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Structural equation modeling approach in explaining social capital and strategic knowledge management maturity (Case study: National Iranian Drilling Company)

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Abstract

The aim of this study is to explain and identify the role of social capital in strategic knowledge management maturity in National Iranian Drilling Company using structural equation modeling approach. The research is applied objectively and in terms of how processed data and achieve results is descriptive-correlation. The population consisted of 700 employees of the National Iranian Drilling Company. In this study, sampling method is available sampling and theoretical saturation that using Cochran formula, the sample size was estimated at nearly 153 people. In order to collect the data required, document and library resources and field research was used to enjoying the comments of population, therefore, the tool of data collection is questionnaire. In this paper, two questionnaires of social capital and strategic knowledge management maturity based on meteor model were used. Since, the Cronbach's alpha for variable of social capital (0.78) and strategic knowledge management maturity (0.79) was higher than 0.7, indicating internal consistency of items and approving reliability of questionnaires. To investigate the hypotheses, regression and spss software are used and for structural equation model, LISREL software is used. The results show that the model proposed in this study is approved and has good fitness, because the amount of χ^2 and RMSEA is low and the amount of GFI and its AGFI with amounts of 0.89 and 0.87, respectively, is close to the one that shows the appropriateness of the model. Also, all hypotheses are significant.

Keywords: knowledge management, social capital, National Iranian Drilling Company

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1. Introduction

High-speed of the development of new technologies and digital communications led to increase of importance of knowledge management as a vital source for achieving competitive advantage (N.D Lela, 2010: 711). The lack of competitive space among government agencies is not the reason for the lack of attention to knowledge management. Government agencies should try to improve service delivery to clients by a comparison between the current situation and past and trying to do internal processes effectively. Knowledge management by knowledge sharing within the organization and memorizing knowledge of individuals in organizational memory can create knowledge workers to meet the needs of its clients, clients who become more aware day by day and have higher expectations from organizations. In this context, the creation and exchange of knowledge is a key factor in the government agencies to provide better services and more rational decisions. (N.D.Lela, 2010, p. 711). Because of this, organization as a social group is based on a network of mutual relations and collective interaction and cognition and the survival and development as well as its access to success and progress depends on lasting and richness of this relationship and strengthen the elements affecting it, including mutual trust, social participation and protection (essential components of social capital) () Social capital is interdisciplinary topic whose role is to facilitate human communications.

Social capital is one of those concepts that by bureaucratic stalemate in organizing social affairs have attracted the attention of social scientists and experts (Bourdieu, 2006). Social capital, both at the macro management level, or at the level of management of organizations and firms can create new insights from socio-economic systems and help administrators in better guidance of system and as an intangible assets can differentiate organization, social capital often leads to increase collaboration and community participation of staff and helps them to through the human capital and economic capital be able to reach a dynamic growth in interacting to each other and in contrast, lack of capital creates numerous obstacles facing organizations in achieving the objectives considered (Alvani, 2006). One of these obstacles is the lack of trust in government officials and the lack of confidence reduces the ability of staff and worker collaboration as well as their dispensing from partnership with subordinates and thereby apathy and motivation of the employees. Therefore, in these circumstances, identify the factors affecting organizational knowledge management is including early and essential actions in effective deployment of the organization's intellectual capital. In the meantime, the model developed of knowledge management expresses strengths and weaknesses of the organization to the ideal mode in each factor and indicator and determines Knowledge management maturity level in the organization and helps to recognize the present situation of the organization in factors and indices considered of model, and to improve the current state of the organization, informs the organization according to the prioritization of criteria and factors of model to improve factors state and its indices with proper and more accurate planning and be able to achieve a higher level of maturity (Hamidizadeh, 2013)

In this context and with regard to the above, given the importance of social capital as one of the main sources of organization and knowledge management that recently presented and plays a big role in advancing goals of organization, increasing attention to these issues is essential. Therefore, in this study, based on capabilities, goals, and competitive advantages, organizations especially research organizations (National Drilling Company), the role of social capital in the strategic knowledge management maturity is investigated and finally, there will be the ability to generalize the results to other organizations that have organizational infrastructure and similar environmental conditions.

