one in exploiting it. Knowledge. skills and ability of employees in different departments of this ministry influences organizational performance of this organization

effectively. As a result, development of HC of this ministry can help it to reach excellence and to achieve its perspective.

Nature and common goals and knowledge management and human capital make effective implementation of KM as one of development methods of HC. In this regard, many organization try to link organizational processes with measures of KM and facilitate knowledge creation, knowledge organizing, knowledge application and knowledge sharing (Soliman& Spooner,2000: 340). They also try to inform their employees of benefits of applying KM programs for their organizational performance and themselves. Successful implementation of KM measures both helps organizational performance and influences development of HC (Birasnav & Rangnekar, 2010: 265). Effort of organization to create, apply and share of knowledge through improving knowledge level and capabilities of employees and strengthening creative and innovative skills, develops HC of employees(Birasnav & Rangnekar, 2010: 266).

Although the effect of KM measures on HC development has been approved by scholars of this field. A few empirical researches have been conducted in this area and available literature are not rich enough and this gap is more obvious in public organizations. Thus, the studied topic in this paper is whether effective implementation of KM measures can help HC development and how and to what extend each dimension of KM have effects in this area and finally what are strategies of HC development with the help of KM. To this end, present study tries to explain how KM measures help to develop HC in this ministry and provide practical methods to implement KM measures effectively in line with HC development of knowledge-based organizations such as mentioned ministry.

RESEARCH BACKGROUND

Knowledge management

In today's competitive world, knowledge has become a strategic resource for many organizations (Barney,1990. Knowledge is an organizing combination of data that can be achieved through rules, processes an performances and experience (Davenport & Prusak, 1998). Nonaka(1994:137) classified knowledge into two groups: implicit knowledge and explicit knowledge. Implicit knowledge includes factors such as experiences, ideas, insights, intuition, scientific expertise, know-hows, the insight of individual about industry, Diagnosis power about business and technical expertise. His knowledge is hardly codified and mostly depends on people experiences. Explicit knowledge can be codified and accessible by writings, diagrams (Hansen et al, 1999:110). Nonaka (1994) believes the only reliable source in current unstable conditions to gain competitive advantage is knowledge, the only reliable source To gain a sustainable competitive advantage is knowledge. Knowledge management is one of the most

important tasks for organizations looking to benefit from these valuable assets (Monavarian and Asgari, 2008: 3). KM refers to systematic and coherent process of coordination of widespread activities of organization including acquirement, creation, storage, sharing and application of knowledge by people and groups in order to accomplish organizational objectives (Rastogi, 2000:44)

Knowledge management covers theories, processes, technologies and models that support , develop and exploit knowledge assets. Managing intellectual assets available in implicit and explicit knowledge, organization can be helped to learn from its environment and can use this knowledge in business processes (Chenammani,2007:44). In many KM models, four stage process has been used to explain KM stages(Asgari,2011:35). In The following, these 4 stages will be discussed.

Knowledge creation: includes activities that entail changing shape and composition of blocks of knowledge, reducing the shortcomings, strengthening research and developing capabilities, monitoring and controlling external environment and applying external technologies (Bat,2001, quoted by Shami Zanjani,2010).Dynamic organizations create knowledge and use it. They attract information based on their interaction with environment and transform it into knowledge. Then combine this knowledge with values, internal regulations in order to reach a basis for their measures (Davenport & Prusak,1998). Nonaka& Takeuchi (1995) believe that implicit and explicit knowledge are complementary and influence each other in creative activities of people. Process model of knowledge creation is based on vital assumption that human knowledge is created and developed by social interaction between implicit and explicit knowledge. This interaction is known as transformation. This transformation does not occur inside people but between them and in organizational context.

Knowledge storage: perhaps people forget the knowledge they have already created; So it is necessary to store, organize and recall it in their organizational memory. This memory includes carious shapes of written evidence, database and codified human knowledge in a form of expert systems, process evidence and organizational procedure (Anvari and Shahabi,2010:19). Those organization seek to implement KM effectively, should not limit themselves to creation and use of organizational memory, but they have to consider individual memory. This type of memory is the most important source of hidden knowledge.KM will be effective when these two types of organizational memory are together and reinforce each other (Ding & Kurbi,1999; quoted by Shami Zanjani,2010).

