

Investigating the Impact of Organizational Culture on Innovation with Regard to the Mediating Role of Knowledge Sharing

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Abstract. The present study aims to investigate the relationship between organizational culture, knowledge sharing and innovation. The research population consists of all knowledge workers in the South Oil Products Refining and Distribution Company, from which 190 people were selected as samples using the non-random targeted sampling method. The research data was collected by distributing questionnaires among samples. After collecting data, the distribution of the data related to the variables was examined using the Kolmogorov–Smirnov test; then, the Pearson’s correlation coefficient and structural equation modeling were used to test the research hypotheses. The results of this study show that there is a significant relationship between variables of organizational culture, knowledge sharing and organizational innovation. Also, the results of examining the components of organizational culture demonstrated that adhocracy and clan cultures have positive effects on other variables while hierarchy and market cultures negatively affect the dependent variables. On the other hand, it

was concluded that knowledge sharing can also play the mediating role between organizational culture and innovation.

Keywords: Organizational Culture, Innovation, Knowledge Sharing.

1. Introduction

During the past thirty years, researchers have paid much attention to innovation (Gatignon et al., 2002). In a turbulent economic environment, innovation is considered as a very important strategic driver to gain new opportunities, protect knowledge assets, and achieve competitive advantage (Hurmelinna et al., 2008; Laith Ali and Shahizan Hassan, 2013; Dong et al., 2012). Innovative companies are more flexible in dealing with the phenomenon of change as well as can faster react to changes and create opportunities and gain competitive advantage compared to other companies, and that's why innovation is considered a critical success factor in organizations (Darroch, 2005; Lorens et al., 2005; Dong, 2010). The importance of innovations has prompted researchers to identify variables accelerating innovation (Becheikh et al., 2006). Today, companies highly compete in the knowledge. The knowledge-based theory of the firm suggests that knowledge is strategically the most important and crucial source of competitive advantage (Grant, 1996; Drucker, 2000). Some researchers believe that knowledge management activities are the most important drivers of innovation (Darroch et al., 2002; Liao and Chang, 2011; Liao et al., 2012). The knowledge-based view considers knowledge as a strategic resource in an organization with resource-based view (Grant, 1996; Gold et al., 2001; Laith Ali and Shahizan Hassan, 2013). In the meantime, knowledge creation is one of the important processes of knowledge management (Nonaka and Tkeuchi, 1995). When people are knowledge creator and create new knowledge, they express their creativity and make innovation happen. On the other hand, organizational culture is considered as the most important input for knowledge (Dong et al., 2011) and organizational learning of innovation (Saenz et al., 2011; Liao et al., 2012), because organizational culture is a set of ideas, beliefs and customs in an organization, which can be used to improve learning and innovation or prevent them depending on the type of organizational

culture (Saenz et al., 2011; Liao et al., 2012; Jimenez et al., 2011; MacDermott et al.). Organizational culture is the most important thing which should be taken into consideration in the face of environmental changes; because to make changes to the work process of an organization, which are required as a result of changes in the environment, an appropriate and flexible organizational culture can be used to convert environmental threats into opportunities (Taheri et al., 2013). In this context, taking into account the factors affecting innovation (such as organizational culture, organizational learning and knowledge creation) and investigating their effects are also of utmost importance; because using an appropriate organizational culture and giving special attention to knowledge processes is the key way to advance the organization toward a learning organization, which can create appropriate conditions for flourishing the creativity of individuals, increasing innovation and strengthening the national production (Taheri et al., 2013). The oil industry is one of the main targets of sanctions to put pressure on Iran's foreign policy (Bakhshayesh et al., 2013). Hence, the present study, by investigating the relationship between organizational culture and innovation as well as the impact of the mediating role of knowledge sharing, tries to answer the question whether organizational culture can lead to innovation through knowledge sharing or not.

