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The Impact of Organizational Culture on IS Implementation Success in Ethiopia: the Case of Selected Public and Private Organizations

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ABSTRACT

Organizational Culture in firms or institutions is widely believed to affect organizational performance and the success of the information system (IS) implementation. This work in progress study investigates the relationships between organizational/corporate culture and management support with IS implementation success in selected organizations. Based on the organizational culture construct by Hofstede et al (1990) and the IS implementation success framework by Sharma and Yetton (2003), a structured questionnaire is developed and will be self administered to selected participants in the selected organizations. Specifically, the objective of the study is to examine the impact of organizational or corporate culture on IS implementation success in selected public and private organizations in Ethiopia. Relationship between management support and IS implementation success in organizations, which will be moderated by task interdependence, will also be examined. Thus the work in progress and future study of this paper contributes to the existing literature by providing a framework for IS implementation success in low-income countries like Ethiopia.

Keywords

Organizational Culture, IS implementation, Management support, Ethiopia, Implementation success, User satisfaction, low-income countries.

INTRODUCTION

Information systems implementation has been a research area in organizations for over two decades. In a broad sense, implementation refers to all that must be done by a specific organization for it to be able to harness the capabilities of particular information technology as envisioned (Sarker, 2000). And in connection to this although there is general recognition that organizational culture is important for organizational success in general, the issue of how organizational culture affects IS implementation success has not been treated sufficiently at least in low-income countries like Ethiopia.

As stated by Marcoulides and Heck (1993) the intensification of research on organizational effectiveness has led to the formulation of theories about factors within an organization that can make a difference in performance. Organizational culture is one such variable that has received much attention in organizational behavior literature (Hofstede 1986; Hofstede, Neuijen, Ohayv and Sanders 1990; Schein 1990; Denison and Mishra, 1995). According to their view this attention is mainly because researchers have postulated that cultural factors play a key role in determining levels of organizational outcomes. A common hypothesis about this role suggests that if an organization possesses "strong culture" by exhibiting a well-integrated and effective set of specific values, beliefs, and behavior patterns, then it will perform at a higher level of productivity (Dennison 1984). Thus it can be said that the success of any organization's function in general and IS implementation in specific therefore, will be impacted by different factors including the strength of organizational culture.

Most organizational scholars and observers recognize that organizational culture has a powerful effect on the performance and long-term effectiveness of organizations (Masood, 2006). In line with this among others organizational culture has significant/considerable correlation with IS implementation success. A number of prominent operations research/management science (OR/MS) and IS researchers have recognized that behavioral issues rather than technological issues seem to be at the root of problems related to implementation (Sarker, 2000). Consequently, much of the research on implementation in the fields of OR/MS and IS has focused on the related human aspects. Different scholars have tried to

address the problem of implementation in different ways, thus deriving different insights and prescriptions for successful implementation.

Chatterjee et al. (2002) explored ways in which organizational context and individual actions interact to shape the implementation of IS innovations. Though there have been various attempts, as cited by Sarker, (2000) among several models and efforts in measuring IS implementation success, many researchers (Lucas, 1975; Schultz, Ginzberg and Lucas, 1984; DeSanctis, 1984; Leonard-Barton, 1988) focused on identifying a broad range of factors that affect implementation outcomes classified as:

- individual variables such as needs, cognitive style, personality, demographics, decision-style, and expectancy contributions;
- organizational variables such as differentiation/ integration, extent of centralization, autonomy of unit, culture, group norms, reward systems, and power distributions;
- situational variables such as user involvement, nature of analyst-user communication, organizational validity, and the existence of critical mass; and
- technological variables which include the type of technology (including MIS, TPS, CASE tools, and EMS) and characteristics of technology such as transferability, implementation complexity, divisibility, and cultural content.

Another widely accepted view of IS Implantation is, perceiving it as a process which will be affected by several mediating factors like management support and project management. In connection to this Hill and Carley (2008) reviewed research on defining organizational culture and examining its influences on individual and organizational outcomes.