Knowledge Sharing: When knowledge is created, it must be shared among members in order to serve as basics to innovation and knowledge creation in future. Knowledge creation and sharing is possible through collaboration and synergy of experience combination and background of

members with the aim of creating new knowledge. Some define knowledge sharing as a process of knowledge promotion throughout organization. This can be done between people, groups and organizations that use all communication channels (Alavi& Leidner,2001:110). Other researchers consider knowledge sharing same as knowledge flow and believe knowledge flow has five pillars: value of knowledge source, source tendency to knowledge sharing, media richness of communication channel, recipient tendency to obtain knowledge and compensation ability of recipient (Gupta & Govindarajan, 2000:74).

Knowledge application: The ultimate goal of knowledge management is to apply knowledge in order to improve organizational performance. Knowledge is not valuable itself but it will be valuable when it is applied (Anvari& Shahabi, 2010:22). Km tries to be ensured whether existing knowledge is used to benefit from it (Hals, 2001; quoted by Shami Zanjani,2010). In general, Knowledge can be used in organization in three ways: first, through suggestions, regulations, procedures and instructions; second, knowledge application is through common and repetitive methods that allow specialized knowledge of people is applied in a situation regardless the need to communicate with other people; third, the way to apply knowledge is self-contained task teams. These teams are established to solve problems and for them, there is no instructions and common organizational methods (Bat, 2001; Shami Zanjani,2010).

Basics of Human Capital

Human capital refers to the competencies and capabilities of employees (Wiig, 1997: 401). Some scholars have also attributed it to the knowledge, skills, abilities, commitment, implicit knowledge, ideas and well-being of their employees (Snell and Bohlander, 2007: 12). Chen and colleagues (2004) indicate HC as a basis of intellectual capital hat refers to factors such as knowledge, skills, abilities, and attitudes of employees and results in improvement of performance and enhancing profitability. This knowledge and skills are in minds of employees. If these employees are not employed by organization, the knowledge in their mind will not be activated to become market value (Manning,2009:88).

From Chen and colleagues point of view (2004), human capital has both hard and soft parts. Competency of employees is hard part and covers knowledge, skills and talents of which skill is the most important factor. Knowledge relates to scientific and technical aspects and is mostly obtained through education and therefore is theoretical. Skills and capabilities of employees are gained through experience during meeting responsibilities. The attitude of employees is the soft part of HC and covers motivation and job satisfaction. Attitude is considered as prerequisite of outbreaks of competency of employees (Manning,2009:89).

The nature of HC is intangible and is carried along with employees. Organization is not where such capital remain. Employees also have strategies to invest in HC or avoid it. In such situations, employee follows HC theory that indicates comparison of investment in developing knowledge and skills with gaining benefits in future including salary increase or authority. Therefore, benefits of increasing employees' capabilities encourage investment in HC. So organization should consider benefits and costs of HC development (SnellBuhlander, 2007:13).

Knowledge Management and Human Capital

Value-added of employee knowledge enhance the value of products and as a result, Km of HC leads to gain competitive advantage (Soliman et al,1999:481).Km of HC is a developmental process that includes relationship of employees with storing information. So one of the main objectives of KM is the enhancement of organizational performance with the help of employees. In this regard, organizations are trying to inform their employees of benefits of applying KM programs for organizational performance. It is obvious that there are steps made to reach success in KM and influence HC (Birasnav and Rangkar,2010:265).

In the existing literature in the field of knowledge management, KM architecture and infrastructure are well Analyzed (Zaem et al 2007: 57), but there are little research on the relationship between the development of human capital and knowledge management (Smith, 1998: 15). Encouraging employees to participate in external networks leads to enhance knowledge of employees and value-added through new knowledge creation (Filius et al., 2000: 291). Acquired knowledge is created in replacement of traditional knowledge about processes and methods and consequently influences HC development. Participation in external networks of knowledge sharing among employees facilitates knowledge increasing of employees (Nonaka et al, 2001:18). As instance, Socialization encourages direct interaction between employees and as a result can benefit implicit knowledge of other employees (Hussey, 2004: 49). Hence, the knowledge sharing between employees will be determining factor of HC (Nonaka et al., 2001: 19). The internal environment of organization facilitates interaction between implicit and explicit knowledge through socialization, externalization, combination and internalization during which new knowledge has been created (Nonaka, 1994, quoted by Biransav and Rangekar, 2010: 265).