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2. Theoretical Foundations

One of the key concepts that contemporary sociologists in investigating quality and quantity of social relations in society use it is the concept of social capital. The purpose of social capital is capital and resources that individuals and groups can achieve by link to each other (Bourdieu 1985, Kolman 1988, Patnam 1993) The concept of social capital for Kolman is a tool to explain how cooperation of individuals with each other. In his perspective, social capital is a source because involves networks based on trust and shared values . Kolman in an article defines social capital as a useful resource that can be used via social connections to actor and elsewhere it is called a public good (Fild, 2007: 67). Of key elements and components of social capital can be pointed to reciprocity, knowledge, confidence, social solidarity, social participation, social identity and social responsibility, social norms, in this research components of knowledge, confidence, solidarity, participation, responsibility and commitment have been used.

The considered entity in this study is "Knowledge Management". Knowledge management is called to the process of identifying, acquiring and applying knowledge in an organization in line to help business process. Given the special status of knowledge management in today's organizations and due to the fact that knowledge management is completed in time and gradually; Organizations and researchers have offered knowledge management maturity models (Hamidizadeh, 2013) To mature process with KM concept can interpret knowledge management as defined, managed, monitored and effectiveness of knowledge management. So, an organization's knowledge management maturity model describes the expected growth in the development process of KM in the organization. Thus, the components related to strategic knowledge management maturity model was chosen based on Meteor model; the model has three areas of support and a central core. The central core in this model is the ability of estimating outcomes and supporting axis is the ability of knowledge, ability of values, and ability of guidance that is named meteor model (Hamidizadeh. 2008).

3. Background of research

Create and develop the culture in the organization that encourage this kind of communication and interaction is the necessities of knowledge management. Empirical studies that investigate the relationship between social capital and various activities of KM not have so extension (Landeri and Lamari, 1999). Here are a few cases.

The research results of Pournejadi (2007) in a study titled "providing a conceptual framework for the strategic knowledge management" showed that there should be existed alignment between macro strategies and knowledge management strategies and by identify complementary points between macro strategy and knowledge management provided a conceptual framework and practical model for the strategic knowledge management. Alvani, Nategh and Farahi (2007) investigated the impact of

social capital on the development of knowledge management. The findings of research show the existence of social capital in enterprise groups DPI has been effective on development of knowledge management activities (including knowledge creation and transfer activities). However, there isn't observed a significant relationship with the development of knowledge management activities (including business activities, registration, and knowledge application).

Adler and Kron (2002) in their study showed that there is a significant relationship between social capital and knowledge transfer within the organization. Landeri and Lamari (1999) have achieved good evidence based on the relationship between social capital and knowledge management. However, he is considered knowledge management in general and without separating its aspects in his research. Timon and Stamf (2003) in their study show the relationship between social capital and knowledge management (again in a general sense) achieving higher performance by the organization. Das and Teng (1998) have shown the existence of social capital in the organization affects knowledge transfer among members of the networks (quoted Hamidzadeh, 2013) San Hark (2004) in a study investigated the processes of efficient team building for the globalization of technology with special emphasis on knowledge management of 14 projects of Samsung technology development. In this study, team-building is a concept that refers to employees' participation in aligned working groups. With the exchange of information between aligned groups, the answer of many issues and problems will be found easily and employees as a result of participation at meetings of searching give their personal knowledge to others and thus personal knowledge turns into corporate knowledge (Hark, 2004). Abdul Qader (2004) using two types of questionnaire that distributed among senior and middle managers and subordinate staff employed in the cabinet of Egypt government, investigated the impact of human factors, characteristic and their skills in the success of KM. The research results proved the direct impact of human factors, characteristics and their skills in the success of knowledge management (AQ-2004).

