

Investigating The Effect Of Organizational Culture On Management Information Systems(MIS) Adoption (Qazvin Province Public organizations)

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Abstract: Management Information Systems (MIS) have great advantages for organizations. However, many organizations, currently haven't received the predicted benefits of MIS. In addition, most of organizations have left the adoption process due to high costs. Adoption and enforcement of management information system (MIS) are time consuming, expensive and relatively successful. Therefore, some strategies have to be applied to guarantee this system enforcement success in organizations. In adoption of information systems, culture needs to be understood and considered. If an organization follows an information management strategy in a complete accordance with existing culture, it will place in a better situation and is able to manage organizational culture changes effectively. The present study along side, aims to evaluate the impact of organizational culture on management information system (MIS) adoption in public organizations, Qazvin province. In this study, to measure the impact of organizational culture and management information systems (MIS), Denison's organizational culture model (2000) used that includes 4 dimensions of organizational culture i.e. compatibility, flexibility, mission and engaging in work. Also, to assess adoption of management information systems rate, Davies' (2000) model of technology adoption applied. Findings show that organizational culture based on Denison's model affects on management information systems.

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1. Introduction

Information technology is rapidly developing and cause fundamental changes in process of decision making and inside organization planning. Moreover, IT increases productivity, and efficiency in organization that in return leads to excellence and good quality in products and productive services, competition power enhancement, creativity and invention of modern products making big technical developments and finally economic development of countries (Ebrahimi Nejad & Hossein Zadeh, 2009).

MIS consists of a comprehensive information system that if performed in organization will decrease most of professional problems and additional expenditures.

Standish group in 2004 reported extensively that 40000 MIS projects in total carried out from 1994 to 2004. Among them 15% haven't been finished though, more than 50% indicate time and cost significantly (Culkov & Desai, 2008).

Thus, the present study is going to assess the impact of organizational culture on management information systems (MIS) to present a successful strategy for establishment of management information systems (MIS).

2. Statement of problem

Many of organizations all around the world have adopted MIS; however, a complete understanding of its advantages is missing. Additionally, most of organizations have left the adoption process after they lost money. Unfortunately, the adoption and enforcement of MIS is time consuming and costly and less success expected. A study carried out by Standish group show that only 26% of MIS projects performed on time and given budget allocated, 46% are higher than budget and 28% canceled (Legris, Ingham & Collette, 2003).

One of largest risks of failure is huge distance between realities and MIS adoption in a company (Heeks, 1999). Senior managers urged to understand IT importance in reaching organizational goals and success (Sarafi Zadeh 2007, p.22). Knowing about re-planning and systems failures will affect on performance (Sarafi Zadeh, 2007, p.61). If the decision makers forced to blindly imitate rivals and get extremely absorbed in new technology, inner policy of organization with managers and users who resist to could defeat organization endeavors in

investment on MIS that practically support the strategy (Bush, 2009).

Many factors engage in MIS failure. To name some, organizational, social and technical factors are effective on MIS failure (Rasmy, Tharwat & Ashraf, 2005). A system adoption principally will be under the influence of organizational culture (Kremers & Dissel, 2000). Culture is an element influencing on how much and in what direction IT will be accepted. According to Rodrigues-Diaz and Robey, culture could act as an obstacle for implementation of IT due to difference in interpretation and meaning of IT (Bagchi, Hart & Peterson, 2004).

When attempts for management of organizational changes happen in a broad level, culture will formed as an important factor in MIS adoption in the company. In a general sense, culture is a symbolic learned system shared by values, norms, attitudes and beliefs that affects and forms knowledge, performance and activities inside a group or nation which are different thoroughly from each other (Dastmalchian & Lee, 2000).

Responding to present and future needs and expectations of community in domain of IT and MIS has created conditions organization to be able to survive forced to use IT in order to develop the organizational efficiency.

Since public organizations are among those companies adopting MIS, considering rate of failure and high cost in MIS adoption and projects, this question raises that what's the impact of organizational culture on MIS adoption? (Varmzyar, 2010, p.5).

As a result, this paper specifically is going to focus on the impact of organizational culture on MIS adoption in public firms, Qazvin province. Finally, main research question proposed as what is the effect of organizational culture on MIS adoption?

