

STUDYING THE ROLE OF SOCIAL CAPITAL IN FACILITATING KNOWLEDGE MANAGEMENT PRACTICES

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Abstract

In the knowledge-based era knowledge management (KM) is considered as the primary task of organizations that seeks to utilize their intellectual capitals effectively. Hence it is vital to understand carefully the appropriate contexts and enablers of knowledge management. Human-social factors are among most influential factors that their effects are as important as structural and technological enablers. In spite of these vital effects, their role has not been studied sufficiently. This study tries to explore the effects of the social capital on the effectiveness of knowledge management measures. It investigates the way in which various aspects of social capital can implement attitudes and behaviors required for implementing KM effectively. The population of the research consists of 950 persons of managers and senior experts of the NIOOPDC. A sample of 274 subjects was selected randomly. Findings suggest that all dimensions of social capital have a considerable effect on the effectiveness of KM. These findings support the necessity of adopting a more humanistic approach for implementing knowledge management more effectively.

Keywords: Social Capital, Knowledge Management, Knowledge Creation, Knowledge Sharing

INTRODUCTION

In the knowledge-based era, knowledge has become the strategic resource of most organizations (Barney, 1991). Nonaka believes that in unstable conditions today, the only reliable source to gain a sustainable competitive advantage is knowledge (Monavarian & Asgari, 2004). Therefore, knowledge management has become one of the most important tasks of those organizations that try to make the most out of these valuable assets (Monavarian & Asgari, 2004). Knowledge management seeks to create and develop the organization's knowledge assets and it relates to identify, create, use, and share relevant knowledge (Saedi and Yazdani, 2010). Knowledge management refers to systematic efforts to find, create, to make available, and use of the organization's intangible assets, strengthening a culture of continuous learning and knowledge sharing in the organization (Rahnavard and Mohammadi, 2010). Knowledge management is a complex process that it cannot be implemented overnight. Implementation and effective use of knowledge management requires accurate and clear understanding of needs that influence the process of knowledge management (Rahnavard and Mohammadi, 2010). Although these factors in knowledge management literature are mostly known as "enabler", other words such as "infrastructure", "necessary conditions", "background", "effective factors" and "readiness" are also used to describe them (ShamiZanjan, 2010). Knowledge management infrastructures include components and elements that their presence is essential to improve knowledge management activities (Rahnavard and Mohammadi, 2010). All of the organizations are not prepared themselves and to the same extent to successfully implement knowledge management (Alavi and Leidner, 2001). Therefore, the key to understand success and failure of knowledge management in organization is to identify and to create appropriate context and conditions to implement knowledge management processes effectively (Rahnavard and Mohammadi, 2010).

Because KM has human nature more than any other aspect (Asgari, 2011), in this study among various infrastructures and enablers of KM, we consider vital and decisive role of human-social factors in facilitating knowledge management measures and we try to explain the effect of interpersonal and intergroup relationships in a form of effect model of social capital on KM in a a valid and reliable way.

Thus, the important problem here is that how and to what extent social capital can facilitate knowledge management measures and which aspects are more effective in this regard. To this end, in this study the effect of four major dimensions of social capital on knowledge management measures are examined. These dimensions are: trust, norms, communication networks, and the obligations and expectations. In addition, in numerous studies have been conducted in the field of knowledge management in various organizations,

"knowledge creation" and "knowledge sharing" are considered as the two main activities of knowledge management (Wang and Ahmed, 2003). Therefore, in this study, mentioned dimensions of social capital will be discussed in two these main activities of knowledge management.

AN OVERVIEW OF THE THEORETICAL BASICS

Knowledge management (KM)

In today's competitive world, knowledge has become the strategic resource of most organizations (Ghelich Li & Motabaki, 2006). According to Nonaka, in unstable conditions today, the only reliable source to gain a sustainable competitive advantage is knowledge (Wiig, 1997). Therefore, knowledge management has become one of the main tasks of organizations that seek to exploit these valuable assets (Rahnavard and Mohammadi, 2010). Knowledge management refers to systematic and coherent process of harmonization of wide activities including the acquisition, creation, storage, sharing, and applying knowledge by individuals and groups in order to achieve organizational goals (Rastogi, 2000). The effect of KM projects on the overall success of the organization is widely approved (Adler and Cowan, 2000). One of the requirements for success of knowledge management is the existence of appropriate conditions and context (Saedi and Yazdani, 2010) that the nature of interpersonal relationships between members of the organization plays an important role in this field (Asgari, 2011).

