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Relationship Between Strategic Thinking and Knowledge Management (Case Study: Iran's Ministry of Economic Affairs and Finance)

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ABSTRACT

This study is an attempt to study the relationship between each of the knowledge Management processes (knowledge creation, knowledge storage and maintenance, knowledge transfer and applying knowledge) with dimensions of strategic thinking in the organization's (vision, creativity, systemic thinking). Participants were 110 managers and expert engaged in ministry of Economic affairs and Finance, chosen by random, who were asked to fill a modified standard questionnaire of KM and ST. Result showed that average KM and ST among managers and expert engaged in ministry of economic affairs and Finance is lower than average. Pearson correlation coefficient showed that there is a significant relationship between all KM and ST dimensions in ministry of economic affairs and Finance. Findings from the pilot study revealed that that knowledge transfer, applying knowledge and knowledge storage had the greatest impact on Strategic thinking while knowledge creation had the smallest impact. The results of this study provided the suggestions for improving the knowledge management process and enhance strategic thinking and increasing the level of staffs' strategic thinking and provided suggestions for future research.

Key words: Knowledge management, strategic thinking, vision, creativity, systemic thinking

INTRODUCTION

In information era, knowledge is becoming a crucial organizational resource that provides competitive advantage and giving rise to Knowledge Management (KM) initiatives. Many organizations have collected and stored large amount of data. However, they are unable to discover valuable information hidden in the data by transforming these data into valuable and useful knowledge. Managing knowledge resources can be a challenge. Many organizations are employing information technology in knowledge management to aid creation, sharing, integration and distribution of knowledge (Silwattananusarn and Tuamsuk, 2012). Knowledge can be classified into personal, shared and public, practical and theoretical, foreground and background, internal and external, hard and soft, structured and unstructured, knowing how and knowing that and procession perspective and structural perspective (Abdul-Rahman and Wang, 2010).

Knowledge management consists of a special systematic and organizational process in which one is allowed to acquire, organize, maintain, apply, distribute, publish and recreate both explicit and implicit knowledge for the staff to promote the organizational performance and value creation (McInerney, 2002). The spectrum of KM is so ample, encompassing both organizational aspects and technical factors (Kang *et al.*, 2003). In an article that appeared in the Harvard Business Review, Nonaka (1998) began with the simple introductory words: "In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge (Nonaka and Takeuchi, 1995). Here the question is how an organization can use knowledge management for future challenge? It safely can be said that during the past years a lot of research has be done on first-mover organization. The main problem identified by the majority of senior executives was strategic thinking. Interestingly, strategic thinking was a problem regardless of whether the companies

had a formalized strategic planning system or used a non-formalized approach. The ability to think strategically, however, is crucial to remaining competitive in an increasingly turbulent and global environment (Moon, 2013). In this way strategic thinking focuses on analysis and deals with the articulation, elaboration and formalization of existing strategies. Strategic thinking, on the other hand, emphasizes on synthesis, using intuition and creativity to create “an integrated perspective of the enterprise (Mintzberg, 1994). Effectiveness of knowledge management depends on how knowledge management processes are aligned with an organization’s infrastructure and processes, in a manner that supports the achievement of an organization’s goals. To understand and represent these relationships a simple list of elements and processes is inadequate. We need a holistic framework where all are integrated into a dynamic coherent whole. Previous researches show that there is a mutual relationship between Strategic thinking and Knowledge management. Using Strategic thinking, the company identifies and changes key behaviors within the knowledge management environment and effectively establish a generative learning environment. It means KM is not a one-time project or even a set of projects, but rather a dynamic set of processes and practices, embedded in both people and structures (Alavi and Leidner, 2001).

Alavi and Leidner (2001) showed interaction between knowledge application and creation, between application and storage and between creation and storage. But, this study failed to consider how each of the processes may negatively impact the other and how those relationships may actually hinder organizational KM systems from achieving Strategic long lasting plan of organization (Schultze and Leidner, 2002). For example, if KM is not according to strategic thinking of organizations, it may have not be useful and create false knowledge.

