Assessing Impact of Organizational Culture and Organizational Structure on Organizational Effectiveness through Knowledge Management Case Study: Mashhad's Science and Technology Park

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Abstract
One of the issues that have long been discussed within organizational theory literature is organizational effectiveness. When an organization attempts to achieve its proposed objectives, the lack of internal stability and environment threats may delay the process, or even worse destruct it unleashed. Several studies have been conducted in order to examine the underlying factors affecting the effectiveness of the organization, but as we are living in the age of knowledge and knowledge management today is the origin of any pursuit of competitive advantage, organizations have left with no choice but to identify factors influencing managing of their organizational knowledge. In fact, in an environment that supports and encourages knowledge creation, knowledge sharing, learning, structural development as well as applying knowledge in order to a benefit the organization and its customers, implementation of knowledge management sounds effective. In other words, knowledge management plays a role as a mean to overcome destructive components. This study mainly aims to investigate the relationship of organizational culture and organizational structure with organizational effectiveness, by taking an interest in examining the knowledge management as a moderating variable. For this purpose 131 company managers from Mashhad's Science and Technology Park were surveyed via a questionnaire with a Cronbach's alpha reliability measure equals to 0.93. In order to examine the proposed research hypotheses, Spearman Correlations, Multiple Linear Regression and Sobel Test have been conducted. The findings suggest a significant relationship between organizational culture and organizational structure as well as organizational culture and effectiveness. Moreover, the moderating role of knowledge management in these relationships was supported by the research data.

Keywords: Knowledge management, Organizational effectiveness, Organizational culture, Organizational structure

Introduction
Successful organizations manage and integrate their knowledge assets to achieve planned goals and superior performance. Thus, finding the factors, which make their success possible, sounds essential. One of the most important of these factors for their survival is organizational effectiveness. Therefore, this research examines the factors affecting organizational effectiveness and also discusses how they affect. Among the most important factors, organizational culture, organizational structure and knowledge management are identified and examined in several studies, which a few are presented in chapter 2. What distinguishes this study from similar research is that the researcher sought to check the influence of culture and organizational structure through knowledge management. In other words, it intends to investigate whether utilizing knowledge management will strengthen the impact of organizational structure and culture on organizational effectiveness.

Knowledge and information underline the most essential characteristic of any 21st-century smart organization. Knowledge is a powerful tool that can make changes in the world for possible innovations. Although, the impact of knowledge management projects on the overall success of an organization has been widely approved; the organizational structure can either encourage or hinder the success of a knowledge management project and consequently the organizational effectiveness. The organization’s level of formality, centralization, information flow between units and confidential documents are significant structural factors that may directly influence the creation, transmission, storage, deployment of knowledge and organizational effectiveness. Also, the organizational structure has always been revised to strive in order to achieve better performance. Learning knowledge and positive behaviors regarding the business is in connection with improvements in business processes, products and services and are effectively associated with effective relationship with the organizational performance (Hao et al, 2012).

Literature Review
Organizational Culture: Culture is a set of key values that are widely held by members of an organization or group (Tsui et al, 2006).

Studies in organizational culture were widely conducted in the 80’s, especially after Edgar Schein studies in 1985. Daugherty et al (2011) believe that organizational culture is a model of basic assumptions, created and rose by a certain group of people and has been then expanded. If congruous with external environment, it might result in cohesion within the group and if effective over the time, it may lead to a credibility that forms members’ thoughts, perceptions, feelings and emotions. It gets apparent through dialogue among the members of the group and their consequential behaviors. Different models has been introduced for organizational culture and among them, Denison's model is the most popular. Denison (1990) believes that evaluation of organizational culture is based on four components, including involvement, consistency, adaptability and mission, and studies strongly support their effects on performance. Each
Organizational Culture and Organizational Effectiveness: Studies of the organizational culture and its impact on the performance are relatively abundant. Peters & Waterman, (1982) suggest that superior and top organizations share a common factor: having a rich culture with a set of shared values. However, whether this strong culture leads to more effectiveness is dependent to the level of compliance between culture and environment. The corporate culture is in fact the section that complements the organization's performance; Richness of this culture causes empathy among the members and helps them all to consider themselves in a same rank.