4. Conceptual Model

With a comprehensive review of the literature and identify the components of social capital and strategic knowledge management maturity and key indicators related to concept model was drawn in this case:
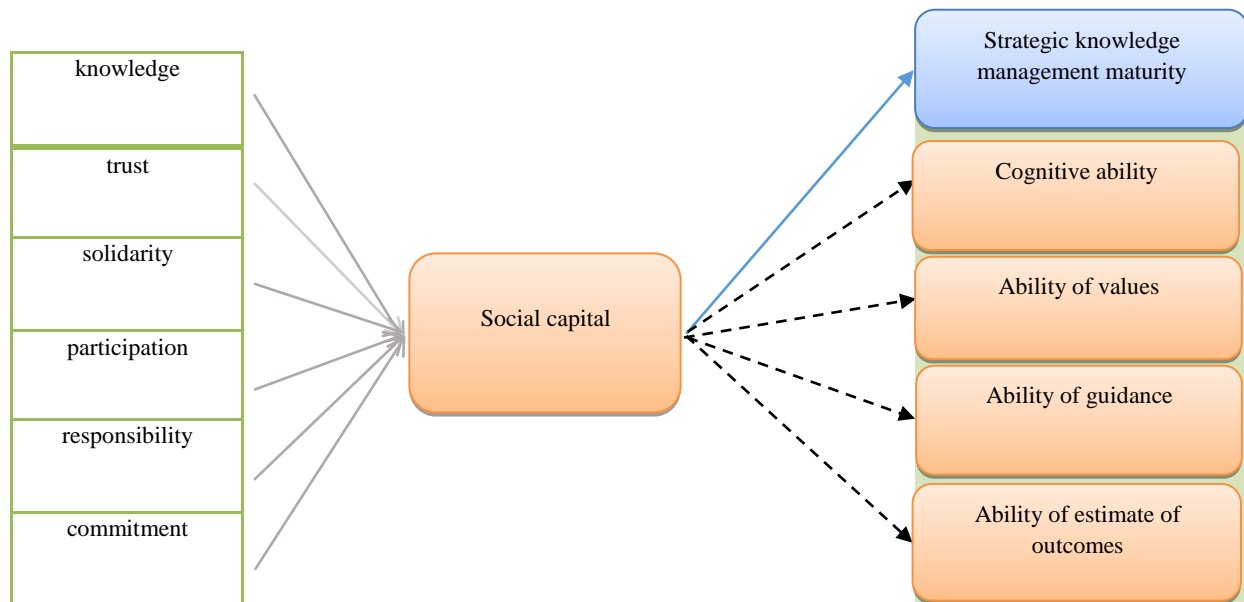
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Figure1-concept model of research

As can be seen, studied variables in this study are divided into two categories: independent and dependent variables.

a. Independent variables: in the study, social capital variable with components of knowledge, trust, participation, solidarity, responsibility, commitment is the independent variable.

b. Dependent variable: variable of knowledge management with dimensions of cognition ability, values ability, guidance ability and ability to estimate the outcomes is dependent variable.

Based on the theoretical foundations, research background and conceptual model, the following hypotheses are designed and investigated:

4-1 The main hypothesis

Social capital affects strategic knowledge management maturity in the National Iranian Drilling Company.

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Sub hypotheses

 Hypothesis1: Social capital affects cognitive ability in the National Drilling Company.

Hypothesis2: Social capital affects ability of values in the National Drilling Company.

Hypothesis3: Social capital affects ability of guidance in the National Drilling Company.

Hypothesis4: Social capital affects ability of estimate of outcomes in the National Drilling Company.