3. Background

Rahim Nia and Alizadeh(2009) in their study named " evaluation of organizational culture dimensions based on Denison's model from Ferdowsi university faculty point of view" identified the dimensions and indicators influencing on organizational culture at Ferdowsi University. Denison's model formed of 4 main dimensions i.e. compatibility, flexibility, mission and engaging in work used and 101 people selected as sample population through Cochran formula. Therefore, using multivariate variance analysis due to comparison of 4 dimensions in one hand and 12 indicators together on the other hand. It was cleared that dimensions and indicators differ significantly together. Additionally, factor analysis results showed

that from respondents view, vision affects greatly organizational culture. In a study" evaluation of organizational culture impact on MIS adoption " Varmzyar(2009) assessed Qazvin public organizations based on Quinn's model. it was concluded that hierarchical culture has a diverse relationship with MIS adoption. That is to say, more this culture exists in an organization, less MIS adoption occurs. Gupta and Dasgupta (2010) carried an investigation named "organizational culture and using technology in a country progress" assessed Indian public organizations. They came to this conclusion that application of organizational culture for being successful and compatible with technologies has to be accurately managed and change management techniques should be used to help better changing in organizations.

Allameh et al (2011) in their study "The relationship between organizational culture and knowledge management: (A case study: Isfahan University) stated that knowledge is a fundamental factor in sustainable development and plays a vital role in competitive dimensions of organization. In this study, the relationship between 4 dimensions of organizational culture and 6 dimensions of knowledge management was estimated. Moreover, every relationship between organizational culture and aspect of knowledge management analyzed. To assess difference in cultures available in company, the theoretical framework provided by Comeron Quinn used.

In this paper to investigate about research hypotheses, Pearson's correlation coefficient and step-by- step regression used. They concluded that a meaningful relationship exists between organizational culture and knowledge management.

Jackson (2011) considered in a research, "culture and information systems adoption: A three- vision approach", organizational culture as a factor in success or failure of company in implementation of MIS. He believes that there challenges in relation to studies carried out in this domain. In his study, Jackson has attempted to assess and solve those challenges. Thus, all of organizational culture dimensions are taken into consideration. He combined 3 visions on culture presented by Martin including integration, discrimination, and fragmentation with group and network theory and studied achieved results. Also, he suggested some for increasing conception level against IS culture

4. Research hypotheses

The main hypothesis for this paper involves: organizational culture affects on management information systems (MIS).

Furthermore, minor assumptions are formed as follows.

1. Compatibility dimension influences management information systems (MIS).
2. Dimension of engagement in work influences management information systems (MIS).
3. Mission aspect has an effect on management information systems (MIS).
4. Dimension of flexibility affects on management information systems (MIS).

5. Statistical population

The statistical population in this study includes employees working in public organizations in Qazvin city. 62 organizations are available in capital city of Qazvin province divided into 5 groups such as productive, infrastructure cultural – educational, social and general affairs. This classification prepared by the planning group of official development. For present investigation 17 companies were selected.

6. Research variables

Independent variables consist of (compatibility, engagement in work, mission and flexibility dimensions) and dependents like (management information adoption) and mediator variables (perceived usefulness and easiness).

7. Research method

It is a kind of descriptive study. The most common instrument for carrying descriptive studies out is survey. Thus, the survey chose as research instrument. Also, mathematical and statistical analyses performed to confirm a fact or test a hypothesis. Field methods including observation, interview, and questionnaire selected for gathering data. Among them, questionnaire was the appropriate instrument. For data analysis, descriptive statistics

and SPSS software used. Denison's model for assessment of organizational culture and Davis's model for management information systems adoption applied. The variables of this study measured by linear regression analysis.\

8. Measurement of research hypotheses

Since linear regression operates with assumption of existing linear relationship between dependent and independent variable, in present study represents MIS (dependent variable) and x organizational culture with each dimension based on Denion's model (impendent variable). To assess appropriateness of regression model, following hypotheses are posed.

H1: regression model is appropriate

H0: regression model is inappropriate.

