The Impact of Organizational Culture on Information Technology Practices and Performance

Li Xiao
The George Washington University, lilyxiao@gwu.edu

Subhasish Dasgupta
George Washington University, dasgupta@gwu.edu

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ABSTRACT

Researchers and practitioners acknowledge that organizational culture plays a vital role in information technology (IT) implementation and influences organizational performance. However, there has been little research in this area. We aim to address this gap in the information systems (IS) literature. Using Schein’s conceptualization of organizational culture, we analyze culture on three levels: underlying assumptions, espoused beliefs and values, and artifacts. Underlying assumptions refer to the unconscious and taken-for-granted beliefs, perceptions, thoughts and feelings that members of the organization share. Espoused beliefs and values are the espoused justifications including strategies, goals, and philosophies. Artifacts are the visible organizational structures and processes. We propose a research model that relates the culture of innovation and espoused values to IT practices and performance. Using a survey method, we plan to test the relationships among these constructs. We believe this study presents a significant step toward a better understanding of embedded values and assumptions that influence IT practices and performance.

Keywords
Information technology practices, organizational culture, corporate culture, performance.

INTRODUCTION

With rapid development of new information technologies (IT), organizations are eager to adopt emerging IT in their quest for survival and success. IT projects, however, often fall below expectations of managers in terms of their usefulness in improving organizational performance. A recent Standish Group survey (2001) found that 23% of IT projects completely fail and another 49% run over time and/or over budget. One of the reasons attributed to the high failure rate of IT projects is poor understanding and management of organizational culture (Kendra and Taplin, 2004; Lin, Tan, and Chang, 2002). Organizational culture is defined as “a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (Schein, 2004). However, there has been a dearth of research investigating how organizational culture impacts IT management practices and firm performance. In this study, we address this gap in academic research by examining the impact of organizational culture on management of IT and organizational performance. Our research questions are:

1. What is the relationship between organizational culture and IT management practices?
2. What is the relationship between IT management practices and organizational performance?

Rich and complex as organizational culture is, it is impossible to capture all aspects of the cultural phenomena in organizations. Therefore, this study focuses on a specific type of organizational culture that is especially associated with IT management – culture of innovation. Based on literature, we propose a model of culture of innovation and its relationship to IT management and organizational performance.

We believe the contributions of this study are two fold. Theoretically, this study will contribute to knowledge in the following aspects. Firstly, this study will address a gap in Information Systems (IS) literature by examining the relationship between organizational culture and IT. Secondly, this study will identify values and assumptions shared among organizational members that are more conducive than others to IT success and organizational performance improvement. Practically, the results of this study will help leaders create constructive organizational culture to improve IT success rate and organizational performance.
Organization of this paper is as follows. In the next section, we review relevant literature on organizational culture, IT practices and performance. Then, we introduce our theoretical framework and research model. After that, we discuss our research methodology and our plan for data collection and analysis. Finally, we report on the present status of this project and our conclusions.

LITERATURE REVIEW

In this section we examine literature from three different areas: organizational culture, organizational culture and IT, and organizational culture and performance. We look at each of these areas separately.

Organizational Culture

Organizational culture is among the major issues in both academic research and management practice, because the cultural dimension is central to all aspects of organizational behavior (Alvesson, 2002). Due to complexity and richness of culture, different researchers try to use various typologies to categorize organizational culture. Table 1 lists a few typologies that are influential in the organizational behavior field.