**H1: Organizational culture has a significant relationship with Organizational Effectiveness.**

Organizational Structure: As society changes, technological development and increasing global competition are under pressure of different exertions. They need to identify and define new opportunities in order to survive. Live and dynamic structures exert a positive impact on creativity and innovation, since they are less centralized and formalized; and with more flexibility they can adapt better to the needs of the environment. Appropriate organizational structure plays an important role in the efficiency of any organization, and exact designing will improve the performance of human resources and efficiency in the organization. In the present age, in order to survive and even to maintain the status quo, organizations must give continuity to the flow of innovation in dynamic organizational structures to avoid the stagnation and destruction. Every organization requires new ideas as well as exquisite and fresh thoughts for survival. The most important parameter affecting the organizational structure is organizational performance, as it affects other parameters. Thus, if the organizational structure fails to perform correctly, efficacy and effectiveness cannot be delivered appropriately.

The structure has an important impact on the flow of information and the nature of human relationships and it defines the control mechanism.

Structure can lead to a sustainable competitive advantage for every organization, due to the fact that individual skills in the organization become apparent functionality (Daugherty et al, 2011). It also reflects the way in which knowledge is distributed within the organization (Martinez-León & Martinez Garcia, 2011).

Perrow (1967) defines the structure as an agreement between individuals to carry out duties. Also, the six characteristics of the organizational structure are as follows: flexibility, openness power, communication, formality, decentralization and complexity (Hao et al, 2012).

In this study, given that the sample mostly includes small and medium enterprises, the complexity and centralization factor is less tangible. Therefore, we emphasize on formality component. In assessing the organizational structure, the questionnaire presented by Ferrell & Skinner (1988) is utilized.

Organizational structure and organizational effectiveness: Maffei & Meredith, (1995) state that organizations which adopt flexible structures to make the most contribution out of their employees are more successful in identifying problems and will improve performance and quality. Enz (2008) believes that a flexible structure facilitates the decision-making process, reduces costs, improves communications with suppliers and ameliorates staff training. Claver-Cortés et al (2012) study recognizes that complexity and decentralization makes a positive impact on company performance and competitive strategy.

**H2: Organizational structure has a significant relationship with organizational effectiveness.**

Organizational effectiveness is not single concept but a very complex subject involving different preferences and expectations. Organizational effectiveness is the method in which organizations evaluate fulfilling their missions successfully through organizational strategies (Herman, 2004). Organizational effectiveness is a condition in which the organization consumes a limited amount of resources to be able to meet its goals with respect to a set criterion (Hodge et al, 1998). Understanding the purpose of the organization is of the first steps that should be taken in the way to understand the effectiveness. Organizational goals must represent the existential philosophy of the organization as well as what it seeks to achieve. Goal should be determined as the optimal and ideal status for the organization in the future. Organizational effectiveness is as follows: the extent of that an organization achieves its desired goals. It is a general concept that tacitly involves several set of variables (at organizational and departments level). When determining the effectiveness of the organization, the extent that multiple goals (both operational and formal), are met have been measured.

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This study uses the measures of organizational effectiveness presented by Lee & Choi (2003), that includes the overall rate of employees’ success, market share, profitability, growth rate and organizational innovation, compared to key competitors.

**Knowledge Management:** Knowledge has been important for every age, but today with its power to gain sustainable competitive advantage its importance has increased significantly. Business and economic theorists refer to knowledge as the ultimate competitive advantage and the key success factor for new organizations and argue that knowledge is the only resource that is difficult or even impossible to imitate. The owner has a unique item. Knowledge management includes a sequence of concerns in order to create, edit and exploit knowledge. Some of the existing literature discusses knowledge creation and development. However, establishing and developing knowledge in the Organization, not only improves the performance and creates value, but also makes sharing the knowledge across the organization possible (Chena & Huang, 2007).

Knowledge is a set of facts, emotions and experiences gained by an individual or group (Gold et al., 2001).

