ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACULTY OF BUSINESS

IMPACT OF ORGANIZATIONAL CULTURE ON THE ACHIEVEMENT OF STRATEGIC ADVANTAGES OF ENTERPRISE RESOURCE PLANNING SYSTEM (SYSTEMS APPLICATIONS AND PRODUCTS) AT EAST AFRICA BOTTLING S.Co

BY:

YONAS SBHAT KAHSAY

(SGS/0242/2005B)

JAN, 2015

ADDIS ABABA

IMPACT OF ORGANIZATIONAL CULTURE ON THE ACHIEVEMENT OF STRATEGIC ADVANTAGES OF ENTERPRISE RESOURCE PLANNING SYSTEM (SYSTEMS APPLICATIONS AND PRODUCTS) AT EAST AFRICA BOTTLING S.Co.

BY:

YONAS SBHAT KAHSAY

(SGS/0242/2005B)

A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

JAN, 2015

ADDIS ABABA

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACULTY OF BUSINESS

IMPACT OF ORGANIZATIONAL CULTURE ON THE ACHIEVEMENT OF STRATEGIC ADVANTAGES OF ENTERPRISE RESOURCE PLANNING SYSTEM (SYSTEMS APPLICATIONS AND PRODUCTS) AT EAST AFRICA BOTTLING S.Co

BY:

YONAS SBHAT KAHSAY

(SGS/0242/2005B)

APPROVED BY BOARD OF EXAMINERS

_____ _____

Dean, Graduate Studies

_____ _____

Advisor

_____ _____

External Examiner

_____ _____

Internal Examiner

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

First of all, thanks to the Almighty GOD for giving me the patience to start and finalize this thesis work and for helping me during those remarkable times.

Secondly, I am deeply extending my sincere appreciation to my advisor, Dr. Tilaye Kassahun, for his valuable advice, constant support, commitment, dedication, encouragement and precious guidance, creative suggestions and critical comments from the beginning to the end of the project. Without his urge, no doubt, this work would not have been possible at all.

Thirdly, a word of thanks must also go to the management and MC staffs' of East Africa Bottling Share Company (EABSC), and Coca Cola Sabco (CCS) BPL's, PM for their cooperation in providing data, filling out questionnaire and giving me very valuable information about ERP system specifically about SAP process of EABSC and CCS as a whole.

Last, but not least, I would like to thank my wife, Sr. Helen Teklie for her love, encouragement, patience and support throughout the post graduate study.

Yonas Sbhat

Jan, 2015

LIST OF ACRONYMS

Acronym	Description
AA	Addis Ababa
CCS	Coca Cola SABCO
CVF	Competing Value Frame work
DC	Developmental Culture
DD	Dire Dawa
EABSC	East Africa Bottling Share Company
ERP	Enterprise Resource Planning
EU	End User
FMCG	Fast Moving Consumer Goods
GC	Group Culture
HC	Hierarchy Culture
HR	Human Resource
IS	Information System
IT	Information Technology
MC	Module Coordinator
OCAI	Organization Culture Assessment Instrument
PET	Polyethylene Terephthalate
PLS	Partial Least squares
RA	Regiration Analysis
RC	Rational Culture
RGB	Returnable Glass Bottle
SABCO	South Africa Bottling Company
SAP	Systems Applications and Products
SEM	Structural Equation Modeling
SU	Supper User
VIF	Variance Inflation Rate
VSAT	Very Small Aperture Terminal

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This paper is aimed at studying the relationship that organizational culture has with the achievement of strategic advantages from implementing ERP software known as SAP by EABSC. In order to undertake this study, the researcher has distributed questionnaires to 49 participants including 32 management staff and 17 SAP System implementers to test a number of hypotheses. A CVF approach to measuring organizational culture was used to quantitatively measure an organization's cultural profile. Accordingly, rational culture was found the most dominant culture followed by group, developmental and hieratical culture in EABSC. However, all the four cultures were high in terms of level. The results of the descriptive analysis for the ERP construct items showed that improved communication, increased efficiency and better collaboration were major achievements based on their mean value. The overall mean of the ERP construct was 3.75 representing a high level. The ERP construct was represented by the overall mean of the items to represent as a single dependent variable. PLS method of SEM was then used to determine the relationship that the organization's culture has with ERP success. The results show the organization's culture is significantly related to the achievement of strategic advantages from implementing ERP systems like SAP in EABSC. The researcher recommends that identifying and understanding the organizational culture is necessary before ERP implementation as there is a clear indication of a positive relationship that an appropriate culture is vital to the success of ERP. In addition, business organizations, which are thinking to buy or upgrade the available ERP system, should pay more emphasize to create a culture that believes in ERP system expected benefits. Moreover EABSC managers, system implementers and other business organization managers should measure achieved strategic advantages more frequently to gauge its impact on overall organizational performance.