5. Research Methodology

The research is applied objectively and in terms of how processed data and achieve results is descriptive-correlation. On the one hand because in the descriptive research can evaluate characteristics of the study population through surveys, this study is a survey. The population consisted of 700 employees of the National Iranian Drilling Company. In this study, sampling method is available sampling and theoretical saturation that using Cochran formula, the sample size was estimated at nearly 153 people. In order to collect the data required, document and library resources and field research was used to enjoying the comments of population, therefore, the tool of data collection is questionnaire. In this paper, two questionnaires of social capital and strategic knowledge management maturity based on meteor model were used. The questionnaire of social capital consists of 6 sections and 38 questions and questionnaire of strategic knowledge management maturity consists of 4 sections and 20 questions. In order to test reliability, the Cronbach's alpha was used in order to assess the reliability, Cronbach's alpha of questionnaire" strategic knowledge management maturity" obtained 79.9 and Cronbach's alpha of questionnaire "social capital" obtained 78.6. To measure the validity, content validity was used. This means that before distributing, questionnaire was given to seven experts of National Drilling Company and in accordance with their recommendations; the necessary amendments were made and approved by the supervisor finally. To analyze the data collected, both descriptive and inferential statistics were used, descriptive statistics were used to analyze the demographic variables of research (gender, age, education, work experience), to analyze the data in this study, regression model was used to test the hypotheses by spss software. Also, in the structural equation modeling using LISREL on the one hand, adapting the research data and conceptual data will be investigated, whether has good fitness and on the other hand significance of relationships in the model is tested.

6. Findings
6.1 Descriptive findings

Based on the gender of respondents to the questionnaire, 84.31 percent of respondents have been male and 15.68 percent of them have been women and 9.80% of them have associate's degrees, 53.59% of them have BA degree, 33.33 % have MA degree and 3.26% of them have PhD degree. 22.87% of these people aged less than 30 years, 37.90% aged between 31 and 40 years, 29.41 percent aged between 41 to 50 years, and 980% aged 51 years and more. While in their previous analysis must be stated 27.45 % of them have work experience between 1 to 10

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years, 43.13 percent of them have work experience of 10 to 20 years and 29.41% have work experience of 20 years and more.

6-2 regression analysis (hypotheses test)

The main hypothesis: social capital affects strategic knowledge management maturity.

Table 1 regression model of social capital and strategic knowledge management maturity

Model		Non- standard coefficient		Standard coefficient	T	Sig
		B	Std.Error	Beta		
1	Fix value	1.682	0.138		4.52	0.000
	Social capital	0.714	0.032	0.851	12.76	0.000

Variables of the regression equation according to the column B can be calculated as follows.

Error + social capital (0.714) +1.682 =Strategic Knowledge Management Maturity

In other words, by promoting a unit of social capital 0.71, the unit of strategic knowledge management will be promoted, thereby they have positive relationship. T test for regression coefficient in this table shows that this factor is significant (sig=0.000) and is effective in estimate of strategic knowledge management maturity.

The first sub hypothesis

First sub hypothesis: social capital affects recognition ability.

Table 2 Regression model of social capital and cognition ability

Model		Non- standard coefficient		Standard coefficient	T	Sig
		B	Std.Error	Beta		
1	Fix value	1.968	0.209		9.422	0.000
	Social capital	0.512	0.047	0.665	10.836	0.000

Entered variable in the regression model is the main core of regression analysis that obtained in the above table. Regression equation according to the column B can be calculated as follows.

Error + social capital (0.512) +1.968 = cognitions ability

In other words, by promoting a unit of social capital 0.51, the unit of cognitions ability will be promoted, thereby they have positive relationship. T test for regression coefficient in this table shows that this factor is significant (sig=0.000) and is effective in estimate of cognitions ability.

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The second sub hypothesis

Second sub hypothesis: social capital affects values ability.

Table 3 Regression model of social capital and values ability

Model		Non- standard coefficient		Standard coefficient	T	Sig
		B	Std.Error	Beta		
1	Fix value	1.321	0.254		5.189	0.000
	Social capital	0.660	0.058	0.685	11.428	0.000

Entered variable in the regression model is the main core of regression analysis that obtained in the table 3. Regression equation according to the column B can be calculated as follows.