Knowledge creation

Knowledge is obtained mainly from skills and experience of employees. Knowledge is created when people find a new way of doing things or develop substantive knowledge (Bose, 2004). Knowledge creation is resulted from social interactions and organizational cooperation (Alavi and Leidner, 2001). Nonaka describes four models that are resulted from interaction between the implicit and explicit knowledge in different levels of organization: socialization, externalization, combination and internalization (Nonaka and Takeuchi, 1995).

Table 1: Types of interaction between implicit and explicit knowledge

	<i>To implicit knowledge</i>	<i>To explicit knowledge</i>
<i>From implicit knowledge</i>	1. socialization	2. Externalizing
<i>From explicit knowledge</i>	3. combination	4. internalization

Source: Nonaka and Takeuchi, (1995)

Knowledge sharing

When knowledge is created, it should be shared among the members of the organization, in order to be able to serve as a basis for innovation and knowledge creation in the future. The creation and sharing of knowledge with the aim of creating new knowledge through collaboration and synergies resulting from the combination of combined experience and backgrounds of the members is possible (Wood, 2005). Some define knowledge sharing as the process of diffusion of knowledge across the organization. This diffusion can be done between individuals, groups and organizations that use any type of the communication networks (Alavi and Leidner, 2001). Other researchers consider knowledge sharing same as knowledge flow and believe knowledge flow has five main pillars: the value of knowledge source, source tendency to knowledge sharing, rich media communication channel, the receiver tendency to receive knowledge and the ability to compensate for receiver (Gupta and Govindarajan, 2000). Davenport & Prusak (1998) believe knowledge sharing as the exchange of knowledge between individuals and groups.

Social capital

There are very different interpretations of social capital that reflects the phase and multi-dimensional nature of it. Despite this, it is necessary to create a range for this theory to reach a clear meaning in order to achieve the objectives of knowledge management (Manning, 2009). Social capital consists of features of social organization (e.g, norms, trust and networks) that facilitate cooperation and coordination necessary to achieve mutual advantages (Taslimi et al., 2009). Unlike other forms of capital, social capital is formed in the structure of relationships between individuals and groups (Coleman, 1990). In the following, it explains dimensions and factors of social capital.

The literatures in this area include a lot of different views. Despite the differences that exist in this area, there is considerable overlap. The aim of this chapter is to study a part of these literatures in this area about the nature of social capital that among its scholars ,there is an overlap. In particular there is more relationship between dimensions of social capital that describes by process of knowledge management:

Trust: Means how much an individual can be sure that other individual or group will do a certain action (Ostrom & Ahn, 2003). Fukuyama (1995) also defines trust as: "people who are members of a society expect other members' behavior to be systemic, honest, cooperative, and are based on commonly shared norms". Trust in people's psychological state (Lesser, 2000). Trust

facilitates cooperation. The more the level of trust is in a society, the greater will be the possibility of cooperation and partnership and cooperation also fosters trust (Lesser, 2000).

Norms: social norms are an accepted set of behaviors that are internalized for members of the social network. In other words, social norms are a set of common beliefs that allow members to express their ideas and will have feelings of the same experience (Nahapiet and Ghoshal, 1998). Social norms create social control in organization. These norms are asymmetric in nature, because the norms that facilitate certain actions, limit other behaviors (Manning, 2009). People internalize norms and therefore it is necessary to note internalization of norms when predicting the behavior (Coleman, 1990).

Networks (information networks): Social capital refers to relationships between individuals and groups (e.g. social networks) (Putnam, 1993). The social networks are those social systems that knowledge sharing will be possible with their help (Rastogi,2000).Networks are considers both social knowledge manufacturer and its results. In this context, social networks are those systems that produce real social knowledge. These networks themselves are not knowledge, but are distinct patterns of social activities through which knowledge sharing is possible (McElroy et al., 2006). Therefore, special patterns of social networking innovations (either spontaneous or organized), make it possible that social system solve problems, learn and adapt (McElroy, 2003). Organizations that try to manage such networks, can expect to take advantage of it.