<table>
<thead>
<tr>
<th>Author (Date)</th>
<th>Dimensions</th>
<th>Organizational Culture Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etzioni (1975)</td>
<td>-Participation</td>
<td>-Coercive organizations</td>
</tr>
<tr>
<td></td>
<td>-Involvement</td>
<td>-Utilitarian organizations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Normative organizations</td>
</tr>
<tr>
<td>Goffee and Jones (1996)</td>
<td>-Solidarity</td>
<td>-Fragmented</td>
</tr>
<tr>
<td></td>
<td>-Sociability</td>
<td>-Mercenary</td>
</tr>
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<td></td>
<td></td>
<td>-Communal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Networked</td>
</tr>
<tr>
<td>Cameron and Quinn (1999)</td>
<td>-Stability/ flexibility</td>
<td>-Clan</td>
</tr>
<tr>
<td></td>
<td>-Internal/external focus</td>
<td>-Hierarchy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Adhocracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Market</td>
</tr>
</tbody>
</table>

Table 1. Typologies on Organizational Culture

The theories mentioned above help us understand organizational culture, but when organizational culture interacts with other factors such as the IT management, we need to look at literature on the relationship between organizational culture and IT which is the next sub-section.

Culture and IT

Scholars agree that culture and IT practices are closely related (Doherty and Doig, 2003; Huang, Newell, Galliers, and Pan, 2003). Researchers examine culture and IT at different levels of analysis (Erez and Gati, 2004; Karahanna, Evaristo, and Srite, 2005). Some studies analyze the influence of national cultural backgrounds on IT practices such as (Bagchi, Hart, and Peterson, 2004; Walsham, 2002). Several studies attribute IT success to organizational culture (Schein, 2003). In recent years, IS field has witnessed a growth of interest in culture and organizational culture. In a special issue of IEEE Transactions on Engineering Management journal devoted to cultural issues and IT, editors Davison and Martinsons (2003) evaluate this trend and call for more studies on the topic. Specifically, they emphasize the importance of understanding the “how” and “why” of cultural differences. Our study aims to answer those questions by trying to identify the deeply embedded assumptions and values of organizational members that support IT practices and performance. In addition to research on organizational culture and IT, researchers have also examined the relationship between culture and performance.

Organizational Culture and Performance

Scholars have been trying to associate organizational culture with financial performance for years (Denison, 1990; Kotter and Heskett, 1992; Nahm, Vonderembse, and Koufteros, 2004). Denison (1990) constructs a model of four cultural factors including mission, consistency, adaptability, and involvement as influencing organizational effectiveness. Kotter and Heskett (1992) argue for adaptive culture to improve performance. Studies in this area show mixed results primarily due to a number of issues such as measurement, level of analysis, and ambiguity of cultural analysis (Alvesson, 2002).

Based on our review of literature on organizational culture we decide to use Schein’s culture theory, a dominant theory in this area. We review this model next.
Organizational Culture Model

Schein (2004) proposes a three-level organizational culture model, which reflects the visibility of cultural phenomena to observers. When one approaches an organization, all the phenomena that s/he sees, hears and feels are the most visible level of culture – artifacts, which are extremely rich but difficult to decipher. In trying to understand the meanings of artifacts, one must analyze the principles that guide those artifacts, which are the middle level in the model – espoused beliefs and values. At the deepest level of organizational culture, underlying assumptions refer to the taken-for-granted beliefs, perceptions and thoughts that members of the organization share.

Schein’s model is well received by scholars and many studies draw on his theory. For example, Nahm et al (2004) apply his model in manufacturing industry; Haugh and McKee (2004) use it to examine the cultural values of small firms. In addition, different studies focus on the various levels of organizational culture specified by his model (Erez and Gati, 2004).

We adopt Schein’s model in our research because of its theoretical rigor and practical relevance to organizations. In the next section we present our research model based on Schein’s theory of culture.

THEORETICAL FRAMEWORK

Research Model

Our research model is illustrated in figure 1. We explain details of this model next.