Some research have shown that in some organizations, employees often failed to encode and store their knowledge because of the lack of understanding the strategic plan of organization. Also in this situations, concerns about knowledge transfer impeded knowledge storage and knowledge creation (Ciabuschi, 2005). Also force employees to store knowledge electronically can decrease the quality of the knowledge stored and once, employees created “more than they knew” (Garud and Kumaraswamy, 2005). In another organization available knowledge was not applied and unneeded knowledge was created. So, the lack of strategic thinking here is obvious because of strategic thinking focuses on the properties of a whole, rather than reducing a whole to its parts and studying their individual properties (Ackoff, 1971). In Iran’s Ministry of Economic Affairs and Finance tremendous amount of knowledge is produced with the implementation of varies projects and management specialist which some of this knowledge are registered in the form of documents, reports, software, directions and so on. But part of

it is intangible and experience in relations, skills, insights remain concealed in mind. But the role of KM in strategies of organization is not well defined yet and therefore organization in response to new challenges will change a few or don’t change at all. Result of capacity of strategic thinking should show by capacity of change. Implementation strategy is important as design strategy. Organization often focuses on design strategy not in capacity of change. In the early 1980s, studies showed less than 10% of companies can do their strategy successful implementation. In 1999, Fourchon magazine published an alarming factor: More than 70% of strategic problems of companies due to poor implementation strategy and failed to implement of it and less than 30% of these problems refers to bad strategy. Ministry of Economic Affairs and Finance as a public organization is responsible to perform the services required and regulate certain activities in order to maximize the profit too. Regard this; the main research question is to what extent there is a relationship between knowledge management and of strategic thinking in Iran’s Ministry of Economic Affairs and finance.

MATERIALS AND METHODS

Main hypotheses: There is a significant relationship between knowledge management and strategic thinking in Iran’s ministry of economic affairs and finance.

Sub hypotheses:

- There is a significant relationship between knowledge creation and strategic thinking in Iran’s ministry of economic affairs and finance
- There is a significant relationship between knowledge storage and maintenance and strategic thinking in Iran’s ministry of economic affairs and finance
- There is a significant relationship between knowledge transfer and strategic thinking in Iran’s ministry of economic affairs and finance
- There is a significant relationship between applying knowledge and strategic thinking in Iran’s ministry of economic affairs and finance
- There is a significant relationship between knowledge audit and strategic thinking in Iran’s ministry of economic affairs and finance

Model: The conceptual model of study is shown in Fig. 1.

Statistical community: The population of this study are 110 managers and experts, both women and men having bachelor’s degree, master’s degree or higher in Iran’s Ministry of Economic Affairs and Finance. Morgan and Jersi⁷ is used due to the number of population was higher. They all selected by simple random sampling.