One of the basic principles, related to the concept of knowledge, is understanding the three components of data, information and knowledge as well as interactions between them. Sometimes a fourth side of wisdom or virtue is added to the triangle of knowledge. Distinction between data, information and knowledge is difficult and only possible through outer concepts or user's viewpoint. Usually, data are raw materials, information is a set of organize data and knowledge is meaningful information. Holt et al., (2000) refer to these terms as follows:

**Data:** A set of facts, statistics, figures and measurements without purpose and meaning.

**Information:** Organized or processed data provided accurate and timely.

**Knowledge:** Although, data, information and knowledge are all considered as assets of the organization, the importance level of knowledge is greater than data and information (Holt et al., 2000).

Liebowitz (1999), defines knowledge management as formalizing the availability of knowledge skills and expertise that are able to create new capabilities, enable superior performance, motivate, innovate and respect customers. According to Fowler & Pryke (2003), Knowledge management involves creating, maintaining and providing access to vast reservoirs of knowledge in an organization that helps to delivering services to customers and creating a better understanding of internal operations and processes for employees. Serna (2012) believes that knowledge management involves using technology in order to make knowledge available all around the organization and argue that knowledge management involves an integration of systematic processes in order to select, organize and present information in such a way that ameliorates employees' understanding and corrects utilizing company's asset. Stamps (1999) considers knowledge management through an applied point of view with an active role. He defines knowledge management as providing required knowledge in specific place and time and also believes that owning knowledge it is not the best thing, but knowing the location and how to access it. Discussions in the knowledge management theories refer to knowledge as a significant source for the company. Knowledge-based approach makes the creation and applying the knowledge as company's essential mission (Stamps, 1999).

In this study in order to examine the knowledge management, a questionnaire represented by Gold et al., (2001) is used.

**Organizational Culture and Knowledge Management:** Organizational culture is one of the main success factors of knowledge management, emphasized by several researchers. Once an organization decides to establish a new system such as knowledge management, organizational culture is of the factors that must change without any hesitation. Since changing the values and beliefs that guide the behavior and performance of employees is slow and difficult, it has become one of the biggest challenges and obstacles that knowledge management system administrators face. For this reason, in an organization where established beliefs are considered as obstacles for the success of the knowledge management system, establishing such a system will be very difficult.

Culture plays a significant role in managing the created and distributed knowledge around the organization. Culture is unique combination of values, beliefs and behavioral patterns in an organization. The culture of an organization reveals the importance and benefits of knowledge management at the same time and as it impacts employees' desire to share knowledge, provides it as a valuable organizational input. Yeh et al., (2006) demonstrates that an effective knowledge management is dependent to organizational culture, administration methods and cooperation within and coordination among different levels of management. Thus, knowledge is revealed only when viewed through the perspective of organizational culture (Yeh et al., 2006).

**H3:** Organizational culture has a significant relationship with knowledge management.
**Organizational Structure and Knowledge Management:** Organizational structure is defined as an attribute of the organization in which individuals as well as positions are organized to gain higher performance. Choo & Neto (2010) state that the success of a knowledge management project entirely depends on providing the appropriate context which under its influences, knowledge creation and sharing might be possible. Organizational structure can be used as an influential ingredient in creating, combining, grouping and integration of knowledge produced by members of the organization (Martinez-León & Martinez Garcia, 2011). Without a formal structure member’s attempt to improve knowledge flow may disperse or remain inert (Okhuysen, 2002). The more structure is flexible and flat (in other words not being hierarchical), the more it encourage and facilitate communication among staff, leading to a successful implementation of knowledge management (Claver-Cortés et al, 2012). According to Skyrme (1999), the network structure will bring the most benefits of knowledge management. Network organizations with virtual teams allow production of high values, using unique combinations of skills, committed to each other when needed. This structure with a network of self-managed teams is able to respond quickly to changes and to re-array in urgent circumstances. Thus, in the network structure, teams are considered as the central parts of the production process (Skyrme, 1999).