However, the type of knowledge that is transferred to employees, develops HC. Externalization of implicit knowledge embodies it as explicit knowledge that serves as a media to convey a special message to others. Combination refines explicit knowledge and transforms it into more complicated but systematic knowledge and does this through adding or classifying information. This method of codifying knowledge helps employees to codify their failures and

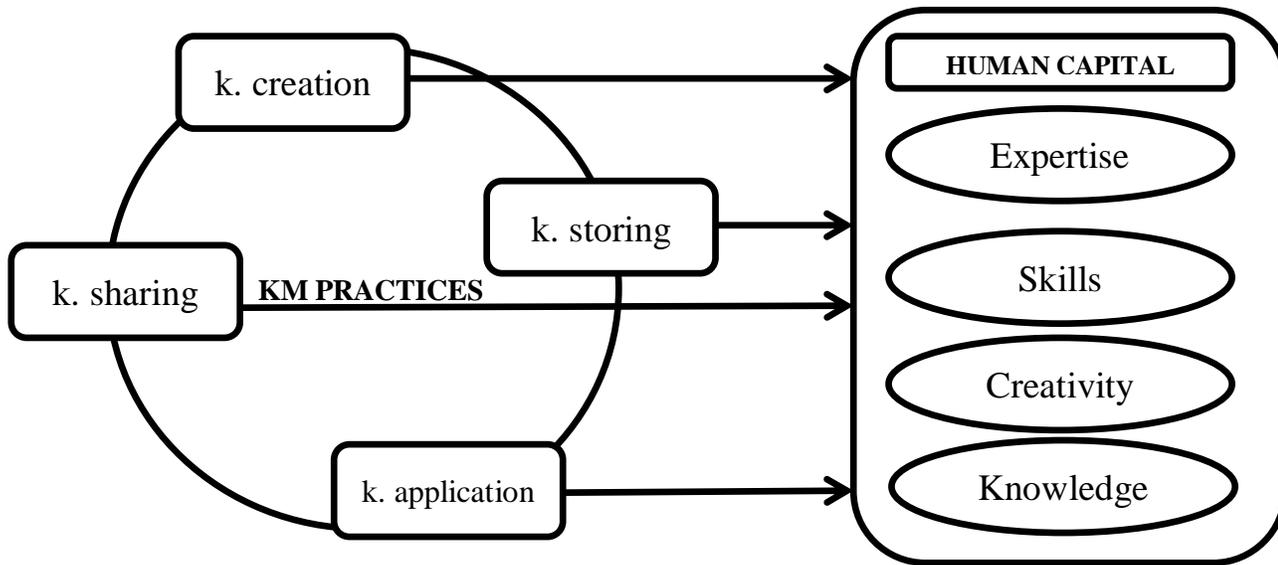
successes and can learn from the past. Therefore, such knowledge codification improves skills of solving problems and adds special value to HC components. At last, internalization transforms explicit knowledge to implicit one.) i.e. diagrams, instructions and stories of internal knowledge). This is done through learning by doing and improves cognitive power and implicit knowledge of employees (Nonaka et al., 2001: 17). Existing implicit internal knowledge along with customer experience are applied creatively to improve products and services (Filius et al 2000:292). Thus the use of knowledge through encouraging creative and innovative skills, reinforces HC of employees (Birasnav & Rangkar, 2010:266).

Sharing knowledge can also help to develop human capital. For example, many organizations encourage continually upward communication or information flow from employees to managers through the deployment of the open door policy in which top management is in direct relation with employees and ask them their feedback. The intervention of employees in this process guarantees their participation in decision making (Kai & Anderson,1999:502). As a result ,such communication will enhance employee commitment to the organization and their job, and reinforce their perception that encourages top management of the innovative ideas. Thus, these relationships have a positive impact on human capital development because it improves the capacity and commitment of employees (Yolrik et al., 1999, quoted by Biransav & Rangkar, 2010: 268).

Conceptual model

In this research based on mentioned literature, four factors of KM process(knowledge creation, knowledge storage, knowledge application, knowledge sharing)are considered as independent variables (Wang & Ahmed,2003). Also among the various dimensions of human capital introduced (Chen et al., 2004; Brookings, 1996 quoted by Ghelich Li, 2010). In this study, four dimensions of expertise, skill, knowledge and creativity are considered as dependent variables. Relationship between these two topics are considered based on this logic that Km of HC is developmental process covers relationship between employees with other employees and employees with stored information. So one of the key objectives of knowledge management is to improve organizational performance with the help of employees. In this regard, organizations are trying to inform their employees of benefits of applying KM programs for organizational performance and themselves. Obviously there are steps made to be successful in KM, and have effects on HC of employees (Birasnav & Rangkar, 2010:265). So the conceptual model of this study is as follows:

Figure 1. Conceptual model of research



Main hypothesis

Knowledge management measures have significant positive effect on human capital development of organization

Sub-hypotheses

H1: knowledge creation has significant positive effect on human capital development of organization

H2: Knowledge storage has significant positive effect on human capital development of organization

H3: Knowledge application has significant positive effect on human capital development of organization

H4: Knowledge sharing has significant positive effect on human capital development of organization

METHODOLOGY

Research Design

The present study was an applied research in terms of its objectives; because its findings are used to solve problems within the organization. From data collection view it is descriptive survey; because it tries to obtain required information of status quo of Statistical sample using questionnaire. Also it is considered cross-sectional in terms of time, and quantitative in terms of data type.

Population and statistical sample

The population of this research consists of managers and employees of vice presidency of the Ministry of roads and Urban Development of the Islamic Republic of Iran in Tehran with total number of 359 subjects.

For the sampling, simple random sampling is used. The sample consisted of 186 persons on the basis of a limited population. To ensure of collecting the appropriate number of questionnaires, the number of 200 questionnaires were distributed between managers and employees and at last, 190 questionnaires were collected (4 questionnaires were excluded due to being altered).

Data collection tools

Collection tools of preliminary field data was 18-item questionnaire which was used as the 5-level Likert scale. To test the reliability of the questionnaire, data consists of 30 questionnaires were pre-tested and then using the data obtained and using the SPSS statistical software, confidence level was obtained as % 93 using Cronbach's alpha coefficient.

Methods of data analysis

In this study, to analyze obtained data and analysis of the samples and the presence or absence of concurrent correlation between variables, confirmatory factor analysis and structural equation modeling was used. Confirmatory factor analysis for examining and confirming variables for concepts (KM and HC) was used and since examining concurrent effect of KM measures on HC development are considered, structural equation modeling has been used. In order to investigate status quo of each KM measures and HC dimensions in statistical population, mean of population test was used.

To investigate the relationship between indicators and concepts, confirmatory factor analysis was applied in two stages. At first stage, nature and extent of measuring indicators' effect on any dimensions (questionnaire) and mentioned dimension has been investigated and at second stage, quality and extent of effect of each dimension and main concept were considered. In other words, at first stage, it is investigated that to what extent each dimension can explain mentioned dimension and at second stage, it is investigated to what extend each dimension for each concept related with that concept and can explain it. Results of factor analysis are presented in table 1 for KM measures and HC.

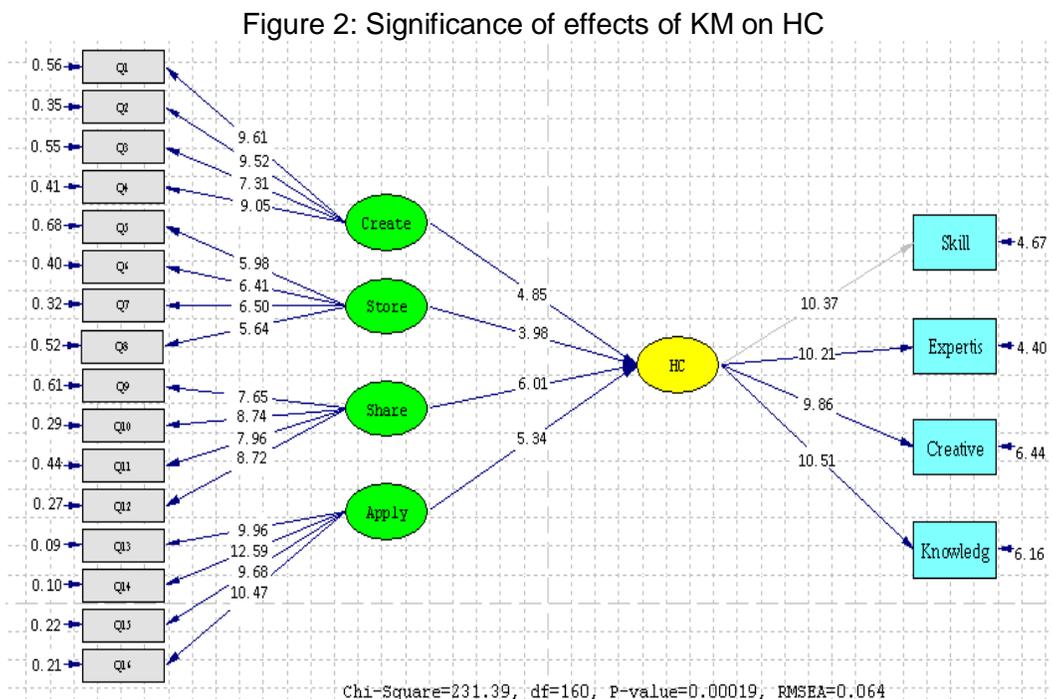
Table 1: Factor analysis test of KM and HC dimensions