Error + social capital (0.660) +1.321 = values ability

In other words, by promoting a unit of social capital 0.66, the unit of values ability will be promoted, thereby they have positive relationship. T test for regression coefficient in this table shows that this factor is significant (sig=0.000) and is effective in estimate of values ability.

The third sub hypothesis

Third sub hypothesis: social capital affects guidance ability.

Table 4 Regression model of social capital and guidance ability

Model		Non- standard coefficient		Standard coefficient	T	Sig
		B	Std.Error	Beta		
1	Fix value	1.785	0.262		6.812	0.000
	Social capital	0.597	0.064	0.608	9.325	0.000

Entered variable in the regression model is the main core of regression analysis that obtained in the table above. Regression equation according to the column B can be calculated as follows.

Error + social capital (0.597) +1.785 = guidance ability

In other words, by promoting a unit of social capital 0.597, the unit of guidance ability will be promoted, thereby they have positive relationship. T test for regression coefficient in this table shows that this factor is significant (sig=0.000) and is effective in estimate of guidance ability.

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The fourth sub hypothesis

Fourth sub hypothesis: social capital affects ability of estimate outcomes.

Table 5 Regression model of social capital and ability of estimate outcomes

	Model	Non- standard coefficient		Standard coefficient	T	Sig
		B	Std.Error	Beta		
1	Fix value	1.334	0.310		4.308	0.000
	Social capital	0.696	0.075	0.609	9.338	0.000

Entered variable in the regression model is the main core of regression analysis that obtained in the table above. Regression equation according to the column B can be calculated as follows.

Error + social capital (0.696) +1.334 = ability of estimate outcomes

In other words, by promoting a unit of social capital 0.696, the unit of the ability of estimate outcomes will be promoted, thereby they have positive relationship. T test for regression coefficient in this table shows that this factor is significant (sig=0.000) and is effective in estimate of ability of estimate outcomes.

Based on the results obtained from the above tables, based on the amounts of beta (β), the factor of ability of values 0.685 is more than the value of other dimensions factor and beta value indicates that the values ability has more contribution and role than other dimensions and then there are cognitions ability, ability to estimate the outcomes and guidance ability.

6.3 fit of structural equation model

The results of fit of structural equation model are shown as following charts in three modes of standard, non-standard and t and analysis is done based on it. The symbols used in the model are described in the following table.

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Table 6-Symboles used in structural equation model

Symbol	Interpretation	Symbol	Interpretation
SC	Social capital	SKM	strategic knowledge management maturity
K	Knowledge	EC	Ability of cognition
T	Trust	AV	Ability of values
S	Solidarity	LC	Ability of guidance
P	Participation	AEC	Ability of estimate of outcomes
R	Responsibility		
C	Commitment		