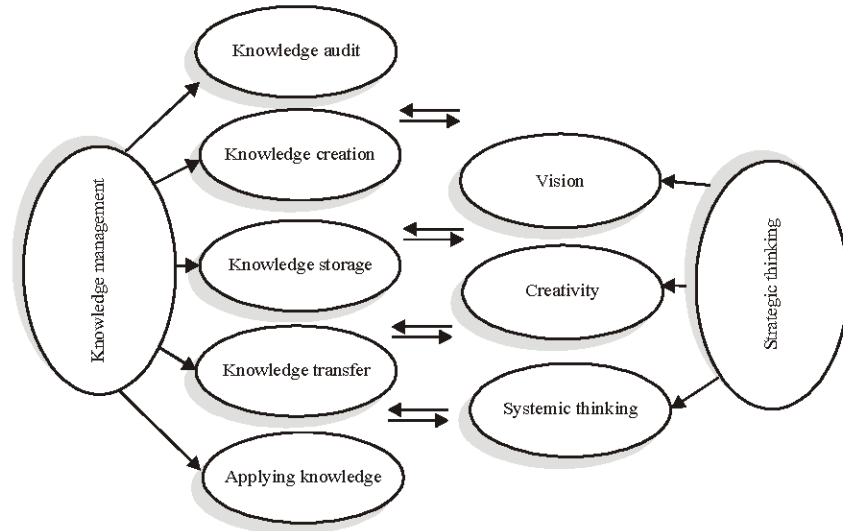


Fig. 1: Conceptual model of study

Data collection: With the aim of testing the hypotheses formulated in this study, an empirical research was carried out. The questionnaire was based on previous findings reported in literature that is reviewed in previous section. It included 25 questions on knowledge management and 16 questions on strategic thinking. Questions about knowledge management are divided into 5 parts and questions about strategic thinking are divided into 3 parts. Scale used in the questionnaires is a Likert scale of five choices.

Validity and reliability: The integrity of case study research can be evaluated in terms of validity and reliability. Reliability refers to the likelihood that the research procedures would yield the same outcomes if repeated. Validity relates to the correctness of responses (e.g., lack of bias) and their correspondence (are the researchers measuring what they intended measuring?) with the phenomenon of interest (Davey *et al.*, 2010). There are various methods for determining the validity of the measurement instrument one of them is the panel or grouping of content experts which typically consulted to identify a broad spectrum of content. This method has been used in the present study. Once, the variables derived from the literature, the questionnaires were given to experts, respondents were asked due to their expertise and knowledge in the field of study to identify the relevant variables. Some amendment was proposed. The final questionnaires were developed after the reform. To obtain reliability, questionnaires were distributed in Iran’s Ministry of Economic Affairs and Finance. After that by computing Cronbach’s alpha and test validity (reliability) of the questionnaire was determined (Table 1).

Cronbach index related to knowledge management and strategic thinking is 0.931 and 0.921 that is higher than 0.7. So the reliability of both variables is approved.

To be able to evaluate the adequacy of the sample size and Bartlett’s test of Kaiser-Meyer-Olkin were used. Table 2

Table 1: Reliability statistics knowledge management

Variables	No. of items	Cronbach	Standardized cronbach
Knowledge management	25	0.931	0.928
Strategic thinking	15	0.921	0.912

Table 2: KMO index and the Bartlett test statistic is significant level

Index and tests	Value
KMO Index	0/911
Bartlett’s test	
Statistic	778.435
df	105
Sig.	0.000

shows KMO index is equals to 0.911 and bigger than 0.7 and the Bartlett test statistic is equal to 778.435, with sig lower than 0.05. So the sample size is sufficient verifiable.

Methods of data analysis: The data collected in this study has been analyzed by using descriptive and inferential statistics by SPSS₂₁. Kolmogorov Smirnov test and Pearson’s correlation coefficient were performed by SPSS₂₁.

Figure 2 and 3 show that majority of people participated in this study are male and near to 70% of them are post graduated.

RESULTS

Analytical findings: Results of Kolmogorov-Smirnov test is shown in Table 3.

From Table 3, the p-value is above 0.05 and the alternative hypothesis can be rejected and concluded that the data comes from a normal distribution. Results of coefficient for hypothesis are shown as follows:

H0: $\rho_1 = 0$

H1: $\rho_2 \neq 0$

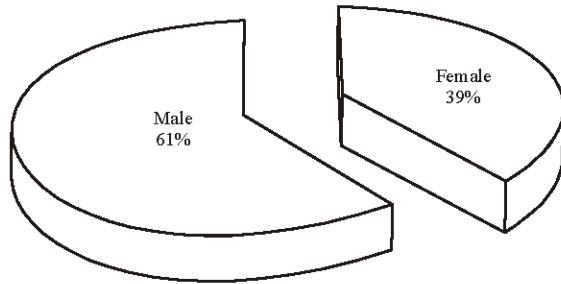


Fig. 2: Majority of participants are male (61%)