**H4: Organizational Structure has a significant relationship with knowledge management.**

**Knowledge Management and Organizational Effectiveness:** Effective knowledge management is the heart of organizational performance (Gray & Densten, 2009). But in explaining the relationship between these two variables, a question arises: how can knowledge management assist organizational effectiveness? Rate it helps to improve performance and innovation. Integration of knowledge can lead to the development of product effectiveness, reduce condensation problems, warranty, and increase efficiency is to reduce the problem.

**H5: Knowledge Management has a significant relationship with Organizational Effectiveness.**

**Mediating role of Knowledge management:** In most studies, organizational culture and organizational structure has been evaluated as an independent variable that influences the organizational effectiveness.

Furthermore, it has been stated that knowledge and information are product of contextual factors, or in another words, company's organizational culture and organizational structure are underlying factors that have an impact on nature, creation and use of knowledge. Therefore, it can be argued that knowledge management can have a Mediating role on the impact of contextual factors on effectiveness.

There are very few studies regarding this issue. Zheng et al (2010) concluded that knowledge management has a strong impact on the relationship between organizational culture and effectiveness; while, in the relationship between structure and strategy is relative. The following hypotheses are presented pursuant to afore-mentioned content:

**H6: Knowledge management has a mediating role in the relationship between organizational culture and organizational effectiveness.**

**H7: Knowledge management has a mediating role in the relationship between organizational structure and organizational effectiveness.**

![Figure 1: hypothesized affects model](http://www.ijmsbr.com)
Data is collected through 131 questionnaires completed by managers from Mashhad's Science and Technology Park, With 0.93 Cronbach's Alpha indicating that research questionnaire is statistically reliable. Mean scores and descriptive statistics are calculated and tested through t-student test (figure 2).

![Figure 2](image)

One-Sample Statistics and t-test

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
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<td>2.52</td>
<td>.54</td>
<td>-10.26</td>
<td>130</td>
<td>.000</td>
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<td>-19.38</td>
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<td>.000</td>
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<tr>
<td>Organizational Structure</td>
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<td>-8.29</td>
<td>130</td>
<td>.000</td>
</tr>
<tr>
<td>Organizational Culture</td>
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<td>.55</td>
<td>-16.37</td>
<td>130</td>
<td>.000</td>
</tr>
</tbody>
</table>

![Figure 3](image)

Model results for direct and mediating effects

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Coefficients</th>
<th>Sobel Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC to OE</td>
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<td>Std.</td>
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<tr>
<td></td>
<td>Constant</td>
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<tr>
<td>KM on (OC to OE)</td>
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<td>KM on (OC to OE)</td>
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<td>KM on (OC to OE)</td>
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<td>.32</td>
</tr>
<tr>
<td>KM on (OC to OE)</td>
<td>OC</td>
<td>.21</td>
</tr>
</tbody>
</table>

| OS to OE   | B            | Std.  | Sig. | Z    |
|            | Constant     | .65     | .18  | .00  | 2.58** |
| KM on (OS to OE) | KM       | .37     | .07  | .00  |
| KM on (OS to OE) | Constant | .84     | .23  | .00  |
| KM on (OS to OE) | OS       | .35     | .08  | .00  |
| KM on (OS to OE) | KM       | .35     | .09  | .00  |

* Significant at the 0.05 level, ** Significant at the 0.01 level

KM=Knowledge Management / OC=organizational Culture / OE=Organizational Effectiveness / OS=Organizational Structure

In order to evaluate whether knowledge management plays a mediating role in the relationship between organizational culture and organizational effectiveness, thus H6 is to be accepted. As you can see in Figure 3, regression coefficients are shown. We name constant coefficient's unstandardized B and Std. Error for direct effect by a and S_a and those of mediating effect by b and S_b. Considering these variables an Interactive Mediation, Sebel Test is applied to survey presumed mediating role (through comparing it with corresponding Z). Sobel test statistic is computed as following:

\[
z = \frac{a \times b}{\sqrt{b^2 \times S_a^2 + a^2 \times S_b^2}}
\]

As can be noticed, Sobel statistic exceeds Z (1.96), indicating that hypothesized mediating role is significant, thus H6 is to be accepted. Applying same procedure in order to test remaining roles concluded that presumed mediating effects
in H7 is to be accepted (results shown in Figure 3). In regard to hypotheses H1, H2, H3, H4 and H5, Pearson Chi-Square Test along with Linear Regression analysis is utilized (Figure 4).