(A) first output: non-standard: This output shows non-standard estimate of model.
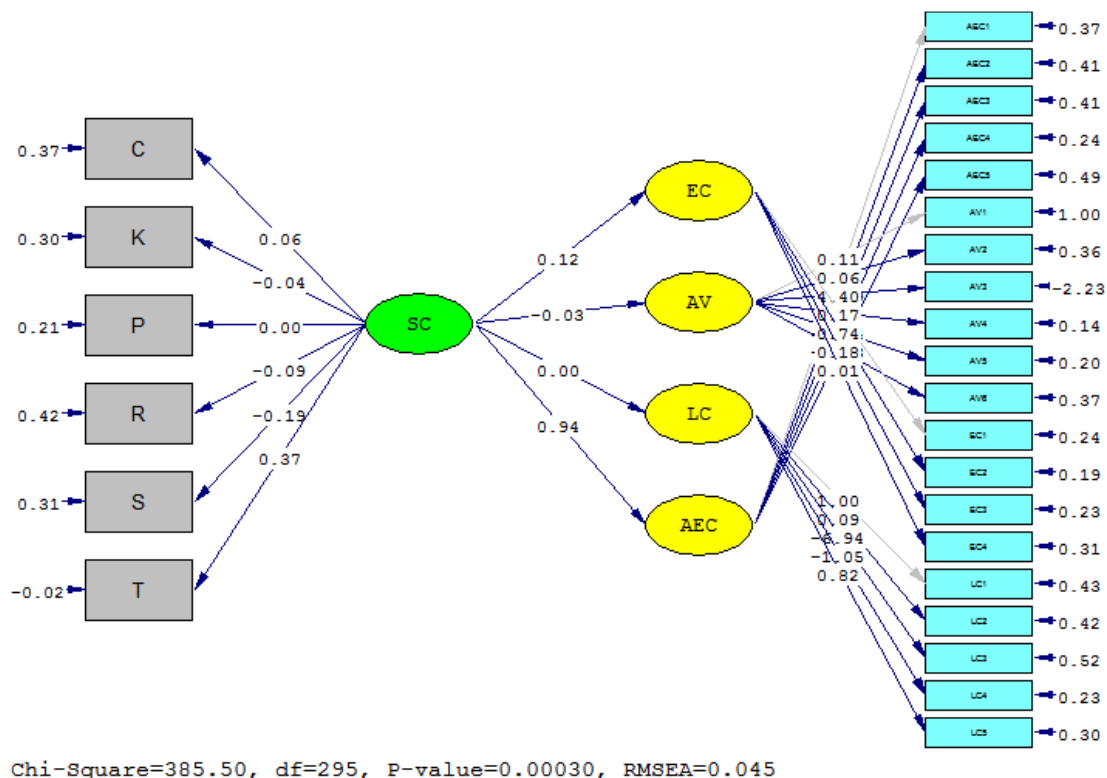

Chi-Square=385.50, df=295, P-value=0.00030, RMSEA=0.045

Figure 2 – Non-standard fit of structural equation model

According to LISREL output, χ^2 calculated value is equal to 385.50 that low χ^2 indicates the proper fit of the model. Because the more the value of χ^2 is lower, then the presented model has a better fit. The results shown above indicate good fit of model. This model is appropriate because its χ^2 and RMSEA value is low and its GFI and AGFI value with values of 0.89 and 0.87, respectively, is close to one that shows the appropriateness of the model.

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(B) Second output: Standard: This output shows the estimate of standard model.