<table>
<thead>
<tr>
<th>Underlying Assumption - Culture of Innovation</th>
<th>Espoused Beliefs and Values –</th>
<th>Artifacts – IT practices</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teamwork</td>
<td>Process/results-orientation</td>
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<td>Leadership</td>
<td>Employee/job-orientation</td>
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<td>Continuous Learning</td>
<td>Parochialism/professionalism</td>
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<td>Customer orientation</td>
<td>Open/closed system</td>
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<td>Loose/tight control</td>
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<td>Normative/pragmatic orientation</td>
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</table>

Figure 1. Research Model

Underlying Assumptions

In trying to identify the underlying cultural assumptions that are conducive to IT success, many scholars argue for a culture of innovation. Culture of innovation is defined as a set of underlying assumptions that center on innovation. Here innovation is the ability to craft often radically new solutions or products, which is often viewed as one of the sole sustaining competitive advantages of the modern firm\(^1\). Researchers agree that innovation is the basis of all competitive advantage, which enables organizations to fill customer needs and utilize technology (Brown and Ulijn, 2004; Schumann, Prestwood, Tong, and Vanston, 1994). Based on Schein’s theory, we propose that in an organization where innovation is the center of organizational culture, leaders and managers will espouse a number of values that support this assumption, which are elaborated next.

\(^1\) [http://www.sims.berkeley.edu/courses/is213/s99/Projects/P9/web_site/glossary.htm](http://www.sims.berkeley.edu/courses/is213/s99/Projects/P9/web_site/glossary.htm), retrieved on 2/26/05.
Espoused Beliefs and Values

Espoused beliefs and values provide members of an organization with day-to-day operating principles, norms and rules (Schein, 2004). In this study, we propose that following values reflect the underlying culture of innovation. Teamwork is often emphasized in successful innovation and IT projects (Kendra and Taplin, 2004; Nahm et al., 2004; Sheng, Pearson, and Crosby, 2003). Leadership is regarded as crucial in implementing innovative IT projects and organizational performance (Nahm et al., 2004). Continuous learning of members of an organization is generally accepted as important in achieving success of IT projects (El_Sawy, 1985; Kendra and Taplin, 2004). Customer orientation is frequently mentioned as a critical value in innovation projects and improvement of organizational performance (Kendra and Taplin, 2004; Nahm et al., 2004).

Artifacts/Practices

Artifacts include all organizational structures and processes. IT is regarded as a part of cultural artifacts in organizations (Schein, 1984). IT management practices practically cover all aspects that one encounters when entering an organization. The types of computers used, the physical environment of IT department, IT expenditure, IT training practices, and technical support procedures are just a few examples of IT management practices. Faced with the rich phenomena of IT artifacts, the challenge for researchers is to correctly decipher them (Schein, 2004). Hofstede et al (1990) develop a measurement instrument that helps us to decipher and understand practices of organizational culture. They measure cultural phenomena on several dimensions, including process/results-orientation, employee/job-orientation, parochialism/professionalism, open/closed system, loose/tight control, and normative/pragmatic-orientation. In our study, we adopt this instrument and modify it to appropriately measure IT practices in organizations. In the section that follows we will discuss the research methodology that we use and report on the current status of our project.

RESEARCH METHODOLOGY AND CURRENT STATUS

Based on our research design, we plan to use questionnaire survey to collect data. Measurement instruments will be developed when necessary (Nahm et al., 2004). Instruments developed by Hofstede et al (1990) will be adopted and appropriately modified to assess IT practices, and financial indicators including sales growth and return on investment will be used to measure performance (Nahm et al., 2004). Currently we are identifying potential constructs and developing our questionnaire. We are also identifying organizations for data collection. We plan to collect data in the next few months. After the data are collected, hypotheses testing will be carried out through structural equations modeling.

CONCLUSION

There is increasing interest in examining the role of organizational culture on IT management practices and the subsequent impact on the organization. Organizational culture is highly relevant for understanding practices that characterize organizations and for predicting their success. In a complex and competitive business environment, it is crucial that leaders create a culture that facilitates innovation and IT management practices in order to improve organizational performance. This study will be a positive step in the conceptualization and empirical support of culture of innovation that promotes IT and performance.

REFERENCES