Obligations and expectations: This aspect of social capital can be defined as the constructive interaction between members of social network and can strengthen trust and mutual relationship (compensation) (Putnam, 1993). There are obligations and expectations that result in creating collective trust (Nahapiet and Ghoshal, 1998). And in this case, members are able to cooperate more and rely on each other more in order to solve everyday problems. Despite the collective trust, members can rely on each other more when they are meeting obligations and expectations. In this case, the team will be more willing to work for a group and they know this group when needed, will compensate their efforts (Hoffman et al., 2005).

Sense of identity: This means that people know themselves same as another person or group (Nahapiet and Ghoshal, 1998), individual considers the values and standards of other individuals or groups as a comparative frame of reference. This group identity increases perceived opportunities for the exchanging information and cooperation. In contrast, the

absence of sense of identity creates significant barriers in information sharing, learning and knowledge creation (Lewicki and Bunker, 1996).

The development of social capital for the purpose of knowledge management

The relationship between knowledge management and social capital is discussed by many scholars, including: Lesser (2000), Hoffman et al (2005), Mac Elroy et al (2006), Smedlund (2008). Social capital can improve the ability of organizations to manage knowledge, because improves the capacity of doing team works and knowledge management initiatives are largely social in nature (Asgari, 2011). From the perspective of knowledge creation, social capital facilitates development of collective intellectual capital by influencing the creation of combination and exchange conditions (Nahapiet and Ghoshal, 1998). Since intellectual capital requires to combine knowledge and to experience various parts, creating intellectual capital is facilitated by social capital (Hoffman et al., 2005). Social capital also helps to develop core competencies (Kogut & Zander, 1996), which is essential for knowledge creation.

However, social capital can also facilitate knowledge sharing. Because it enhances the ability of organization to create value through available sources (Kogut & Zander, 1993). It also encourages cooperative behaviors (Coleman, 1998). In general, social capital can enhance the whole process of knowledge management as it makes collective measures more efficient, because it can be an alternative for official conventions, incentives and regulatory measures that are necessary in systems having less social capital between members of organization (Fukuyama, 2001).

Hypotheses

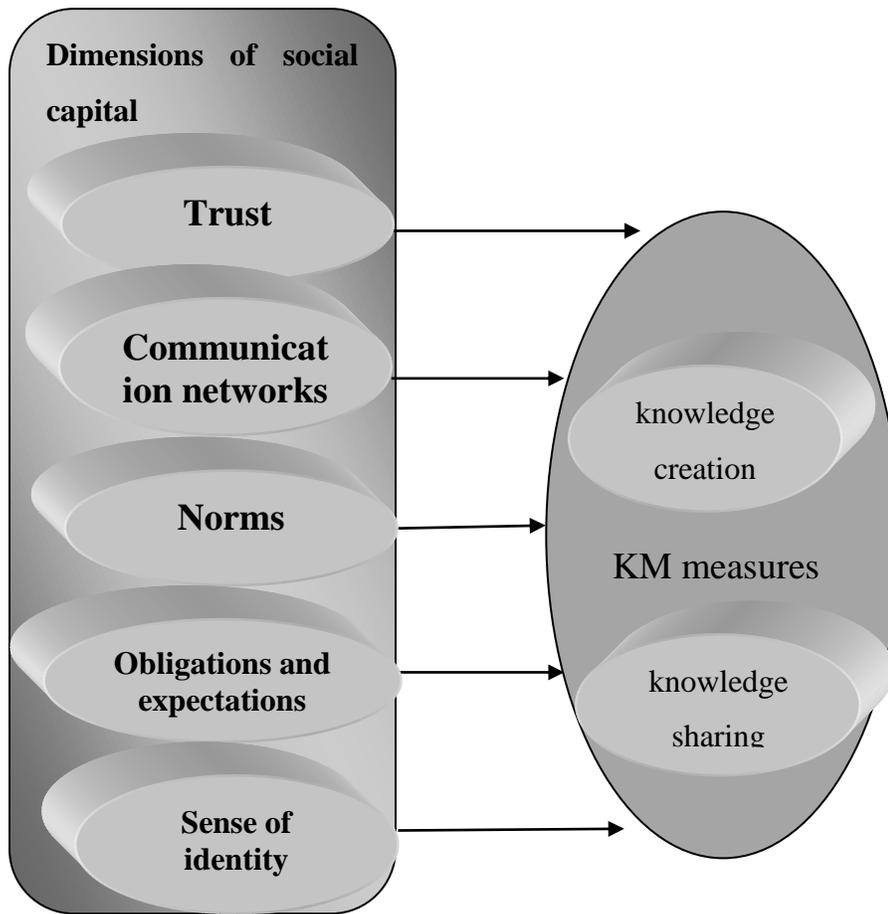
Based on the literature reviewed in this study, the following hypotheses were tested:

1. Trust has significant positive effect on facilitating KM measures.
2. Norms have significant positive effect on facilitating KM measures.
3. Communication networks have significant positive effect on facilitating KM measures.
4. Obligations and expectations have significant positive effect on facilitating KM measures.
5. Sense of identity has significant positive effect on facilitating KM measures.