Factor	Dimension	Standard rate	significance	Results
KM	Knowledge creation	.79	6.94	Confirmed
	Knowledge storage	.73	5.93	Confirmed
	Knowledge application	.93	7.85	Confirmed
	Knowledge Sharing	.84	7.35	Confirmed
Human capital	Skill	.95	10.38	Confirmed
	Experience	.91	10.18	Confirmed
	Creativity	.89	9.86	Confirmed
	Knowledge	.97	10.54	Confirmed

According to the hypothesis testing has been done with a confidence level of .95, numbers will be significant that are not between 1.96 and -1.96. Given the results in table 1, significance of effect of all variables for KM and HC has been confirmed; according to standard coefficient, it can be said that of KM components, knowledge application and of HC components, knowledge had the most explanatory effect on KM and HC.

Hypothesis test

In order to investigate mentioned relationship first significance of effect of each relationship was examined using significance model and then using standard model, extent and quality of this effect were assessed. Figure 2 shows significance of mentioned effect.



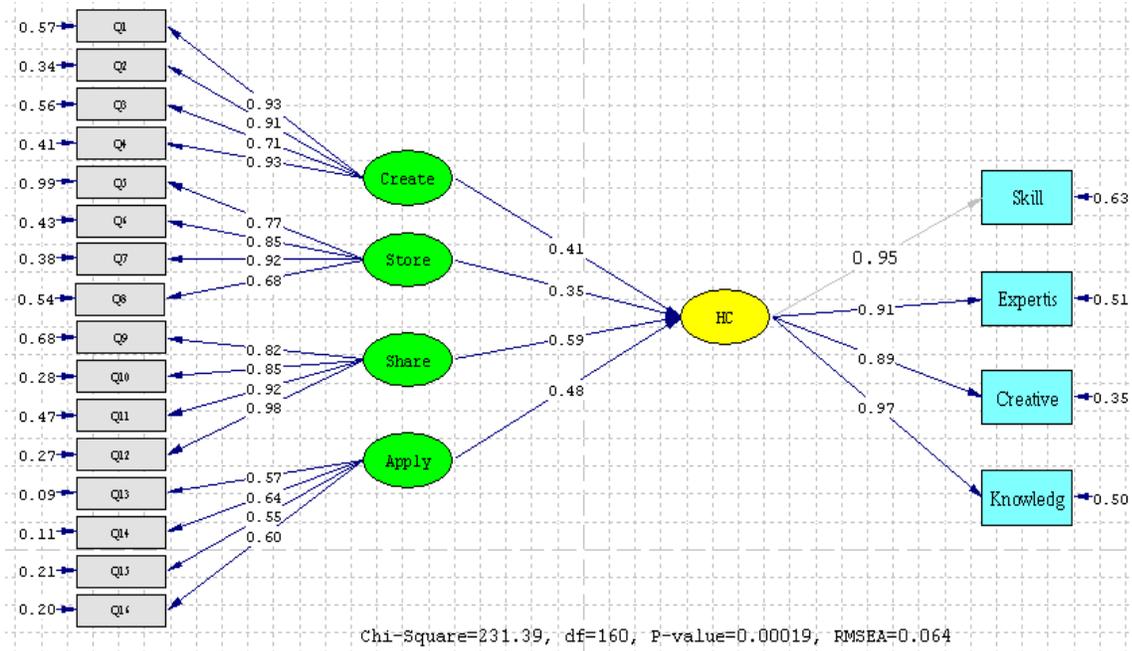
Based on indicators of following table, it can judge about fitting model of effect of KM measures on HC development.