2. Literature Review

Organizational culture is defined as the core values, rituals, attitudes, assumptions, and interpretations in approaches specifying the characteristics of an organization, which are grouped in four categories as follows: adhocracy, clan, market, and hierarchy cultures (Quinn and Cameron, 2006). In the hierarchy culture, the organization is very structured and formal. Procedures determine what people do, and leaders are the best coordinators and organizers of intellects in productivity. Maintaining a set of formal rules and policies would bind the components of the organization together. The long term concern is on stability and performance through efficient smooth operations (Quinn, 1999). The assumptions and values of the market culture are based on clear goals and aggressive strategies towards profitability and

efficiency. In the market culture, the organization is quite result-oriented and its main purpose is to achieve the results expected from the assigned task. In this culture, the organization functions as a Market itself, due to its external orientation; as a result, it leans toward external environment rather than domestic affairs; and what links the components of the organization together is the emphasis on winning a competition. In other words, there is a long term emphasis on competitiveness and productivity and achieving sustainable objectives. Here, the success is defined as market penetration and share, where leaders of the market are of utmost importance (Zahedi, 2002). The third ideal form of organizational culture is clan culture which is recognized as being similar to a family-type organization. The Clan culture is more like an extended family than an economic entity. Rules and procedures are replaced by teamwork, employee involvement programs, and corporate commitment to employees. Rewards are given for performance of the team and qualitative sectors of the organization attempt to encourage employees to improve their works and performance in a robust environment (Zahedi, 2012). According to the adhocracy culture, the primary task of management is to foster entrepreneurship, innovation and focus on superiority, so that it uses innovation to achieve profitability and profits. The word “adhocracy” is a portmanteau of the Latin “ad hoc”, meaning “for the purpose”; but in English it means flexible, adaptable, and informal. Organizations with adhocracy culture act as temporary units; in fact, their main slogan is “temporary sites are better than the permanent ones”, because they believe that in this way they can be quickly reconfigured based on the new conditions. Knowledge sharing as the corner-stone of many organizations’ knowledge management, refers to the activities associated with the flow of knowledge from one sector or one person to another sector or person and includes knowledge communications, conversion, interpretation and refinement. Knowledge sharing as a complex but value creation activity is the foundation and basis of many organizations’ knowledge management strategies (Riege, 2005). On the one hand, knowledge sharing is to convert organizational knowledge into individual or group knowledge through the integration and socialization process; and on the other hand, knowledge sharing can be the interpretation of individual or group knowledge into

organizational knowledge through the externalization and composition process. It should be noted that the sharing of tacit (implicit) knowledge leads to socialization while the sharing of explicit knowledge in an organization leads to composition (Wang, 2012). The purpose of knowledge sharing is the creation of new knowledge or the exploitation of the existing one (Howell and Annansingh, 2013). In an overall view, it can be said that innovation is an activity whose purpose is to create, transfer, change, and respond to new ideas. Similar definitions of the innovation phenomenon have been proposed by different researchers, so that it can be said that from their views, innovation not only is the conscious invention of new ideas, but also includes the introduction and application of them (Janssen, 2004). According to Damanpour (2001), innovation is divided into two groups including fundamental and gradual innovations. Researchers have found that there are many differences between the fundamental innovation and the gradual one, so that the fundamental innovation is essential for long-term successes of the company (Damanpour, 2001). Generally, according to the research literature, the most important types of innovation are technological innovation versus the administrative one, gradual innovation versus the fundamental one, and product innovation versus the process one. Also, the research literature suggests that there is a significant difference between technological innovation (which includes the new technology of products and services) and administrative innovation referring to organizational policies, procedures, and forms (Damanpour, 2008; Dong et al., 2012).

3. Method

The present study is a descriptive-correlational research which has been conducted using the field method. The research population consists of employees working in all branches of the Oil Products Refining and Distribution Company located in southern Iran (the regions of Gachsaran, Aghajari, Maroon, Karun, Masjed Soleyman) as well as employees of the South Turbine Oil & Engineering Services Company and Iran Pira Haffari Company, which are companies affiliated with the Oil Products Refining and Distribution Company. The research data was collected by distributing questionnaires among samples. Since the

questionnaire was distributed among the knowledge workers who are middle and high level workers, the non-random targeted sampling method was used to select samples from the population. The sample size was estimated equal to 190 people. After collecting the completed questionnaires, 173 out of them which had been correctly answered were used by the researcher. The distribution of the data related to the variables was examined using the Kolmogorov–Smirnov test; then, the Pearson’s correlation coefficient and structural equation modeling were used to test the research hypotheses. Knowledge sharing: the questionnaire used to measure knowledge sharing was based on questionnaires of Nonaka et al (1994), Lee and Choi (2003) and Choi and Lee (2001). This questionnaire consists of 19 items measuring four dimensions including socialization (5 items), externalization (5 items), combination (5 items) and internalization (4 items). Items were scored on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Organizational innovation: a questionnaire developed by Kim et al (2012) was used to measure organizational innovation. This questionnaire consisted of 12 items which measured three dimensions including innovation (5 items), process innovation (3 items) and administrative innovation (4 items). Organizational culture: a questionnaire developed by Cameron and Quinn (1999) was used to measure organizational culture (adhocracy culture, clan culture, market culture and hierarchy culture). This questionnaire consisted of 24 items measuring adhocracy culture (6 items), clan culture (6 items), market culture (6 items) and hierarchy culture (6 items). Items were scored on a 5-point Likert scale from strongly disagree (1) to strongly agree (5).