Theoretical framework

In this study, based on the mentioned literatures, "knowledge creation" and "knowledge sharing" have been considered as dimensions of knowledge management and the dependent variables of study and the dimensions of social capital have been also considered as the independent variables. Accordingly, the conceptual model can be drawn as figure 1.

Figure 1: Conceptual model of research



RESEARCH METHODOLOGY

This study is applied based on its objective; as we can use its results for implementing effective knowledge management measures. From data collection view, it is descriptive survey; because it tries to use the questionnaire to obtain required information of sample status quo. It is also cross sectional based on time aspect and quantitative in terms of data type.

Statistical population and sample

Population studied in this research, consists of 950 persons of managers and senior experts of the NIOADC. The stratified sampling has been used in this study. Sample includes 274 people based on sampling formula. To ensure collection of appropriate numbers of questionnaires, 350 questionnaires were distributed among managers and experts, and finally 280 questionnaires were collected (6 questionnaires were excluded due to being altered). Among which 65 persons were managers and others were senior experts of the company.

Data collection tool

A tool to collect data was 26-item primary field questionnaire in a form of Likert scale. In order to measure dependent variables, KM measures, KMAT adjusted questionnaire and to measure dependent and independent variables of research, standard questionnaire in related researches were used. To assess the validity of questions, the views of academic experts were used and to test the reliability of the questionnaire, the prototype consists of 30 questionnaires were pre-tested and then using the obtained data and SPSS software, confidence coefficient was calculated by Cronbach's alpha as 93%.

Data analysis approach

In this study, in order to analyze obtained samples and to study the presence or absence of simultaneous relationship between the variables, structural equation modeling was used.

ANALYSIS AND FINDINGS

In structural equation modeling, relations between latent traits have been extracted based on the theory, and were studied according to data collected (Kalantari,2010). In this model, there are 26 explicit variables (including research questions) and 6 latent variables (independent and dependent variables). In this regard, using a significant model, the significance of the effects of each of the dimensions of social capital on knowledge management measures will be reviewed and then using the standard model, the effect quality of each dimension will be assessed.

After modeling, specific indicators were used to assess the validity: ratio of chi to the degree of freedom should be less than 3, the root mean square error of approximation that should be less than .08 and p-value should be less than .05, and modified fitness index should be greater than .9 (Kalantari, 2010). To determine the significance of effect of these dimensions, significance model and in order to assess the quality of this effect, standard modes were used. About significance of the model numbers, it can be said that since the hypothesis test is done at the level of .95, those numbers will be significant that are not between 1.96 and -1.96. This means that if a number is between 1.96 and -1.96, would be meaningless (Kalantari,2010).

Confirmatory factor analysis

To investigate the association between indicators and concepts, confirmatory factor analysis was used in two stages. At the first stage, the quality of relationship between the measurement indexes of each dimension (questions) and dimensions have been studied and in second stagey, quality of the relationship between the size and the main concept have been investigated. In other words, at the first step it evaluates to what extend each applied indexes

can explain related dimension and at second stage, each of the indicators used in the questionnaire are studied to determine the extent they are related to a specific concept and can explain it. At this point, factor analysis for each of the dimensions of social capital and knowledge management has been made. The results of the factor analysis of dimensions of social capital and knowledge management are shown in table 1.