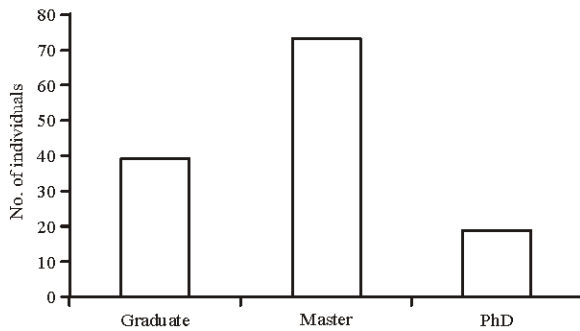


Fig. 3: Level of education

Table 3: Kolmogorov-Smimov test

Variables	Numbers	Statistic, Kolmogorov-Smimov	Sig.
Knowledge management	110	1.678	0.434
Strategic thinking	110	1.957	0.272

Table 4: Pearson correlation coefficient for hypothesis

Variables/correlation	Strategic thinking		
	Pearson correlation	Sig.	N
Knowledge management	0.840	0.000	110
Knowledge creation	0.598	0.000	110
Knowledge storage	0.489	0.000	110
Knowledge transfer	0.796	0.000	110
Applying knowledge	0.703	0.000	110
Knowledge audit	0.759	0.000	110

Table 5: Linear regression for knowledge creation

Predictor	β	Std. error	t	F	R	R ²
Constant	1.295	0.234	5.390	45.219****	0.598	0.357
Knowledge creation	0.533	0.079	6.724****			

****p<0.001, N: 110, Durbin Watson: 1.526

Table 6: Linear regression for knowledge storage

Predictor	β	Std. error	t	F	R	R ²
Constant	2.778	0.067	41.385	24.477****	0.498	0.248
Knowledge storage	0.335	0.068	4.947****			

****p<0.001, N = 109, Durbin Watson: 1.544

Table 7: Linear regression for knowledge transfer

Predictor	β	Std. error	t	F	R	R ²
Constant	0.617	0.193	3.198	134.486****	0.796	0.633
Knowledge transfer	0.784	0.067	11.596****			

****p<0.001, N: 109, Durbin Watson: 1.980

In Table 4, there is a positive correlation coefficient between knowledge management and its all dimensions with strategic thinking.

Linear regression: Linear regression analysis was used to evaluate hypotheses too. Table 5 presents the results of the linear regression analysis to evaluate ‘Hypothesis 1: There is a significant relationship between knowledge creation and strategic thinking in Iran’s ministry of economic affairs and finance.

An R² of 0.357 is reported with this regression analysis, indicating that 35.7% of the variance in strategic thinking can be explained by knowledge creation. This relationship is considered to be moderately correlated due to the correlation coefficient calculated (R = 0.598). Knowledge creation establishes an importance towards strategic thinking with a reported β of 0.533. In addition to that, the model is significant as indicated by the ANOVA results of F (1, 109) = 45.219, p<0.001. Therefore, the influence of knowledge creation on strategic thinking is positive and significant and hypothesis 1 is not rejected.

Table 6 presents the results of the linear regression analysis used to evaluate ‘Hypothesis 2: There is a significant relationship between knowledge storage and strategic thinking in Iran’s ministry of economic affairs and finance. An R² of 0.248 is reported with this regression analysis, indicating that 24.8% of the variance in strategic thinking can be explained by knowledge storage. This relationship is considered to be moderately correlated due to the correlation coefficient computed (R = 0.498). Knowledge storage establishes an importance towards strategic thinking with a reported β of 0.335. Additionally the model is significant as indicated by the ANOVA results of F (1, 109) = 24.477, p<0.001. Therefore, the influence of knowledge storage on strategic thinking is positive and significant and hypothesis 1 is not rejected.

Table 7 shows the results of the linear regression analysis used to evaluate ‘Hypothesis 3: There is a significant relationship between knowledge transfer and strategic thinking in Iran’s ministry of economic affairs and finance (Table 7).