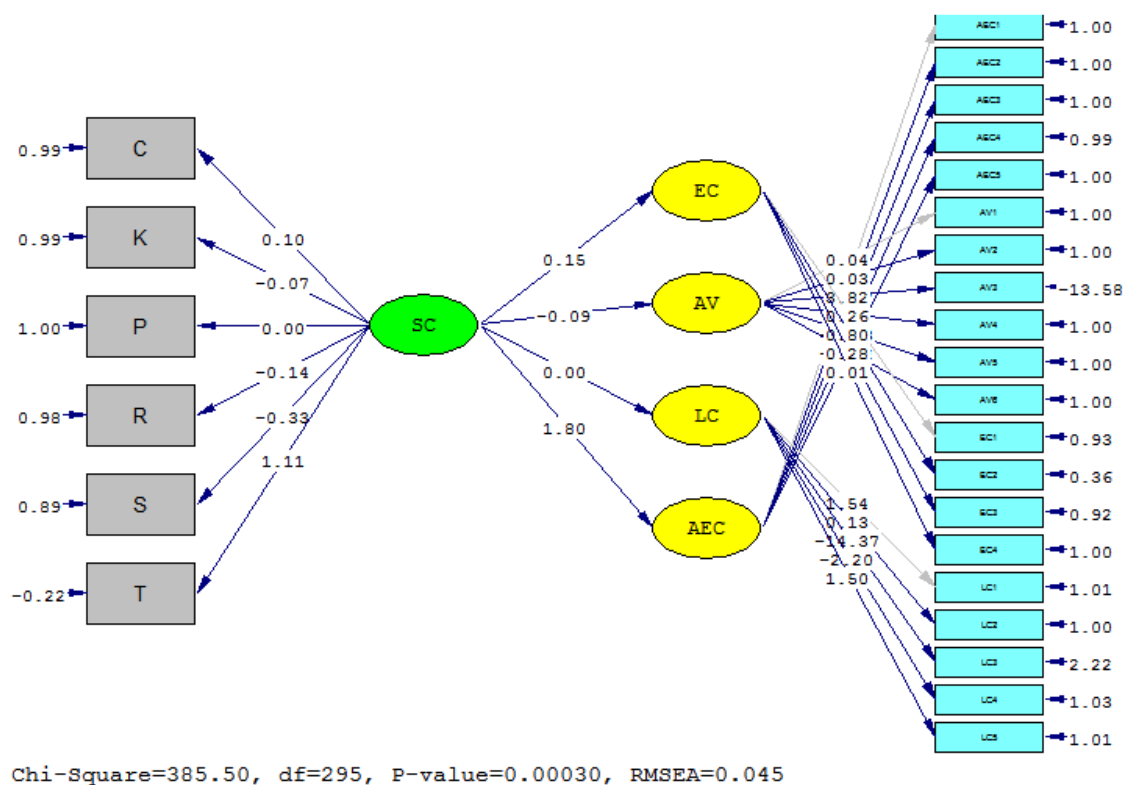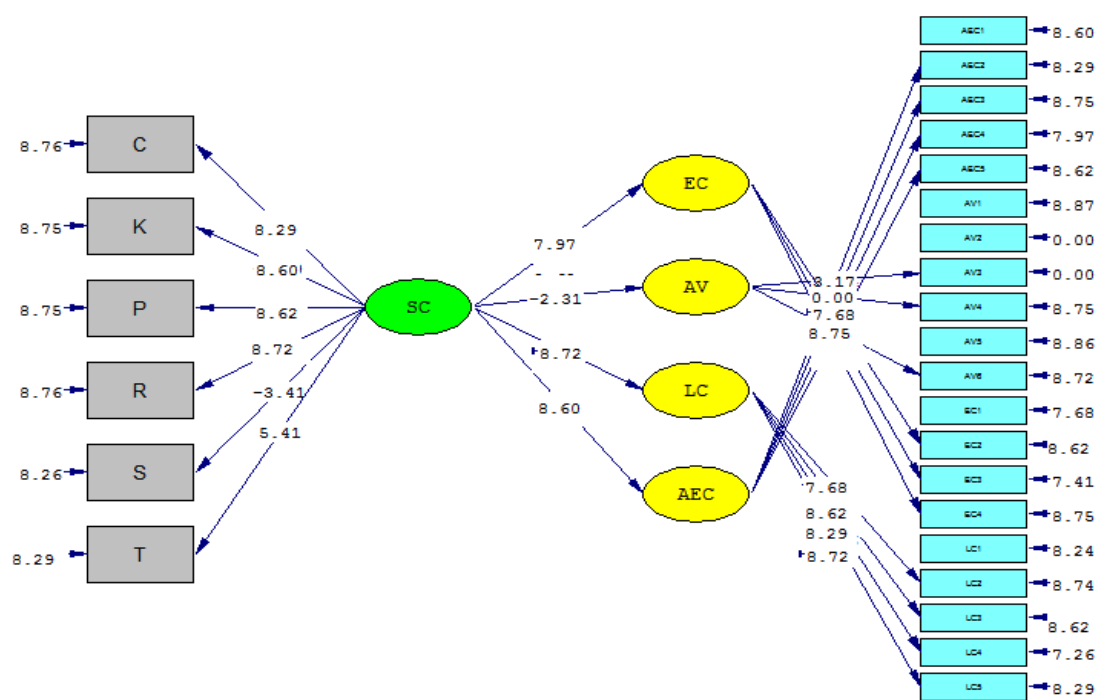Chi-Square=385.50, df=295, P-value=0.00030, RMSEA=0.045

Figure 3. Significant fit of structural equation model

About the standard model that according to LISREL output, χ^2 calculated value is equal to 385.50 that low χ^2 indicates the proper fit of the model. Because the more the value of χ^2 is lower, then the presented model has a better fit. The results shown above indicate good fit of model. This model is appropriate because its χ^2 and RMSEA value is low and its GFI and AGFI value with values of 0.89 and 0.87, respectively, is close to one that shows the appropriateness of the model.