Table 1: Results of factor analysis of the constituent dimensions of human social infrastructure of knowledge management

Factor	Dimension	Standard rate	Significant numbers	Result
Social capital	Norms (NOR)	.90	9.67	Confirmed
	Network (NET)	.91	11.13	Confirmed
	Trust (TR)	.95	16.21	Confirmed
	Obligations and expectations (EXP)	.92	15.92	Confirmed
	Sense of identity (IDN)	.93	13.21	Confirmed
Knowledge management	Knowledge creation (KC)	.99	13.05	Confirmed
	Knowledge sharing (KD)	.94	12.18	Confirmed

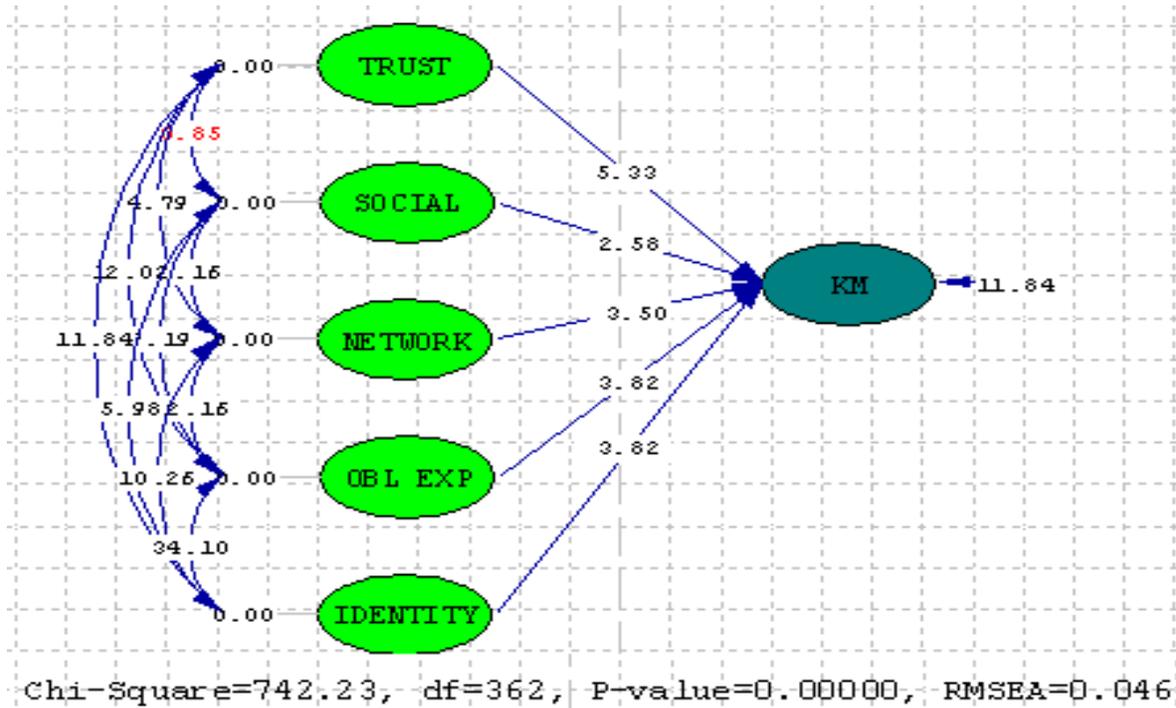
According to the results presented in table 1, significance of effects of all dimensions, are confirmed for social capita and knowledge management; because they are not between 1.96 and -1.96. This means these dimensions can adopt concepts (social capital and knowledge management) properly.

Research hypotheses test

At this stage, the quality and the extent of effect of each dimension of social capital on facilitating KM measures have been studied (Sub-hypotheses); Therefore, using the significance model, the significance of the effect of each dimension of social capital the quality of effects were examined.

Figure 2 shows the effect of social capital on knowledge management a significant level and figure 3 shows this effect in standard mode.

Figure 2: the effect model of social capital dimensions on knowledge management measures in significant mode



On the basis of indicators presented in table 3, we can judge about the effect of social capital dimensions on knowledge management measures.