However, much of the discussion focused on the attributes and nature of organizational culture, its influence on IS implementation success is not yet well developed especially in low-income countries like Ethiopia. In addition Levy and Danet (2008) posit that the literature has given very little attention to IS implementation success in the context of government and federal agencies. To bridge this gap, this study investigates the characteristics and effects of organizational culture and management support on IS implementation in selected governmental and private organizations in a low-income country. The study addresses the research question:

How is information systems Implementation success affected by organizational culture and management support?

Accordingly this paper provides a logical framework that enables an in-depth investigation of organizational culture and management support on the success of IS implementation.

THEORETICAL BACKGROUND

This study expands the Sharma & Yetton (2003) model to investigate the impact of metastructure action and task interdependence on successful IS implementation.

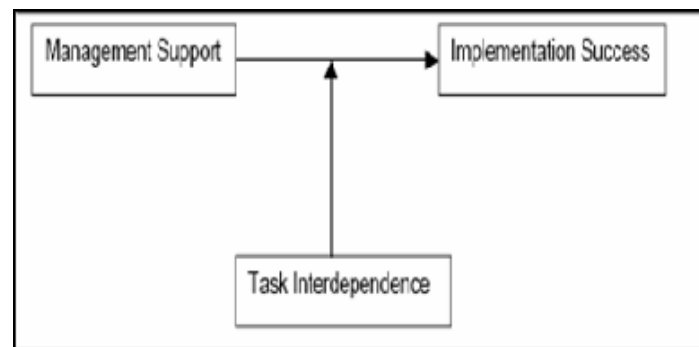


Figure 1: IS implementation Success model of Sharma & Yetton (2003)

Sharma & Yetton (2003) model of IS implementation success, shown in Figure 1, provides sufficient understanding of the relationship between management support and IS implementation success which is moderated by task interdependence. Sharma and Yetton found that high task interdependence generates a need for metastructuring actions requiring high levels of management support for successful implementation. In support of previous researches they also argue that management support is critical because the implementation of IS innovation is resource intensive. Substantial material and managerial resource are required not only to develop IS applications and infrastructures, but also to support end users during implementation. Such resources are more likely to be forthcoming when the change enjoys management support. And finally, concluded as the effect of management support on implementation success is a positive function of task interdependence. Furthermore, when task interdependence is low, management support has a weak or low effect on implementation success. (Sharma & Yetton, 2003). In another recent work, Sharma and Yetton (2007) propose a contingent model showing the effect of training on IS implementation success as a function of technical complexity and task interdependence. And it is shown that a meta-analysis of literature that the researchers made provides a strong support for the model that they propose. This in turn shows that IS implementation success can be affected by a number of variables in different scenarios and to get full understanding of a given construct seeing all its dimensions in different scenarios is important.

THE PROPOSED MODEL

This research in progress looks at IS implementation success, extending the variables by adding organizational culture which influences organizational members perception and participation. The model for the current research, depicted in Figure 2, illustrates successful IS Implementation as a joint outcome of management support and organizational culture.

According to Chatterjee (2000), through beliefs and participation, top management can create conducive environment for successful integration of a technology. Top management support is key recurrent factor critical for effective IS implementation (Thong, 1996). Orlikowski et al. (1995) also argue that senior management can manipulate the institutional structures of signification, legitimization, and domination and, thereby, influence, guide, motivate, or alter individual structuring actions. These organizational actions are called metastructuring actions because they either reinforce the existing institutional structures or alter those structures to create conditions more conducive to technology assimilation.

It is also stated that when top management actively participates in shaping the vision and strategies for the use of the web technologies, one of the IS technologies their actions serve as powerful signals to the rest of the managerial community. It also noted that task interdependencies embedded in organizational routines pose significant challenges for successful implementation (Sharma & Yetton 2003)