4. Findings

Considering the probability value (P-value) of variables in the Kolmogorov–Smirnov test, which is higher than 0.05, the null hypothesis (H_0) indicating the normal distribution of the research variables is accepted; hence, at a 95% confidence level, namely with an error of 0.05%, the distribution of the research variables is normal.

Table 1: The Kolmogorov–Smirnov test

Components	t-test	Sig.	Test Results
Adhocracy Culture	1.128	0.127	Normal
Clan Culture	0.962	0.313	Normal
Market Culture	0.951	0.327	Normal
Hierarchy Culture	0.830	0.497	Normal
Organizational Culture	0.837	0.485	Normal
Organizational Innovation	0.489	0.970	Normal
Knowledge Sharing	0.843	0.475	Normal

The first main hypothesis: there is a significant relationship between organizational culture (as a whole) and knowledge sharing.

Table 2: Test result of First Main Hypothesis

Hypothesis	Examining the relationship between		r	R ²	Sig.	Test Results
	First Variable	Second Variable				
First Main Hypothesis (H_1)	Organizational Culture	Knowledge Sharing	0.755	0.57	0.000	H_1 Confirmation

According to the results of this test, the significance level is equal to 0.000, lower than 0.05. Hence, it can be claimed that at a 95% confidence level, there is a significant relationship between organizational culture and knowledge sharing. On the other hand, since the value of the correlation coefficient between these two variables is equal to 0.755, it can be concluded that there is a positive and direct relationship between organizational culture and knowledge sharing.

- There is a significant relationship between adhocracy culture and knowledge sharing in the organization.
- There is a significant relationship between clan culture and knowledge sharing in the organization.
- There is a significant relationship between market culture and knowledge sharing in the organization.

- There is a significant relationship between hierarchy culture and knowledge sharing in the organization.

Table 3: Test result of First Sub- Hypothesis

Hypothesis	Examining the relationship between		r	R ²	Sig.	Test Results
	First Variable	Second Variable				
Secondary 1-1	Adhocracy Culture	Knowledge Sharing	0.580	0.336	0.000	H ₁ Confirmation
Secondary 1-2	Clan Culture	Knowledge Sharing	0.565	0.319	0.000	H ₁ Confirmation
Secondary 1-3	Market Culture	Knowledge Sharing	-0.497	0.247	0.000	H ₁ Confirmation
Secondary 1-4	Hierarchy Culture	Knowledge Sharing	-0.337	0.114	0.000	H ₁ Confirmation

According to the results of this test, the significance level of all 4 secondary hypotheses is equal to 0.000 which is lower than 0.05; hence, it can be claimed that: At a 95% confidence level, there is a significant relationship between adhocracy culture and knowledge sharing. On the other hand, since the correlation coefficient value between the two variables has been reported equal to 0.580, it can be concluded that there is a positive and direct relationship between adhocracy culture and knowledge sharing. At a 95% confidence level, there is a significant relationship between clan culture and knowledge sharing. On the other hand, since the correlation coefficient value between the two variables has been reported equal to 0.565, it can be concluded that there is a positive and direct relationship between clan culture and knowledge sharing. At a 95% confidence level, there is a significant relationship between market culture and knowledge sharing. On the other hand, since the correlation coefficient value between the two variables has been reported equal to -0.337, it can be concluded that there is a negative and reverse relationship between market culture and knowledge sharing. At a 95% confidence level, there is a significant relationship between hierarchy culture and knowledge sharing. On the other hand, since the

correlation coefficient value between the two variables has been reported equal to -0.602, it can be concluded that there is a negative and reverse relationship between hierarchy culture and knowledge sharing. The second main hypothesis: there is a significant relationship between organizational culture (as a whole) and organizational innovation.