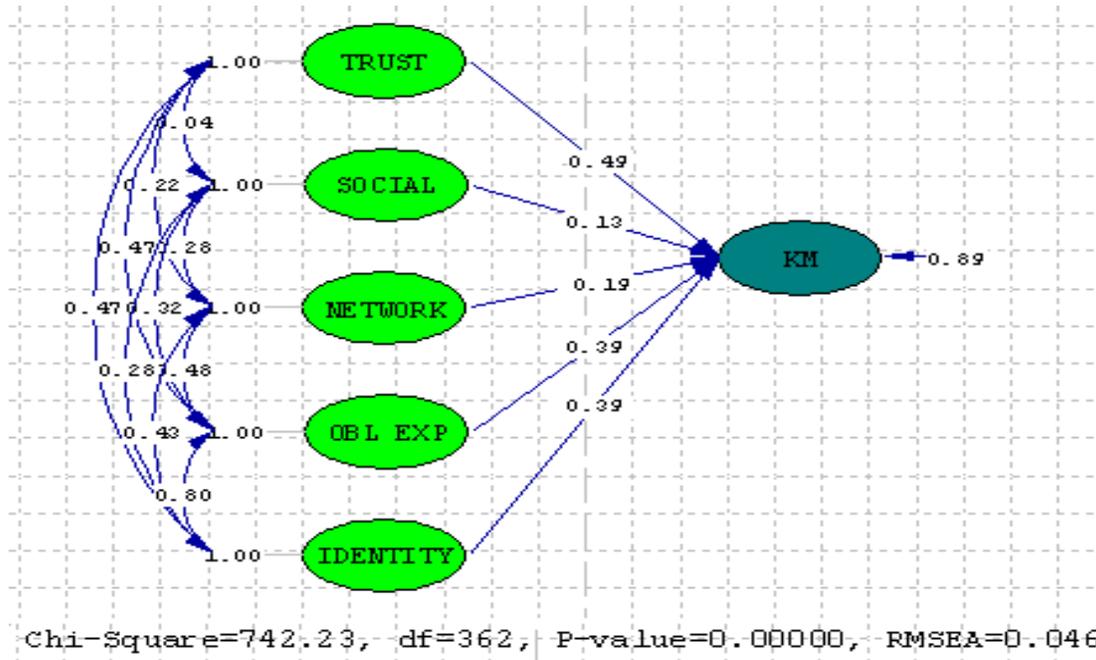
Table 3: Fitness indices of effects of social capital dimensions on knowledge management measures

indexes	Allowed value	obtained data	Fitness results
Chi two to degrees of freedom ratio	$\chi^2 / df < 3$	2	Suitable
P-Value	p-value < .05	.000	Suitable
root mean square error of approximation (RMSEA)	.08 > RMSEA > .05	.046	Suitable
Fitness index (GFI)	More than .9	.91	Suitable
Modified fitness index (AGFI)	More than .9	.92	Suitable
Comparative fitness index (CFI)	More than .9	.95	Suitable

Indexes presented and their comparison with the desired value for the fitted model indicates the goodness of fit for the model. This means the effect of social capital dimensions on knowledge management measures is real and is not random. In the following, we evaluate the effect quality

of each of the dimensions of social capital on knowledge management measures in a form of standard diagram.

Figure 3: The effect model of social capital dimensions on knowledge management measures in standard mode



Significant model, has confirmed the significance of the effect of social capital dimensions on knowledge management measures. The standard model also shows the amount of this effect. The results of the model are shown in table 3.

Table 3: Results of hypotheses testing

Hypothesis	Route	Standard rate	Significant numbers	Result
1	The positive effect of trust on facilitating knowledge management measures	.49	7.98	Confirmed
2	The positive effect of the norms on facilitating knowledge management measures	.13	11.48	Confirmed
3	The positive impact of communication networks on facilitating knowledge management measures	.19	13.36	Confirmed
4	The positive effect of obligations and expectations on facilitating knowledge management measures	.39	8.65	Confirmed
5	The positive effect of sense of identity on facilitating knowledge management measures	.39	3.82	Confirmed

The overall pattern of relationships between variables in structural equation models were consistent with the hypothesis stated; any of 5 relationship investigated ,was significant In terms of results, the significant effect of all dimensions of social capital on facilitating KM measures were confirmed. The effect extent of trust, norms, networks, obligations and expectations, and a sense of identity were .49,.13,.19,.39,.39,respectively. This finding is consistent with the results of earlier research in this area (Manning, 2009, Hoffman et al., 2005; Nahapiet and Ghoshal, 1998). Also, based on the findings, trust factor has the highest effect on facilitating knowledge management measures (.49).

Discussions of Findings

Knowledge management is a human process and effective implementation of its measures mostly depends on the availability of soft perquisites – human-social factors. This soft infrastructure can reinforce behaviors and attitudes that are necessary to implement KM measures effectively.