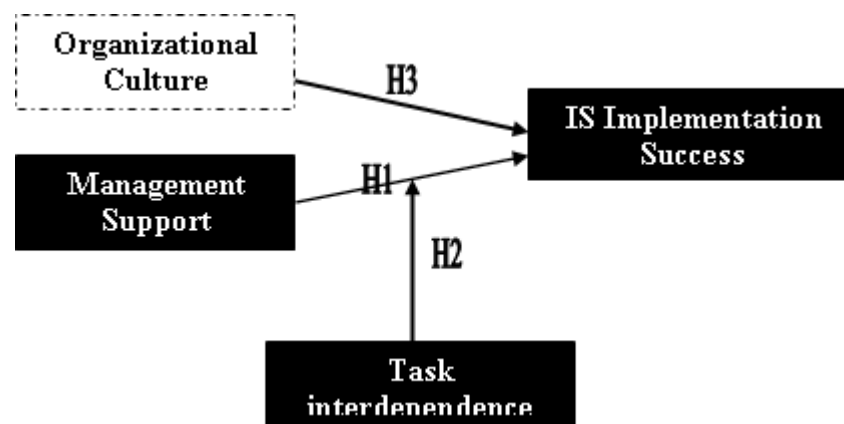


Figure 2: Conceptual Model based on Sharma & Yetton (2003) and Hofstede et al (1990)

As to the implementation success, use and user satisfaction represent the success of various managerial interventions designed to promote end-user adoption. Hence, these variables are also accepted here as the most appropriate surrogates for implementation success (Sharma & Yetton, 2003). Many researchers have identified “use” as an objective measure of system success. The implication is that if a system is used, it must be useful, and therefore successful (Seddon P. and Kiew M.

1997). Thus following Sharma & Yetton (2003) this paper evaluate the success of IS implementation in selected public and private organizations in Ethiopia. Accordingly, the two hypothesis from Sharma & Yetton (2003) are taken to be tested in the Ethiopian context:

H1: The effect of management support on implementation success is a positive function of task interdependence.

H2: In low task interdependence contexts, the effect of management support on implementation success is weak.

In addition, as indicated in previous section of this work, the current research extends the Sharma & Yetton (2003) model by including one construct namely the impact of organizational culture on IS implementation Success. And it is discussed next.

Organizational Culture

Stating a number of attempts to define organizational culture in various literatures (Schein 1985, Hofstede et al., 1986, 1993, Denison, 1990 etc), Jaharuddin (2005) found that “corporate” or “organizational culture” can be seen as a set of processes that binds together members of an organization based on the shared pattern of basic values, beliefs, and assumptions in an organization. Culture implies structural stability and patterning and integration. It is the accumulated shared learning from shared history (Schein, 1997). Thus, the understanding of culture is crucial and important since it is the glue that holds an organization together as a source of identity and distinctive competence (Bass, 1998).

According to Hofstede et al (1990) most authors in the area agreed on important traits of organizational culture as holistic, historically determined, related to anthropological concepts, socially constructed, soft and difficult to change. Understanding organizational culture is important (Hofstede, 1986). In line with this Marcoulides and Heck (1993) investigation of organizational culture may explain why some organizations are not performing at the desired level of productivity.

Marcoulides and Heck (1993) looked at three interrelated dimensions of organizational culture: perceived functioning of the organization’s strategies and practices, organizational value system, and the collective beliefs of the individuals working within the organization and found that organizational culture affects organizational performance. Similarly Denison and Mishra (1995) found that organizational culture positively affects the performance and effectiveness of the organizational adaptation process in addition to identifying four organizational culture traits – involvement, consistency, adaptability, and mission. Advancing the argument, two of the traits, involvement and adaptability, are identified as indicators of flexibility, openness, and responsiveness and strong predictors of growth. Similarly the other two traits, consistency and mission, are indicators of integration, direction, and vision and were found to be better predictors of profitability.

Hofstede et al (1990) indicates that, shared perceptions of daily practices are the core of an organization’s culture. It is also stated that employee values differ more on nationality, age, and education than according to membership in the organization”

Organizational culture results in different practices even for people who hold the same values (Hofstede et al., 1990). Based on the above literature discussion this study hypothesizes that:

H3: The extent of accepted organizational culture norms positively affects IS implementation success.

RESEARCH METHODOLOGY

General Approach

Quantitative research method will be employed using questionnaire as an instrument to collect required data. Thus the researcher will adopt survey methodology for the study. The unit of analysis is the firm with Information System Implementation practice and activities being the phenomenon of inquiry.