Table 2: Fitting indicators of effect of knowledge management on human capital

Indicators	Allowed value	Result	Assessment
Ratio of chi-square to degrees of freedom	$\chi^2/df < 3$	1.60	Perfect fit
P-value (P-Value)	.05 < P-value	0.000	Perfect fit
The root mean square of approximation error (RMSEA)	.08 > RMSEA > .05	0.64	Perfect fit

Fitting indicators shows measuring model of variable; because ratio of chi-square to degrees of freedom equals 2.66 and is less than 3, root mean (.64) is less than .08 and P-value(0.0000) less than .05. Also based on this model, effect of predicted relationship in all hypotheses is significant; because their value are 4.85,3.98,6.01,5.34 respectively for H1 to H4 and all are greater than 1.96. Using standard model, we can investigate effect of relationship in a model with confirmed significant.

Figure 3: Effect model of knowledge management on human capital development in standard mode



In the standard mode, model suggests that the positive effect of knowledge management on all dimensions of human capital is verifiable. So all hypotheses are confirmed. These findings are consistent with the existing literature in this field (Birasnav and Rangkar, 2010; Ulrich et al.,

1999; Kai& Anderson, 1999). In this way, based on the results obtained from the standard model and significance model can summarize results of the hypothesis of the study in Table 3:

Table 3: Results of the hypotheses

Hypothesis Path		Standard rate	Significant numbers	Result
Main	Positive effect of knowledge management measures on HC	.69	9.54	Confirmation
1	Positive effect of knowledge creation on development of HC	.41	4.85	Confirmation
2	Positive effect of knowledge storage on human capital development	.35	3.98	Confirmation
3	Positive effect of knowledge application on HC development	.48	6.01	Confirmation
4	Positive effect of knowledge sharing on HC development	.59	5.34	Confirmation

The overall pattern of relationships between variables in structural equation models were consistent with the stated hypotheses; each of 5 relationships was a significant and important. Based on the results obtained by conducting effective knowledge management measures have significant and important effect on HC development.

CONCLUSIONS AND RECOMMENDATIONS

Present study had intended to investigate the effect of KM measures on HC development of organization. To this end, a survey has been conducted including 26-item questionnaire which were distributed among managers and vice presidents of Ministry of roads & urban development of Iran in Tehran and hypothesized relationships between variables were investigated with the help of structural equation modeling. Results indicated that general KM measures have significant positive effect on HC development. This means establishing KM and effective implementation of its measures can develop expertise, skills, creativity and knowledge of employees. This relationship is because of determining role of human factor in KM measures. These results are also consistent with previous research in this area (Biransav and Rangkar, 2010; Alalavi al., 2007; Yao et al., 2007). In the following, the effect of knowledge management measures on each dimension of human capital is examined separately:

- H1: Significant positive effect of knowledge creation on human capital development is because knowledge creation can improve knowledge, expertise, experience and skills to improve performance of employees. Knowledge is created in minds of people; so knowledge creation can help to improve competences and capabilities resulted from having implicit knowledge.

- H 2: Significant positive effect of knowledge storage on human capital development is because of the importance and role that existence of knowledge sources play in improving competences and capabilities of employees. Performing job duties effectively in professional jobs requires knowledge that are acquired through experience and gaining specialized knowledge. The existence of these knowledge resources leads employees to access these resources and to exploit them in order to develop personal capabilities and more effective duties performance.
- H3: Significant positive effect of knowledge application on human capital development can be interpreted as ultimate goal of KM management to solve problems of organization and improving organizational performance. This way, knowledge application can help to develop competences and valuable experiences of employees in order to improve organizational performance. It also makes employees can improve the knowledge and skills needed to perform their job duties in practice and increase the level of knowledge and creativity.
- H4: Significant positive effect of knowledge sharing on human capital development can be interpreted that having three technical, communicative and analytic skills of employees has considerable effect on performance. Having these skills leads to improve the ability of decision making and solving job problems in individual. Knowledge creation and sharing can reinforce such skill in employees and participation of employees in informal meetings and friendly conversations during work time will develop their communicative skill. Having comprehensive view helps employees to understand relationship between these issues better and make better decisions. Thus, knowledge sharing can help to reinforce such view and valuable and value making capabilities in employees and consequently make sufficient context to develop human capital.

RECOMMENDATIONS BASED ON THE FINDINGS

In general it can be said that human capital development activities formally and informally are done all day long among employees, particularly through an ongoing process of knowledge management. Employees participate in job discussion in corridors and dining room with informal knowledge sharing and knowledge acquirement in a form of books, magazines and articles and knowledge application in the form of knowledge employing workers to solve their problems in the KM process. Such participation in the process of knowledge management improves innovative behaviors and knowledge of each employee and has positive effect on HC development.