Table 8: Linear regression for applying knowledge

Predictor	β	Std. error	t	F	R	R ²
Constant	0.629	0.235	2.674	88.846****	0.730	0.533
Applying knowledge	0.715	0.076	9.426****			

****p<0.001, N: 109, Durbin Watson: 1.842

Table 9: Linear regression for knowledge audit

Predictor	β	Std. error	t	F	R	R ²
Constant	0.497	0.230	2.085	105.941****	0.759	0.576
Knowledge audit	0.833	0.081	10.293****			

****p<0.001, N: 109, Durbin Watson: 1.911

Table 10: Multiple linear regression for knowledge management-strategic thinking

Predictor	β	Std. error	t	F	R	R ²
Constant)	0.111	0.212	0.525	134.468****	0.840	0.705
Knowledge transfer	0.486	0.093	5.246			
Applying knowledge	0.311	0.088	3.538			
Knowledge storage	0.150	0.065	2.317			

****p<0.001, N: 110, Durbin Watson: 1.951

An R² of 0.633 is reported with this regression analysis, indicating that 63.3% of the variance in strategic thinking can be explained by knowledge transfer. This relationship is considered to be highly correlated due to the correlation coefficient computed (R = 0.796). Knowledge transfer establishes an importance towards strategic thinking with a reported β of 0.335. Additionally the model is significant as indicated by the ANOVA results of F (1, 109) = 134.486, p<0.001. Therefore, the influence of knowledge transfer on strategic thinking is positive and significant and hypothesis 1 is not rejected.

Table 8 presents the results of the linear regression analysis used to evaluate ‘Hypothesis 4: There is a significant relationship between applying knowledge and strategic thinking in Iran’s ministry of economic affairs and Finance (Table 8). An R² of 0.533 is reported with this regression analysis, indicating that 53.3% of the variance in strategic thinking can be explained by applying knowledge. This relationship is considered to be moderately correlated due to the correlation coefficient computed (R = 0.730). Applying knowledge establishes an importance towards strategic thinking with a reported β of 0.715. Additionally the model is significant as indicated by the ANOVA results of F (1, 109) = 88.846, p<0.001. Therefore, the influence of applying knowledge on strategic thinking is positive and significant and hypothesis 1 is not rejected.

Table 9 displays the results of the linear regression analysis used to evaluate ‘Hypothesis 5: There is a significant relationship between knowledge audit and strategic thinking in Iran’s ministry of economic affairs and Finance. An R² of 0.576 is reported with this regression analysis, indicating that 57.6% of the variance in strategic thinking can be explained by knowledge audit. This relationship is considered to be moderately correlated due to the correlation coefficient computed (R = 0.759). Knowledge audit establishes an importance towards strategic thinking with a reported β of 0.833. Additionally the model is significant as indicated by the ANOVA results of F (1, 109) = 105.941, p<0.001. Therefore, the influence of applying knowledge on strategic thinking is positive and significant and hypothesis 1 is not rejected.

A multiple linear regression using the stepwise method was conducted to evaluate ‘Main Hypothesis: There is a significant relationship between knowledge management and strategic thinking in Iran’s ministry of economic affairs and Finance. The total amount of independent variables tested was five (Knowledge creation, Knowledge storage, Knowledge transfer, Applying knowledge, Knowledge audit) for main hypothesis.

Using the formula provided by Tabachnick and Fidell (1996), the minimum sample size required would be 50+(8×5) or 90 respondents. As such, the sample size criterion was met for this study. Regression formulae are based on the assumption that residuals are normally distributed around the predicted dependent variable scores. For this study, normal probability plots were generated to test this. In the normal probability plots, since the points were in a reasonably straight diagonal line from bottom left to top right, it can be confirmed that there were no major deviations from normality (Pallant, 2005). For the normality test, the measure of kurtosis and skewness values for the variables tested was within the prescribed [1.0] range (Tabachnick and Fidell, 1996). With the aforementioned assumptions satisfied, all of the four independent variables were regressed against strategic thinking and the results are summarized in Table 10.

During the stepwise multiple linear regression, it was found that two out of the five sub-variables of knowledge management (Knowledge creation and Knowledge audit) were automatically excluded from the further analysis. This was due to their insignificance (p>0.05) in terms of relationship with Strategic Thinking. The remaining sub-variables (Knowledge transfer and Applying knowledge, Knowledge storage) which were found to be significant (p<0.001) were hence regressed against strategic thinking.