To evaluate these hypotheses regression model and SPSS software used and the achieved results shown in table 1. R2 gives percent or ration of total change in dependent variable y that is explained by independent variable x and has 2 characteristics:

1. it's a positive quantity.
2. It limits between 0-1. When coefficient of determination equals 1, regression line had accurately contributed changes of y to changes of independent variable x and the model is fitted. But if coefficient of determination equals 0 it shows that regression line has never contributed dependent variable changes to independent and it isn't fitted.

Therefore, much this number closer to 1 it's a good indication of model appropriateness. According to the table, coefficient of determination for all of variables is near to 1 that is signal of appropriateness. Since sig is smaller than 0.05, the counterpart hypothesis rejected and statistical hypothesis approved with 95% of confidence. So, the regression model is suitable for all of variables in this study.

Table 1: Regression model results

R ²	Sig	F statistic	Model
0/94	0/0	5004/00	Organizational culture
0/94	0/0	4601/95	Compatibility dimension
0/93	0/0	3939/04	Dimension of engagement in work
0/93	0/0	3918/66	Mission dimension
0/93	0/0	3853/90	Flexibility dimension
0/92	0/0	3308/48	Perceived usefulness
0/93	0/0	3630/67	Perceived easiness

It is coefficients of independent variables that shows each of variables changes. Indeed, β shows by one unit change in independent variable

how much β change happens in dependent variable. Table 2 presents the amount of independent impact on dependent variable.

Table 2: Regression coefficients for determination of β

Standardized coefficients of β	Sig	statistic t	Non-standard coefficients B Slope of line	Model
0/970	00/0	70/74	0/22	Culture
0/967	00/0	67/83	0/9	Compatibility dimension
0/962	00/0	62/76	0/88	Dimension of engagement in work
0/962	00/0	62/60	0/84	Mission dimension
0/961	00/0	62/08	0/89	Flexibility dimension
0/955	00/0	57/52	2/15	Perceived usefulness
0/959	00/0	60/25	2/17	Perceived easiness

Based on received results for sig of variables on table 2, all of variables are in lower than significant level of 0.05%, therefore null hypothesis rejected and H1 approved in 95% level of confidence.

Accordingly, it could be concluded that among different dimensions of organizational culture, the compatibility have highest impact on MIS adoption and engagement in work and mission equally are effective on MIS adoption and place in second rank. The third is occupied by flexibility. Finally, in main hypothesis organizational culture

holds highest impact on MIS adoption and perceived usefulness has the lowest.

Following, step-wise analysis of independent variables added in each stage and if are effective on coefficient of determination it is fitted and forms a model and if no impact it has, no model created. Now, compatibility makes the first model, compatibility and engagement in work the second, the third is compatibility, engagement in work and mission. Flexibility carried no impact on coefficient of determination so no model formed. The summary of results is presented in tables 3 and 4.

Table3: Regression model summary of organizational culture dimensions based on step-wise analysis

R ²	Sig	F statistic	Model
0/967	0/00		Compatibility
0/969	0/00	2423/16	Compatibility dimension+ dimension of engagement in work
0/970	0/00	1682/39	Compatibility dimension+ dimension of engagement in work + mission dimension

Table 4: regression coefficients of organizational culture dimensions based on step-wise analysis

Standardized coefficients of β	Sig	Statistic t	Non-standard coefficients B line slope	Model
0/967	0/00	67/760	0/90	Compatibility
0/651	0/00	8/431	0/610	Compatibility+
0/321	0/00	4/159	0/295	engagement in work
0/363	0/001	3/308	0/340	Compatibility
0/318	0/00	4/198	0/293	engagement in work+
0/295	0/00	3/628	0/257	mission

Through step-wise analysis the interface variables added to organizational culture though no impact it had on coefficient of determination of the model.

In another analysis, interface variables separately added to organizational culture that here again interface variables didn't influence coefficient of determination.

According to obtained information of data analysis (descriptive and inferential statistics) it was cleared that organizational culture was effective on MIS adoption and interface variables are influencing on MIS adoption as well. So, the main hypothesis is approved that is to say organizational culture affects MIS adoption.