Sample organizations and procedures

The sampling frame comprises all government and private institutions in Ethiopia. These particular organizations will be selected to investigate if there is any difference in IS implementation success in different organizational setups. Firms in both manufacturing and services sectors will be represented in the sample.

Candidate organizations include Ethiopian Telecommunication Corporation, Ethiopian Electric Power Corporation, Awash Bank, and Sunshine Construction PLC. Ethiopian Telecommunications Corporation (ETC; <http://www.telecom.net.et/newsite/aboutETC/companyprofile.html>), the sole telecommunication services provider in the country, was established in 1952. Currently it has a total of 14 branches and 770 service stations throughout the country (6

zonal offices in Addis Ababa and 8 regional offices) serving more than 500,000 customers. ETC has nearly eleven thousand (10,733) employees.

Ethiopian Electric Power Corporation (EEPCo; <http://www.eepco.gov.et/brief.html>) is responsible for generating, transmitting, distributing, and selling electricity nationwide. According to EEPCo's website, as of August 2007, it has penetrated 1,658 towns constituting 22% of the population, up from 16% of the population at the end of 2005. Since its first power generator, in 1998, imported by Emperor Menelik II to light his palace Ethiopia's government run electric power system has gone under many restructuring. EEPCo has over eleven thousand (11,055) employees. Awash International Bank S.C. (<http://awash-international-bank.com/aboutaib.htm>), was established November 1994 as the first private commercial bank in Ethiopia. It has 35 branches, 1,236 employees, 2,310 shareholders, and serves over 260,000 customers throughout the country. Sunshine Construction (<http://www.sunshinecon.com/aboutus.html>) established as a sole proprietorship in April 1984 evolved into a Private Limited Company in September 1993. As of September 2008 it had about seven thousand (7,025) employees. Sunshine is one of the largest indigenous construction companies in Ethiopia. The research excluded companies that are in the business of information system development. This is because the purpose of the study is to understand and to explain the variance in IS implementation among organizations that are primarily IS users not providers.

Indicators / measures

As reviewed by Sharma and Yetton (2003), management support is the variable most frequently hypothesized as contributing to implementation success. And it will be measured through attributes believed to reflect the variable namely: beliefs and participation (Chatterjee and Grewal 2002). Organizational culture will also be measured through traits identified in the literature namely: involvement, consistency, adaptability, and mission. Finally IS implementation success will be measured through the two standard success measures, use and user satisfaction. Use and user satisfaction represent the success of various managerial interventions designed to promote end-user adoption. Hence, these variables are also accepted here as the most appropriate proxies for implementation success (Sharma & Yetton 2003).

Instruments/Items

In the effort of measuring variables detailed questionnaire instrument is adopted and developed in order to assess IS users perceptions of several aspects of the firm's IS implementation success and the organizational culture impact. The survey instruments are constructed using the literature pertaining to the constructs. We reviewed the literature to derive multi-item scales for the constructs. Wherever possible, existing scales with previously established levels of reliability and validity are adopted to measure the variables. Specifically an eight item scale of organizational culture instrument tested and used by Denison and Mishra (1995) for measuring the construct is adopted, see Annex B. The items are developed according to the four organizational culture indicators identified in the literatures: involvement, consistency, adaptability, and mission. We expect the results to show direct relationship between organizational culture and IS implementation

For task interdependence a previously validated six-item instrument will be used, see Annex A for details. For management support a previously validated 3-item questionnaire for participation and a four item questionnaire for belief is adapted with minor modifications to fit the study context, see Annex C for details. For IS success we adapted an instrument validated in prior studies with seven item for content, 7-items for accuracy, 7-items for format, 6-items for ease of use, 5-items for timeliness, and 4-items for satisfaction with system speed, see Annex D for details. We will use a five-point agree/disagree Likert scale for all items.

CONTRIBUTION OF THE STUDY

This study contributes by extending the IS implementation success framework to a low-income country context—Ethiopia. We have presented a model for IS implementation success in a low-income country context. The extant literature proposes an IS implementation success model with three constructs: management support, task interdependence, and IS implementation success. The current research attempts to extend this IS implementation success model to low-income countries by including organizational culture as a construct for investigation. By extending the model the study may identify additional variables that apply to low-income countries. It is also worth mentioning the different views and theories resulted from such type of study in different contexts. Finally the researchers hope that this is the first in a line of studies that will take up the challenge of better explicating the types, forms, and natures of the relations between organizational culture and IS implementation success in low-income countries like Ethiopia.

