A Study of the Effect of Organizational Culture on Management Information Systems Adoption; West Azerbaijan’s Public Organizations Case Study

1PhD Soleiman Iranzadeh, 2PhD Student Kiarash Yazdanfar, 3PhD Student Ghafoor Ahmadi

1Department of Management, Tabriz Branch, Islamic Azad University, Tabriz, Iran.
2Department of Management, Bonab Branch, Islamic Azad University, Bonab Iran.
3Department of Management, Bonab Branch, Islamic Azad University, Bonab Iran.

ABSTRACT
Objective: Today, information systems are changing into a very crucial sector in organizations. From three decades ago, an increasing growth throughout the world has been emerging in achieving information systems. However, research points out that reports of management information system failure are growing. This is not simply linked with technical issues, yet it is due to a vast range of social, organizational, and economic issues. However, the effect of organizational culture on the adoption of management information systems is not clearly perceived. Materials and Methods: The purpose of the study is to examine the effect of organizational culture on management information systems adoption in the public organization of West Azerbaijan’s Province, for which 335 questionnaires were distributed among 18 public organizations of West Azerbaijan Province. Results: A model proposed by Quinn and Cameron (1999) was used to measure organizational culture. The results of the research revealed that organizational culture impacts on the adoption of management information systems.

INTRODUCTION

The late 1990s and early 2000s brought up the age of “information technology”, as we are witnessing a massive use of information systems around the world. Organizations are applying modern technologies in order to get a competitive advantage. They allocate a certain amount of financial resources for information acquisition, management, and integration in order to come up with better services and products. Adopting every technology, particularly information technology and communication, tends to change related working practices and requires new design of human activities [9]. A large number of organization throughout the world have accepted information management systems, but they still have not understood the benefits of their systems. Adopting and applying management information systems (MIS) are time consuming and costly as they have partially low success rate. In a study conducted by Legris, et al [4] it is shown that only 26% of information management system projects are implemented on time in accordance with budget drawn up, while 46% of projects are carried out with delay beyond allocated budget, and 28% of them are terminated. Introducing appropriate information management is a formidable task, because it is fundamentally influenced by organizational culture [5]. Culture is viewed as a factor influencing information technology introduction, and it can prevents an attempt to implement information technology due to difference in how information technology is interpreted [2]. When there is an attempt to manage organizational change in a widely range, culture is an important factor and conceived as an important part of information management system in an organization [6]. Given the fact that governmental organization is part of organizations that become involved in management information system introduction, and considering the rate of failure in the adoption of information management systems and high cost of management information system project, we face the question “what effect does cultural organization have on the adoption of information management systems??”. The article seeks to investigate the effect of organizational culture on the adoption of management information systems in administrative organizations of Qazvin Province. In order to assess the effect of organizational culture on the

Corresponding Author: PhD Soleiman Iranzadeh, Department of Management, Tabriz Branch, Islamic Azad University, Tabriz, Iran.
E-mail: Dr.eranzadeh@yahoo.com
adoption of management information systems, a model of organizational culture developed by Quinn and Cameron is used in this paper; tribal culture, adhocracy, market culture, hierarchical culture. Moreover, Davis’ model, technology acceptance model, was used to evaluate the level of acceptance.

Research background:
In a study of the competing values framework for management information system, [3], came to the conclusion that the four quadrants of the competing values framework (open system, human relations, rational goal, internal process) exert a positive and direct effect on management information. Shanks et al [7] studied vital factors of information system acceptance success in terms of culture in China and Australia by using Hofstede’s model of social culture. They found out that social culture play a pivotal role on the successful adoption of management information systems in china. Hong and Kim studied vital and success factors in the adoption of management information systems from an organizational point of view, concluding that organizational fit, organizational strength, and organizational culture play a key role in the successful adoption of management information system within an organization. Caldeira and Ward [2] studied the successful adoption and use of management information systems in small and medium Portuguese enterprises, identifying 2 factors in the adoption of MIS from a cultural point of view [2].