Figure 4
Pearson Chi-Square Test and Linear Regression Analysis results

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Chi-Square Test</th>
<th>Linear Regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Df</td>
</tr>
<tr>
<td>H1 OC ⊆ OE</td>
<td>37.87**</td>
<td>130</td>
</tr>
<tr>
<td>H2 OS ⊆ OE</td>
<td>37.78**</td>
<td>130</td>
</tr>
<tr>
<td>H3 OC ⊆ KM</td>
<td>30.80**</td>
<td>130</td>
</tr>
<tr>
<td>H4 OS ⊆ KM</td>
<td>30.80**</td>
<td>130</td>
</tr>
<tr>
<td>H5 KM ⊆ OE</td>
<td>37.78**</td>
<td>130</td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level, ** Significant at the 0.01 level

KM=Knowledge Management / OC=organizational Culture / OE=Organizational Effectiveness / OS=Organizational Structure

As can be seen, chi-square test results for H4 concludes a significant relationship between organizational structure and knowledge managements (sig. less than .05); while, linear regression results do not support presumed impact (regression sig. exceeds .05), suggesting a non-linear association between afore-mentioned factors. Despite this, results of other hypotheses (H1, H2, H3, H4 and H5) all support research assumed impacts.

Conclusion

The overall objective of this study was to investigate the organizational effectiveness and parameters have impacts on it. Effectiveness has been a crucial theme in organizational theories as organizations evaluate their performance through monitoring their organizational effectiveness. Today's organizations are constantly faced with the complex situations in competitive conditions, where internal and external circumstances keep unceasingly and rapidly changing. Thus, the need for financial and spiritual security and social interactions and communications are more than ever felt in organizations. Making organizational goals and employees' visions as well as management perspectives and strategies fit in order to adapt with ever-altering and multi-facet needs of stakeholders are of most duties assigned to executive managers. Although, quite difficult, but is essential to the success of the organization.

Therefore, for organizations which tend to secure optimal positions, elevating the effectiveness seems inevitable. Achieving this greatly depends on manager's ability to identify effectiveness's influential factors. Keeping these factors under control, the desired purpose can be achieved. The results of this study indicate that factors such as organizational structure and organizational culture can significantly affect organizational effectiveness, through both directly and with intervening mediating variable of knowledge management.

As Choo and Neto (2010) argued, the success of knowledge management depends on providing appropriate infrastructures and circumstances under which knowledge creation and sharing can be effective. Poor understanding and managing of factors affecting organizational effectiveness not only makes the enterprise's effort futile, but also brings about other negative consequences including undesirable organizational culture, reduced collaboration spirit among staff, Improper implementation of organizational strategies and knowledge deployment at different organizational levels.

When an organization acts successful consistently, a proper organizational is to be established through repeating of effective business practices, but when it fails to meet the expectations of stakeholders with whom to engage, changing the culture becomes crucial which is complex and time consuming. According to Peters and Waterman (1982), excellent organizations own strong cultures, because a strong culture leads to increased employee participation and consensus on strategic matters as well as organizational commitment, which later provide aligned perspectives between organizational and individual objectives. This is considered as an important factor in improving efficiency and productivity. A healthy culture provides an open, confident, creative, collaborative, practical, scientific, rational, logical and free-standing environment, potentially effective in making individual and organizational abilities useful (shahboghadian, 2005).

A strong organizational culture can significantly affect employees' commitment, increase the rigidity of their behavior and be a Successor to official regulations. Furthermore, strong culture makes individuals feel better about what they do, which finally leads to better performance and higher efficiency. Increased effectiveness might also result in improved living standards and enhanced well-being. In addition to culture, other variables including strategy,
structure and leadership play substantial roles in relation to the effectiveness. Because when organizational strategies are aligned with long-term corporate goals, efficient use of resources and achieving the desired status and effectiveness is more conceivable.

Moreover, the communication between members through organizational structure greatly impacts effectiveness.

References