Employee participation in the processes of problem solving, improves their ability in problem-finding, finding different solutions and selecting the optimal solution. This process is considered as a type of knowledge creation and encourages employees to apply their implicit knowledge obtained through experience and sources of explicit knowledge to solve a special issue. Thus their participation in knowledge creation can help their skills and ability to solve organizational problems.

Organizations encourage knowledge creation and sharing and its application give their employees more authority and provide them more opportunities to participate in decision making and experiencing. Therefore, knowledge, skills, capabilities and commitments of each employee increasing and this means HC is developing.

Given the poor state of knowledge management in the organization under study, it is necessary to take measures to optimize the implementation of knowledge management in the company. To this end, first there must be identification among managers and employees in which KM can have a determining role in improving its performance and then they should try to implement it better. According to the results, the following recommendations can be used to optimize each of the knowledge management measures:

Practical proposals to facilitate the development of knowledge management measures

- **Knowledge creation:** More attention to employees' new ideas, efforts to provide new solutions to the problems using experience of others, increasing participation in seminars and training courses for managers and employees and providing more learning opportunities for employees interacting with each other that can help to improve the level of knowledge creation in the organization. Organizing expertise associations, teaching creativity techniques, holding festival of superior performance and free discussion meetings are among the KM tools that can promote knowledge creation in organizations.
- **Knowledge storage:** Analysis of data obtained from this organization indicates maintain this knowledge is not in good condition through interpersonal interaction and applying IT. While one of the main issues this organization faces is losing implicit knowledge of skillful employees that are excluded due reasons such as retirement or leaving organization or are promoted. Some measures that can help more effective knowledge storage are : attention to matching employees near to their retirement, codification of experiences of skillful employees and experiences gained by implementing projects, holding meeting of experience transfer, using new technologies to store knowledge and make it available to employees. Providing map of knowledge, establishing information

systems of KM, more usage of training methods of succession and master-apprentice, telling stories and expertise associations can help to improve knowledge sharing in this organization.

- **Knowledge application:** The ultimate value of knowledge depends on applying it in organization, helping to solve issues and organizational problems, improving performance and organizational excellence. Thus, improving context of knowledge application can help to achieve ultimate goal of KM system. Some measures can be useful such as using new ideas of employees to modify organizational process, working procedure and practical programs, appreciation of those who did valuable researches or try to optimize working procedures, providing sufficient context and enhancing self-confidence of employees to implement their ideas, more attention to programs of recommendation system in organization, using participation of all around organization to improve continuously, more attention to innovative plans.
- **Knowledge sharing:** One of the important objectives of knowledge management is to avoid reworking, working parallel and costly mistakes in the organization. To this purpose, KM system should help valid, valuable and accurate knowledge sharing when employees need it to use it for their problem solving and improving performance. Some of methods that can help knowledge sharing more and effective are: forming team work and informal cooperation to help employees in solving problems, more attention to hold meeting to consult about organizational issues, to validate knowledge exchange and experiences between members of organization in informal meetings, establishing meetings to share experiences and storytelling, using training methods of coaching and master-apprentice and applying new technologies to share knowledge and experience of employees.

Practical proposals to develop each dimensions of human capital

- **Expertise:** to increase the level of employee expertise, such measures would be useful: implementation of job rotation, to hold meetings for exchanging experiences, using teaching methods of master-apprentice, promoting meritocracy in organization, paying attention to seniority and experience in job promotion and giving privileges of employment, efforts to have continuous benefits from knowledge and experience of skillful employees that are excluded due to retirement leave organization (employing them as organizational consultants, instructors of employee training, purchase of service,...)

- **Skills:** Three needed skills for employees to have effective job performance include technical, communicative and analytic skills. Managers should try to foster all these three skills. To this purpose, following measures would be useful: developing on-service training courses, considering job privileges more to spend training courses, increasing communicative and organizational behavior trainings, creating sufficient context for employees to learn continuously, making employees more familiar with objectives, programs, structure and other processes of organization department.
- **Creativity:** Paying attention to creativity of individuals in employment exams, holding courses to foster creative skills in employees, encouraging creative and innovative individuals, paying more attention to features and innovative behaviors of employees in evaluating performance, creating more sufficient context to express views, ideas, complaints, and enhancing self-confidence of employees to provide and implement new and useful ideas.
- **Knowledge:** Paying more attention to job appropriateness to the level and type of education of managers and employees in job assignment and promotions, recruitment of elite graduates, facilitating the possibility of continuing education needs in line with job requirements, strengthening interaction with universities in implementing research projects, continuous updating of knowledge bases in organization, supporting informal interactions of employees as facilitating strategy to exchange implicit knowledge.