Table 4: Test result of second Main Hypothesis

Hypothesis	Examining the relationship between		r	R^2	Sig.	Test Results
	First Variable	Second Variable				
2nd Main Hypothesis (H_2)	Organizational Culture	Organizational Innovation	0.529	0.28	0.000	H_2 Confirmation

According to the results of this test, the significance level is equal to 0.000, lower than 0.05. Hence, it can be claimed that at a 95% confidence level, there is a significant relationship between organizational culture and organizational innovation. On the other hand, since the value of the correlation coefficient between these two variables is equal to 0.280, it can be concluded that there is a positive and direct relationship between organizational culture and organizational innovation.

- There is a significant relationship between adhocracy culture and innovation.
- There is a significant relationship between clan culture and innovation.
- There is a significant relationship between market culture and innovation.
- There is a significant relationship between hierarchy culture and innovation.

Table 5: Test result of second Sub- Hypothesis

Hypothesis	Examining the relationship between		r	R ²	Sig.	Test Results
	First Variable	Second Variable				
Secondary 2-1	Adhocracy Culture	Organizational Innovation	0.405	0.164	0.000	H ₂ Confirmation
Secondary 2-2	Clan Culture	Organizational Innovation	0.394	0.155	0.000	H ₂ Confirmation
Secondary 2-3	Market Culture	Organizational Innovation	-0.466	0.217	0.000	H ₂ Confirmation
Secondary 2-4	Hierarchy Culture	Organizational Innovation	-0.503	0.253	0.000	H ₂ Confirmation

According to the results of this test, the significance level of all 4 secondary hypotheses is equal to 0.000 which is lower than 0.05; hence, it can be claimed that: At a 95% confidence level, there is a significant relationship between adhocracy culture and organizational innovation. On the other hand, since the correlation coefficient value between the two variables has been reported equal to 0.405, it can be concluded that there is a positive and direct relationship between adhocracy culture and organizational innovation. At a 95% confidence level, there is a significant relationship between clan culture and organizational innovation. On the other hand, since the correlation coefficient value between the two variables has been reported equal to 0.394, it can be concluded that there is a positive and direct relationship between clan culture and organizational innovation. At a 95% confidence level, there is a significant relationship between market culture and organizational innovation. On the other hand, since the correlation coefficient value between the two variables has been reported equal to -0.466, it can be concluded that there is a negative and reverse relationship between market culture and organizational innovation. At a 95% confidence level, there is a significant relationship between hierarchy culture and organizational innovation. On the other hand, since the correlation

coefficient value between the two variables has been reported equal to -0.503, it can be concluded that there is a negative and reverse relationship between hierarchy culture and organizational innovation. The third main hypothesis: there is a significant relationship between knowledge creation and organizational innovation.

Table 6: Test result of third Main Hypothesis

Hypothesis	Examining the relationship between		r	R ²	Sig.	Test Results
	First Variable	Second Variable				
3rd Main Hypothesis (H ₃)	Knowledge Creation	Organizational Innovation	0.549	0.301	0.000	H ₃ Confirmation

According to the results of this test, the significance level is equal to 0.000, lower than 0.05. Hence, it can be claimed that at a 95% confidence level, there is a significant relationship between knowledge creation and organizational innovation. On the other hand, since the value of the correlation coefficient between these two variables is equal to 0.549, it can be concluded that there is a positive and direct relationship between knowledge creation and organizational innovation. The fourth main hypothesis: knowledge sharing plays a mediating role between organizational culture and organizational innovation.

$$z = \frac{a \times b}{(b^2 \times s_a^2) + (a^2 \times s_b^2) + (s_a^2 \times s_b^2)} = 25.88$$

a: The value of path coefficient between the independent and mediating variables, which is equal to 0.78.

b: The value of path coefficient between the mediating and dependent variables, which is equal to 0.58.

S_a: The standard error of the path between the independent and mediating variables, which is equal to 0.152.

S_b: The standard error of the path between the dependent and mediating variables, which is equal to 0.124.

Since the value of the Sobel test is higher than 1.96, it can be concluded that in the relation between organizational culture and innovation, the impact of the mediating variable “knowledge creation” is significant at a 95% confidence level.