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(C) Third output: significant: This output shows the estimate of standard model.

Chi-Square=385.50, df=295, P-value=0.00030, RMSEA=0.045

This output as mentioned above is significant LISREL output that shows a significant part of the coefficients and parameters obtained of measurement model in the study that all the coefficients obtained was significant, because their significant coefficient value is larger than the number 2.

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Conclusion

The aim of this study was to assess the dimensions of social capital in promoting strategic knowledge management maturity in four parts of cognition ability, values ability, guidance ability and ability to estimate the outcomes, that the relationship of six social capital factors with elements of strategic knowledge management maturity in meteor model (cognition ability, values ability, guidance ability and ability to estimate the outcomes) were studied and conceptual model to these various factors was presented.

Therefore, according to the results of structural equation modeling based on studies in this context, variables of research in Figure 1 in conceptual and theoretical model of research were defined.These factors were studied and tested and after performing calculations by spss software and LISREL, model 4 was determined as structural equation model, and presented as a proposed model of research, and as in Model 4 shows, all the coefficients obtained are significant, because their significant coefficient value is larger than the number 2. Based on the regression results, all hypotheses have been confirmed. The results obtained are consistent with the results of other researchers, Adler and Kron (2002), Landeri and Lamari (1999), Timon and Stamf (2003), Das and Teng (1998), Alvani, Nategh, and Farahi (2007), San Hark (2004) and Abdul Qader (2004).

References

1. Abdolkader, A. h. (2004). "Readiness of IDSC to adopt knowledge management" knowledge management: Current issues and challenges. Coakes, E. (Ed). London: IRM press,pp11-13.

2. Alvani Mehdi, Nategh, T.; Farahi, MM (2007) role of social capital in the development of organizational knowledge management.

3. Alvani, SM; Shirvani, AR. (2006) Social capital (concepts, theory and applications), management of social capital, Tehran University, Volume 1, Number 2, Winter 2014, page 247-264.

4. Fild, John, (2007), social capital, translator Gholam Reza Ghaffari and Hossein Ramazani. Tehran, Kavir publishing.

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5. Hamydizadeh, M., (2008). The economy of advanced management, Tehran, Hami publishing.

6. Hamidizadeh, MR (2013). Diamond of knowledge, Tehran, Proceedings of the International Conference on Knowledge Management, University of Shahid Beheshti.

7. Iranian Journal of Management, Spring 2007, pp. 70-35.

8. Kolman, James, (1998), the foundations of social theories, translator M. Saburi, First Edition, Tehran, Ney Publishing, p. 153.

9. Landry, R., N. Amara, & M. Lamari .(2002). Does social capital determine innovation? To what extent, Technological Forecasting & Social Change, No. 69, pp. 681–701.

10. N.D. lela,M.N.(2010)."Knowledge Management in the Public Sector Communication Issues and Challenges at Local Government Level",European Conference on Knowledge Management 11,portugal,pp.711-716.

11. Lin, N. (1977), Foundation of social research. New York: McGraw Hil

12. Pournejadi, Shahriar (2007). Provide a conceptual framework for strategic Knowledge management, First National Conference of Knowledge Management.

13. sun-Hark .B .(2004). "Effective team processes for technology internationalization with special emphasis on knowledge management: Successful late starter, Samsung case". International journal of technology management. Vol.27, No.1.pp128.