9. Discussion and conclusion

According to results of the first hypothesis compatibility dimension with 0.967 regression coefficient is influential on MIS adoption that based on Denison's model it contains the highest impact on MIS adoption. To take it into consideration, the leaders and employees consensus of opinions for solving problems and reaching organizational goals leads to establishment of a powerful and distinctive culture that this in itself changes into the dominant culture and affects employees' behavior.

Cheung, Wu and Wong studies reveals that an organization which follows a culture with clear and fixed objectives has less external focus and emphasizes on innovation more slightly. Consequently, concerning organizational culture will play a crucial role in determination of goals and level of employee compatibility with the organizational changes. More powerful this culture, more MIS adoption takes place.

This also is in accordance with Dasguta and Gupta investigations on Indian public organizations that application of organizational culture to get succeeded and adapted has to exactly direct. The change management techniques might be beneficial in making better changes.

The second hypothesis measures engagement in work impact on MIS adoption. After analyses presented in chapter 4, this result achieved that engagement in work influences MIS adoption with 0.962 coefficients of regression. That is to say, three main indexes of this dimension as empowerment, team building and development of employee capabilities have an effect on MIS adoption by employee. Therefore, the commitments of empowered persons increase and they belong themselves as part of whole organization.

According to Varmzyar studies in 2009, hierarchical culture has a diverse relationship with MIS adoption. That is to say, higher it is in the organization, MIS adoption decreases. So it could be concluded that more engagement in work and the staff increasingly participate in decision making process and belong themselves as a part of the company, MIS adoption raises as well.

The third hypothesis results showed that the mission dimension of organizational culture is influential with 0.962 regression coefficient on MIS adoption. Regarding this, creation of new culture will be logically produced by determination of strategies and visions of the organization. As Rahim Nia nad Alizadeh studies show, the vision makes the most impact on organizational culture. Based on these results, this conclusion comes to mind that if organizational strategies go well in accordance with organizational culture and the developing and

implementing strategies and visions progress in complete interaction with organizational culture, then MIS adoption increases.

Furthermore, fourth hypothesis analysis indicates that the flexibility dimension with 0.961 regression coefficient is effective on MIS adoption. That is a good symptom that internal consistency and external integrity and flexibility cause increase of company's ability to improve continuously. In a study carried out by Zahedi(2002) observed that difference in efficiency of insurance companies is only possible to explain through flexibility in organizational culture.

Two interface variables, perceived easiness and benefit were effective on MIS adoption either. The coefficients of regression 0.955 and 0.959 approved this impact statistically.

The regression coefficient 0.970 for the first hypothesis shows it is approved. Therefore, organizational culture has the most impact on MIS adoption. Png, Tan and Wee (2001) studies took place among 153 organizations in 24 countries proved that dimensions of national culture are of effective factors in reception of IT infrastructures. Farah (2011) found that the relationships of organizational culture will appear based on Denison's model in line with environmental culture. Eventually, as the findings show the role of organizational culture on MIS adoption is remarkable.

10. Suggestions

Concerning the permanent culture, the level of MIS adoption could be increased or decreased. To maximize impact of organizational culture and as a result MIS adoption a few strategies might be recommended. Coordination and agreement among managers and employees cause consistency and consequently efficiency increases. By increasing the role of staff members in all levels process of decision making, their sense of effective role in the company expands the strategies, missions and visions specified in line with the organization goals will be determined. Using employee empowerment and developing their skills, reaching goals and implementing strategies will be possible.

More the person feels relaxed against MIS usage, more probably he uses it. Therefore, first the organizational conditions and permanent culture have to be assessed. Then according to current situations in the company, the rate of efficiency and effectiveness get measures. Next, organization's professionals and advisors should estimate how much investment needed to implement MIS and produced efficiency and effectiveness. If the resulted efficiency agrees with expected efficiency, using this system has an important role in organization progress and efficiency increase.

In cases no efficiency observed another method has to be applied to enhance organization efficiency since today's luck in application of IT is an economic concept. If it is efficient, using permanent culture, and perceived easiness and benefit give explanation to staff members to decrease the employees' resistance against organizational changes. In fact, more empowered employees, less resistance against changes. So, MIS will highly adopt and efficiency increases either.

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