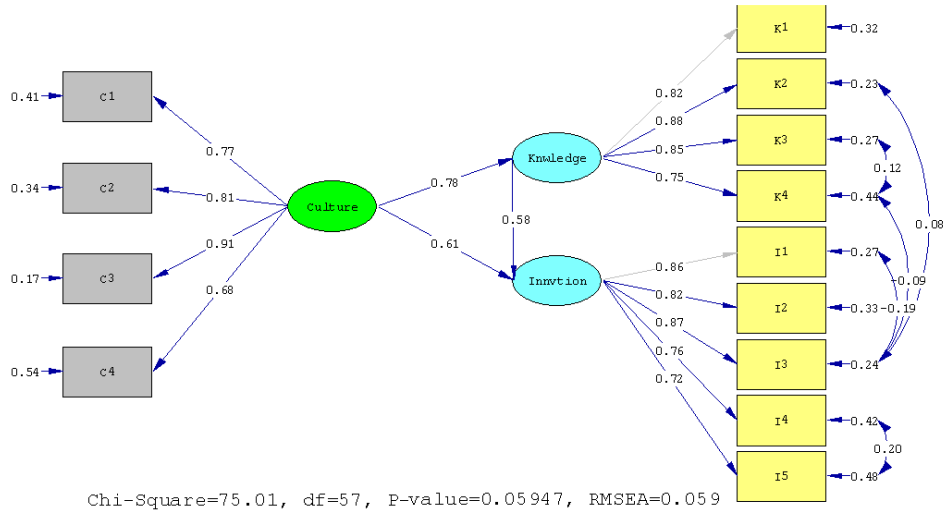


Figure 1: The structural model showing the significance coefficient mode

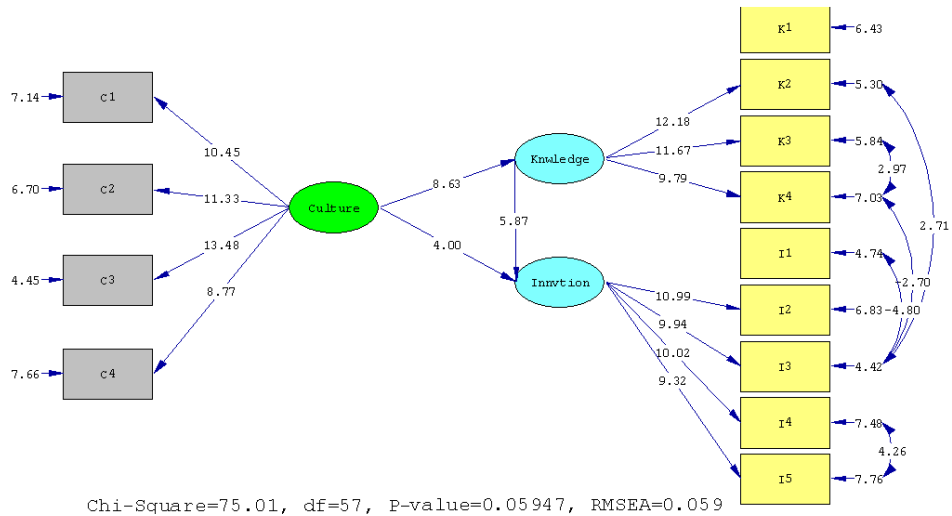


Figure 2: The structural model showing the Significance factor mode

5. Conclusion

The research findings indicate that there is a significant relationship between organizational culture and knowledge sharing. Organizational culture as the character and foundation of the organization plays an effective role in the flow of sharing knowledge in the organization. According to the findings, in the South Oil Products Refining and Distribution Company, when adhocracy and clan cultures govern the organization, employees will show more interest in sharing knowledge; but when the hierarchy and market cultures govern the organization, the willingness to knowledge sharing will be reduced. These results are consistent with the findings of the studies conducted by Jacobs and Roodt (2011), Chen et al. (2010), and Linder and Wald (2011). Assessing the relationship between the variables “organizational culture” and “innovation” proved that there is a relationship between them. Also, the results showed that adhocracy and clan cultures have a direct and positive effect on innovation. In other words, employees working in an organization with adhocracy and clan cultures are more innovative and creative; in contrast, when managers exercise the hierarchy and market cultures in the organization, employees find less opportunity to show their creativity. These results are consistent with the findings of the studies conducted by Lotfollahzadeh et al. (2014), Liao (2012) and Julia (2010). In addition to the fact that organizational culture can directly affect innovation, it can affect innovation through its impact on knowledge sharing as well. This study investigated the mediating role of knowledge sharing between organizational culture and knowledge sharing and proved the relationship. Actually, when the culture governing an organization supports knowledge sharing, knowledge will flow easily in the organization and employees become more creative and innovative using the experiences and knowledge of others.

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