REFERENCES

- Amit, R. and Schoemaker, P.J.H. (1993), "Strategic assets and organizational rent", *Strategic Management Journal*, Vol. 14 No. 1, pp. 33-46.
- Anvari, A. Shahabi, B (2010), knowledge management and learning organization: an analysis of codification role of knowledge and experience, *Journal of IT management*, 1(2)
- Asgari, N (2012), developing an effect model of human-social factors on KM measures, Inedited PHD thesis, management department, Tehran University
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17 (1): 99-120.
- Birasnav, M. and Rangnekar, S. (2008), "A conceptual model of human capital creation",in Chundawat, D.S., Saxena, K. and Bhadu, S.S. (Eds), *Managing Global Competition:A Holistic Approach*, Macmillan India, New Delhi, pp. 261-73.
- Birasnav, M. and Rangnekar, S. (2008), "A conceptual model of human capital creation",in Chundawat, D.S., Saxena, K. and Bhadu, S.S. (Eds), *Managing Global Competition:A Holistic Approach*, Macmillan India, New Delhi, pp. 261-73.
- Bontis, N. (1998), "Intellectual capital: an exploratory study that develops measures and models", *Management Decision*, Vol. 36, pp. 63-76.
- Chennemaneni, A. (2007). *Determinants of knowledge sharing behavior: developing and testing a theoretical model*. The University of Texas.

- Davenport, T. H., and Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Boston: Harvard Business School Press.
- Filius, R., de Jong, J.A. and Roelofs, E.C. (2000), "Knowledge management in the HRD office:a comparison of three cases", *Journal of Workplace Learning*, Vol. 12 No. 7, pp. 286-95.
- Ghelichli, B (2010), *Knowledge management- process of creation, sharing and application of intellectual capital in businesses*, 1st edition, Tehran, Samt publication
- Gupta, A. K., and Govindarajan, V. (2000). Knowledge management social dimension: Lessons from Nucor Steel. *Sloan Management Review*, 42(1): 71-81.
- Hansen, M.T., Nohria, N., and Tierney, T. (1999). What's your strategy for managing knowledge? *Harvard Business Review*, 77 (2): 106-18.
- Hussi, T. (2004), "Reconfiguring knowledge management – combining intellectual capital,intangible assets and knowledge creation", *Journal of Knowledge Management*, Vol. 8No. 2, pp. 36-52.
- Manning, P. (2009), "Explaining and developing social capital for knowledge management purposes", *Journal of Knowledge Management*, VOL. 14 NO. 1 2010, pp. 83-99.
- Monavarrian, A. Asgari, N (2008), *Structural and content dimensions of knowledge-based organizations*, 1st national conference of knowledge management, management department, Tehran University
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5 (1): 134-139.
- Nonaka, I., and Takeuchi, H. (1995). *The knowledge creating company: How Japanese companies create dynamics of innovation*. New York: Oxford University Press.
- Rastogi, P. N. (2000). Knowledge management & intellectual capital: The new virtuous reality of competitiveness. *Human Systems Management*, 19 (1): 39-49.
- ShamiZanjani, M (2010), *identification of influencing factors on knowledge sharing in project management*, inedited P.HD thesis, management department, Tehran University
- Snell, S.A. and Bohlander, G.W. (2007), *Human Resource Management*, Thomson South-Western,Mason, OH.
- Soliman, F. and Spooner, K. (2000), "Strategies for implementing knowledge management: role of human resources management", *Journal of Knowledge Management*, Vol. 4 No. 4, pp. 337-45.
- Soliman, F., Innes, C. and Spooner, K. (1999), "Managing the human resources' knowledge", *Proceedings of the Seventh Annual Conference of the International Employment Relations Association*, Lincoln University, Christchurch, pp. 497-510.
- Swart, J. (2006), "Intellectual capital: disentangling and enigmatic concept", *Journal of Intellectual Capital*, Vol. 7 No. 2, pp. 156-79.
- Wiig, K.M. (1997), "Integrating intellectual capital and knowledge management", *Long RangePlanning*, Vol. 30 No. 3, pp. 399-405.