An R² of 0.705 is reported with this regression analysis, indicating that 70.5% of the variance in strategic thinking is explained by knowledge transfer, applying knowledge and knowledge storage. The relationship between the variables for hypothesis 1 is considered to be high due to the correlation coefficient obtained (R = 0.840). In addition, the model is significant as indicated by the ANOVA results of F (4, 106) =

134.486, $p < 0.001$. Table 10 presents the results of the analysis to assert that knowledge management makes a significant and unique contribution (with reported significance levels of less than 0.001) to strategic thinking. As such, it can be concluded that knowledge management influences strategic thinking, resulting in hypothesis 1 not being rejected.

DISCUSSION

From the linear regression analyses of hypotheses 1, 2, 3, 4 and 5, it is evident that all of the five modes of knowledge management (Knowledge creation, Knowledge storage, Knowledge transfer, Applying knowledge, Knowledge audit) have a positive and significant influence on Strategic Thinking. This finding is consistent with the fact that knowledge management does indeed help to foster successful long lasting strategic plan and generates significant value to a company through its indefinable advantages (Mohammadpour *et al.*, 2013).

Also, from the linear regression analyses, it was found that the relationship between knowledge transfer and strategic thinking is the strongest ($R = 0.796$) among that of the other sub-variables. These findings indicate that this organization practices extensive and systematic organization and distribution knowledge and ensure its availability for future users (Argote and Ingram, 2000).

Knowledge storage aspect however, appears to be the weakest among the five our modes in relation to strategic thinking ($R = 0.489$), these findings indicate that this company doesn't practices extensive and systematic documentation of their standards and processes so that they can be embodied easily into trainings, workshops and projects. Thus, the management and staff may not emphasize much on capturing tacit knowledge to think about strategic thinking. Instead, it may appear to be more important for the organization to focus more on existing problems.

Also the relative predictive importance of knowledge audit and applying knowledge transfer strategic thinking were also found to be the high ($\beta = 0.833, 0.784$). This finding shows that it was also equally important for this organization to internalize their strategic thinking processes and combine it to other parts. Although it may not always be easy due to cost constraints. It is important for this organization to convert combined and systemic knowledge into operational knowledge for upcoming challenge.

Furthermore, upon using stepwise multiple linear regressions to evaluate main hypothesis, it was found that knowledge transfer, applying knowledge and Knowledge storage were significantly correlated with strategic thinking. The knowledge creation and knowledge audit sub-variables were removed from the regression due to their insignificance in the overall relationship. This result emphasize on the before mentioned suggestion on the organization's strategic thinking strategy and processes which are geared towards solving existing problems and developing existing processes.

Finally, the relationship between all the sub-variables of knowledge management and strategic thinking appear to be

moderately or highly correlated. This finding is consistent with the contingency theory which suggests that there is no optimal, near optimal or uniformly efficient way in managing an organization (Galbraith, 1973).

CONCLUSION

From these result it can concluded that organization's entire staff and its stakeholders can think strategically even when individuals don't have the necessary competencies. Leaders can aid their own strategic thinking and foster it in others by compensating for individual deficiencies. They can create knowledge and transfer it freely and keep it organized. So one of the most important things for a long lasting effective strategic thinking is knowledge management and its variables. In this study, it was found that the influence of knowledge transfer on strategic thinking was the strongest in the company among the other sub-variables. Also result shows that knowledge storage have the weakest relationship with the strategic thinking. This mean that organization should improve turning tacit knowledge to appear knowledge and keep it organized for future.

This study is limited by the sampling method applied which limits the generalizing of this study beyond the context of this organization. Due to time and budgetary constraints, this study took on a case study approach in which it was only conducted within Iran's Ministry of Economic Affairs and Finance. As such, the findings of this study needs to be interpreted within this context. Apart from that, a simultaneous modeling analysis in this study is not possible because the variables cannot be simultaneously tested against each other. This limits the possibility of discovering more relations among the dependent and independent variables.

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