Social capital can improve the organization's ability to manage knowledge; it can facilitate development of collective intellectual capital by influencing the creation of combination and exchange conditions and thus facilitates the creation and sharing of knowledge. Therefore, organizations can strengthen the trust, networks, norms, constructive norms, and mutual obligations between members in order to optimize necessary conditions for knowledge management.

The importance of the issue of trust in implementing knowledge management measures is that many employees believe their knowledge sharing with others as a risk; hence, they do not want to do this, when there is trust among members, they are sure of goodwill of others and no abuse of shared knowledge and they can provide their knowledge and experiences to others more easily. In this case, knowledge sharing will be increased in organization and knowledge sharing is necessary measure to create knowledge, particularly implicit one.

Norms governing organization, shapes the behavior of individuals in the organization largely. Efforts for creation and sharing of knowledge are no exception. Some norms that can facilitate knowledge management measures, including intimate relationships between colleagues and members of the organization, moral of team work and team spirit, tendency for participation, cooperation and mutual assistance, friendship , helping to solve problems together.

Communications networks also play an important role in the creation and sharing of knowledge by members. Knowledge management measures often become meaningful in interpersonal relationships and team work (particularly knowledge sharing) or interactions

between individuals and groups can strengthen them (such as knowledge creation). Then the more effective and stronger the interactions and interpersonal relationships are, knowledge creation and sharing will be done more and effectively. These interactions do not only include formal relations and main part of it are informal interactions between people in the organization such as informal meetings, friendly meetings, collective recreational activities, collective negotiations in the restaurants, buffet and gyms. Business transactions, either formal or informal way, are very useful and important method for mutual exchange of knowledge and experience and learning from each other. These interactions are formed gradually and reinforced. These relations are strengthening collective and group learning and cause people to benefit from the experiences of each other.

The importance of obligations and expectations to facilitate knowledge management measures is because the transfer of knowledge and experience in organization acts as trading. It means knowledge sharing with others is done with the hope of compensation. The more honest are people in this way and meet their obligations, their trust will be enhanced and their tendency to cooperate more will increase. While opportunistic behavior, self-centered actions, and not meeting obligations damage this trust.

The sense of identity towards the group or organization where individual is working makes him sensitive to the success and performance of the group. When one considers the success of the group, he will try to develop its own success by providing creative ideas and will have appropriate readiness to share knowledge with others.

In general, to create social- human infrastructure of knowledge management requires that organization creates the relationships based on trust, obligations, collaboration and constructive norms in the organization.

PRACTICAL RECOMMENDATIONS

The idea that social capital plays a decisive role in the organization's capacity for knowledge management has practical results for managers of organizations that try to improve their ability of knowledge management. Those organizations with high social capital have more KM capabilities in compared to those with lower social capital. The fact that social capital can help to manage knowledge more effectively, making decisions about supporting the development of social capital more urgent. Some of the actions that managers can take to develop social capital, are:

- Effective recommendations to strengthen trust among members of the organization: development of friendly relations and encouraging employees to help each other to solve problems, encouraging honest behavior and emphasis on the promises and

commitments to meet, paying more attention to meritocracy in the organization, fighting destructive political behavior in organizations, and the effective management of organizational conflicts.

- Effective recommendations to strengthen the facilitating norms of knowledge management measures among members of the organization: development of friendly relations and informal interactions between employees, encouraging employees to work together and help each other, strengthening commitment to the organization and co-workers, emphasis on competency and adequacy of assignments and promotions, encouraging employees to maintain their relationships with others, encouraging teamwork and relationships based on trust.
- Effective recommendations to strengthen communication networks between members of the organization: development of interpersonal interaction, enabling direct interaction between people and same level units ,valuing the role of informal and friendly interactions of employees, holding consultation meetings, and communication skills training to employees.
- Effective recommendations to reinforce the obligations and expectations among members of the organization: encouraging employees to help to solve each other's problems and taking responsibility towards colleagues, the development of a culture of cooperation and mutual assistance, encouraging employees to share their knowledge and experiences with each other and mutual learning, fostering a sense of trust between employees, teamwork, and collective performance evaluations.

FURTHER STUDIES

According to the results of the research and its limitations it is recommended that future researches should study the effects of each of the elements of social capital on each of the KM practices in depth. Furthermore, this study used only questionnaire for data collection. It is recommended that the supposed effects be studied by other intensive methods such as interview, which would further facilitate in-depth qualitative analysis.

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