1. Management attitude toward management information system adoption
2. Development of internal capabilities of management information systems

Srinivasan et al. [8] carried out a study entitled “technological changes and technology acceptance”, where the effect of organizational culture on technology acceptance was addressed. The results indicate that there is a direct relationship between adhocracy culture and technology acceptance, as there is an inverse relationship between hierarchical culture and technology acceptance. A research entitled “the effect of organizational culture on the adoption of information system and information technology”, in a Libya case study by Twati et al [9]. The study explores the effect of organizational culture on the adoption of information systems in Libyan oil and banking sectors. In the research, Cameron and Quinn’s questionnaire was used; 400 questionnaire were distributed among senior managers and foundations in more than 15 state and public organizations in oil and banking sectors. The findings of the study indicate that there is a relationship between information system and organizational culture. As well, they suggest that there is no difference between organizational culture and both sectors in question. Lopez and Morono [5] conducted a study entitled “a review of the effect of organizational culture on the use information and communication technology”. In the research, Quinn and Cameron’s model of organizational culture was utilized.

Research hypotheses:
Main hypothesis: organizational culture has an effect on management information systems adoption.

Subsidiary hypothesis:
Hypothesis 1: tribal culture has an effect on management information systems.
Hypothesis 2: adhocracy culture has an effect on management information system adoption.
Hypothesis 3: market culture has an effect on management information systems adoption
Hypothesis 4: hierarchical culture has an effect on management information systems adoption.

Research method:
The research method used in the study is correlational. It is an applied research in terms of purpose, because applied research seeks to accounts for problems raised. In order to analyze data and extract descriptive and inferential statistics, software

Population and statistical sample:
The statistical population of the research include employees working in public organizations of Qazvin City. The 62 district public organization in the center of Qazvin Province included five sectors; manufacturing, infrastructure-based, research education culture-based, social affair, and public affair. The categorization was conducted by Development Planning Committee of the province. Thus, 18 organizations were considered for the present study.

Sample size and sampling:
Krejcie and Morgan table was used to determine sample size. Given the fact that the size of statistical population is equal to 1905 individuals, the size of the sample determined by Krejcie and Morgan table amounted to 320 individuals.
The data collection instrument of the research is questionnaire, which consists of two parts:
A) Organizational culture:
Quinn and Cameron’s standard questionnaire was used for organizational culture measurement. This consists of 6 items that each in turn include four alternatives. For each item, respondent is asked to rate his organization with 5,20,25,50 scores; the highest similarity receives score 50 as the lowest obtains score 5.

B) Adoption of management information system:
Davis’s standard questionnaire was also used to measure management information system. It is comprised of 13 items.

Test hypotheses:
To evaluate the impact of organizational culture (tribal, adhocracy, market, hierarchy) as independent variable on the adoption of management information systems (as dependent variable), a logistic regression analysis was performed. The full model which included all predictors was statistically significant (chi-square = 75.853 and df =4 and sig=0.001).

Omnibus Tests of Model Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>75.853</td>
<td>4</td>
<td>0.001</td>
</tr>
<tr>
<td>Block</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results revealed in table 2 confirm the efficiency of our model. The value of the chi-square for Hosmer-Lemeshow (12.032) came with 0.15 significance level, the value was more than 0.05, so it confirms our model. Hosmer and Lemeshow Test

<table>
<thead>
<tr>
<th>Step</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.032</td>
<td>8</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Table 3 indicate a change value in the dependent variable, which is shown by the model. The values 0.464 and 0.913 which indicate that the model (from 46.4% up to 91.3%) Cox and Snell R square and Square Nagelkerke R can explain management system adoption variance.

<table>
<thead>
<tr>
<th>Step</th>
<th>(-\log_{10}) Likelihood</th>
<th>Cox &amp; Snell R Square</th>
<th>Nagelkerke R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.48</td>
<td>0.464</td>
<td>0.913</td>
</tr>
</tbody>
</table>

Hypothesis test 1: tribal culture has an effect on management information systems

<table>
<thead>
<tr>
<th>Step</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig</th>
<th>Exp(B)</th>
<th>95% C.I. for EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Tribal culture</td>
<td>.033</td>
<td>.012</td>
<td>6.611</td>
<td>1</td>
<td>.010</td>
<td>1.037</td>
<td>1.008</td>
</tr>
<tr>
<td>Adhocracy culture</td>
<td>.056</td>
<td>.030</td>
<td>3.504</td>
<td>1</td>
<td>.061</td>
<td>1.059</td>
<td>.997</td>
</tr>
<tr>
<td>Market culture</td>
<td>-0.045</td>
<td>.016</td>
<td>5.963</td>
<td>1</td>
<td>.015</td>
<td>.963</td>
<td>.934</td>
</tr>
<tr>
<td>Hierarchical culture</td>
<td>-0.083</td>
<td>.032</td>
<td>6.608</td>
<td>1</td>
<td>.010</td>
<td>.920</td>
<td>.865</td>
</tr>
<tr>
<td>Constant width</td>
<td>11.394</td>
<td>3.791</td>
<td>8.920</td>
<td>1</td>
<td>.003</td>
<td>82329</td>
<td></td>
</tr>
</tbody>
</table>
Dependent variable: management information system adoption:

As can be noticed in table 3, significance level of tribal culture equals 0.010, which is less than 0.05 and therefore indicate that tribal culture has an effect on management information systems. Thus, the null hypothesis is rejected. The effect of tribal culture on management information system adoption is positive. This means that the growth of tribal culture in the public organizations of Qazvin province have greater tendency to adopt management information system.

Hypothesis test 2:

As can be noticed in table 3, significance level of adhocracy culture equals 0.061, which is greater than 0.05, and therefore indicate that adhocracy culture has no effect on the adoption of management information systems. 

Hypothesis test 3:

As can be seen, significance level of market culture equals 0.015, which is less than 0.05. Thus, it indicates that market culture has an effect on the adoption of management information systems. Therefore, the effect of market culture on the adoption of management information systems is negative. This means that as market culture develops in the public organizations of Qazvin Province, employees have less tendency to adopt management information systems.

Hypothesis test 4:

As can be seen in table 3, significance level of hierarchical culture equals 0.01, which is below 0.05. Thus, it indicates that hierarchical culture has an effect on the adoption of management information system. Hence the effect of hierarchical culture on management information system adoption is negative. This suggests that as hierarchical culture develops in the public organizations of Qazvin Province, employees have less tendency to adopt management information systems.

Main hypothesis test: organizational culture impacts on the adoption of management information systems:

Given the fact that tribal, market, and hierarchical cultures had an influence on the adoption of management information systems, i.e. hypotheses one, three, and four. As a result, we can conclude that organizational culture impacts on the adoption of management information systems.

Conclusion:

The purpose of the study was to examine and study the effect of organizational culture on the adoption of management information systems in the public organizations of Qazvin Province. The model offered here examined the effect of four types of organizational culture (tribal, adhocracy, market, and hierarchical) on the adoption of management information systems as well as two variables, i.e. perceived usefulness and perceived ease of use. Organizational culture presented in the research drew on organizational culture of Quinn and Cameron, and the model of management information systems adoption originates in Davis’ technology acceptance model. As mentioned in chapter four, dominant organizational culture of public organizations of Qazvin province is a hierarchical culture. Thus, the result is in line with that of Quinn and Cameron, because they associated the organizational culture governing public organizations with hierarchical organization.

The first hypothesis states that tribal culture impacts on management information systems adoption. The results of the research indicate that the effect of tribal culture on management information systems adoption is significant, and its effect is positive and direct, i.e. as tribal culture develops, so does management information systems adoption in the public organizations of Qazvin. Thus, the first hypothesis is confirmed. The result is consistent with the achievements of Coper and Quinn, and Lopez and Morono [5], while it is not in line with the results of Twati, Serinoasian et al.

The second hypothesis holds that culture of adhocracy has an effect on management information systems adoption. The results of the research indicate that the effect of adhocracy culture on management information systems adoption is not significant, and it is not confirmed. The result was consistent with the achievement of Twati [9] Considering the fact that culture of adhocracy received the lowest score among the public organizations of Qazvin Province, and the dominant culture of the organization is hierarchical. Thus, adhocracy culture has no effect on management information systems adoption [9].

The third hypothesis states that market culture has an effect on management information systems adoption. The result of the research shows that the effect of market culture on management information systems adoption is significant, and its effect is inverse. That is to say, as market culture develops in the public organizations of Qazvin Province, the adoption of management information system will decline. Thus, the third hypothesis is confirmed. The result of the research is in line with the achievements of Twati [9], Serinoasian et al., and Lopez and Morono [5], and it is not consistent with that of Copper and Quinn.

The fourth hypothesis holds that hierarchical culture has an effect on management information systems adoption. The result of the research shows that the effect of hierarchical culture on management information
systems adoption is significant, and its effect is inverse. That is to say, as hierarchical culture develops in the public organizations of Qazvin Province, the adoption of management information system will decline. Thus, the fourth hypothesis is confirmed. The result of the research is in line with the achievements of Twati [9], Serinoasan et al., and Lopez and Morono [5], and it is not consistent with that of Copper and Quinn.

REFERENCES