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APPENDIXES: QUESTIONNAIRES

Annex A

Task Interdependence Scale, reproduced and used by Sharma and Yetton (2003)

Task Interdependence Scale

1. This task can be performed fairly independently of others. (Reverse coded)
2. This task can be planned with little need to coordinate with others. (Reverse coded)
3. It is rarely required to obtain information from others to complete this task. (Reverse coded)
4. This task is relatively unaffected by the performance of other individuals or departments. (Reverse coded)
5. This task requires frequent coordination with the effort of others.
6. Performance on this task is dependent on receiving accurate information from others.

Annex B

Organizational culture survey items, Developed and used by Denison and Mishra (1995)

Involvement Index

1. Most people in this company have input into the decisions that affect them.
2. Cooperation and collaboration across functional roles is actively encouraged.

Consistency Index

3. There is a high level of agreement about the way that we do things in this company.
4. Our approach to doing business is very consistent and predictable.

Adaptability Index

5. Customers' comments and recommendations often lead to changes in this organization.
6. This organization is very responsive and changes easily.

Mission Index

7. This company has a long-term purpose and direction.
8. There is a shared vision of what this organization will be like in the future.

Annex C

I. Top Management Championship: Participation Dimension

Please indicate the extent to which the senior management of your firm actively participates in:

1. Articulating a vision for the organizational IS implementation (None, Little, Some, Great Extent, Very Great Extent)
2. Formulating a strategy for the organizational IS implementation (None, Little, Some, Great Extent, Very Great Extent)
3. Establishing goals and standards to monitor IS implementation Process (None, Little, Some, Great Extent, Very Great Extent)

II. Top Management Championship: Beliefs Dimension

Please indicate the extent to which the senior management of your firm believes in the following:

1. The IS implementation has the potential of providing significant business benefits to the firm (None, Little, Some, Great, Very, Great)
2. The IS implementation will create a significant competitive arena for firms (None, Little, Some, Great, Very, Great)
3. The implementation of IS, is not a very secure medium to conduct business activities (None, Little, Some, Great, Very, Great)
4. The implementation of IS, is not easy to work with the existing and potential customers of firm (None, Little, Some, Great, Very, Great)

Annex D

IS success instrument (use and user satisfaction) proposed by Doll and Torkzadeh (1998)

Content of the System

1. Does the system provide the precise information you need?*
2. Does the information content meet your needs?*
3. Does the system provide reports that seem to be just about exactly what you need?*
4. Does the system provide sufficient information?*
5. Does the output from the system meet your needs?
6. Does the information provided by the system fit your needs?
7. Does the system give you the right amount of information for your needs?

Accuracy

1. Is the system accurate?*
2. Are you satisfied with the accuracy of the system?*
3. Is the system error free?
4. Does the system provide correct information?
5. Does the system provide accurate information?
6. Does the system provide reliable information?
7. Is the information presented by the system dependable?

Format

1. Do you think the output is presented in a useful format?*
2. Is the information clear?*
3. Are you satisfied with the layout of the output?
4. Is the format of the output satisfactory?
5. Are you satisfied with how the information is presented to you?
6. Are you satisfied with the way in which the information is presented?

Ease of Use

1. Is the system user friendly?*
2. Is the system easy to use?*
3. Is it easy to get the system to do what you want it to do?
4. Is your interaction with the system clear and understandable?
5. Is the system easy to interact with?
6. Is it easy to operate the system?

Timeliness

1. Do you get the information you need in time?*
2. Does the system provide up-to-date information?*
3. Does the system provide you with the information in a timely manner?
4. Does the system provide information that is too old to be useful?
5. Do you get information from the system that is too late for your needs?

Satisfaction with System Speed

1. Are you satisfied with how quickly the system operates?
2. Does the system operate at a satisfactory pace?
3. Are you satisfied with how quickly the system runs?
4. Is the speed of the system satisfactory?