Keywords: Organizational Culture, ERP system, SAP, Strategic Advantage, EABSC, Integration, Implementation.

CHAPTER ONE

INTRODUCTION

The introductory chapter of the paper contains the background of the study, statement of the problem, the basic research questions, specific and general objectives, hypothesis of the study, significance of the study, scope and/or Delimitation of the study followed by definition of terms and organization of this research paper.

1.1 Background Of The Company

East African Bottling Share Company (EABSC) is a member of the Coca-Cola Sabco (CCS) companies operating in Ethiopia as a sole bottler of Coca-Cola products. EABSC was established in 1995 with a joint venture agreement between local entrepreneurs and CCS. Prior to the joint venture the company was called Ethiopian Bottling Share Company for over 35 years. EABSC owns 2 plants in Addis Ababa (AA) and Dire Dawa (DD) cities and has currently around 1,200 permanent and 145 temporary employees. Currently there are 4 RGB and 1 PET line in both plants. Moreover, the company is undergoing a huge expansion project to have 5 more plants in different parts of the country by 2020.

Being in the period of integrating into the global economy as part of globalization among new opportunities, competition has been on rise. Thus, companies are striving for ways of gaining competitive advantage against their opponents to sustain their market lead. All of the above pressures are business drivers for companies to adopt new technologies. One of these technologies could be Enterprise Resource Planning (ERP) systems. ERP systems are programs that aim to provide integrated software solution to handle multiple corporate functions including accounting and finance, human resources, manufacturing, materials management, and sales and distribution (K.A. Gyampah, 2007). Being a multi-national company operating in 9 different countries, CCS has been keen to implement ERP system called SAP (Systems Applications and Products). Following the approval of the Ethiopian government to install company owned VSAT (Very Small Aperture Terminal) as part of the project; EABSC has successfully implemented SAP in Oct, 2013 and joining the other member companies of CCS.

1.2 Background Of The Study

Today, the integration of companies' business processes is, if not a necessity, a requirement linked to the reactivity necessary. Their survival and growth has been a vital issue. Organizations kept on facing challenges that force them to rethink and adapt their structures, goals, processes and technologies. They must act promptly and make those changes to maintain their competitive advantage. To meet these variations it is clear each organization needs to adopt a solution to face the challenges and Enterprise Resource Planning (ERP) presents a golden opportunity to each organization to link all work process in one single frame.

After the end of 1990s firms have dashed to implement ERP. One study found more than 60 percent of Fortune 500 companies had adopted ERP systems (G. Stewart et al 2000). The expansion in information technology (IT) and the increase in global business competition also forced organizations to find new ways of doing business. The need to improve information flow in organizations, reduce costs, streamline business processes, establish linkages with suppliers, satisfy customers, and also reduce response time to customer needs and expectations are some reasons behind the implementation of ERP in most organizations. According to Rabaa'i (2009) organizations require IT such as ERP, in order to remain successful and retain their competitiveness. Davenport (1998) further states that ERP systems may be the most important development in the corporate use of IT. Thus, many organizations are planning to improve their competitive position by implementing ERP systems (Rabaai, 2009; Grabski and Leech, 2007). An enormous amount of money is usually invested in ERP projects as many organizations consider it as an opportunity for saving costs and increasing competitive advantage (Trinskjær, 2009). According to Huang and Newell (2003), a growing number of multinational enterprises are beginning to embrace ERP systems in the anticipation of increasing productivity and efficiency, and also as a means of leveraging organizational competitiveness (Davenport,1998).

ERP systems are cross-functional enterprise systems driven by an integrated suite of software modules that maintain the central internal business processes of a company. The core function of ERP is to give decision makers an integrated real-time view of core business processes. These modules operate interactively utilizing one database, which shares all information necessary for each module's purpose, as well as user requirements. ERP packages give a workflow engine to create automated work according to business rules and approval conditions so that information and documents can be moved to operational users for transactional conducts, and to managers for review and approval. Organizations now regard ERP as a vital tool for the enhancement of their

business operations by implementing most of its functions if not all of their processes under a single information system in an endeavor to benefit from the strategic advantages that ERP offers. Among the many ERP systems the most common widely used in the global market is SAP. EABSC has implemented the ERP system SAP investing millions of dollars in Oct, 2013 to align with the CCS group standard used in other member countries and other multinational companies.

Nevertheless, there is wide spread proof that organizations experience significant problems during the implementation of these ERP systems. According to Peng and Nunes (2009) the implementation of ERP is often faced with challenges, difficulties and problems even when the system is implemented successfully. Esteves et al. (2003) pointed out that the implementation of an ERP system is comprehensive, prolonged and expensive process. This view is also supported by Sarker and Lee (2003) who stated that three quarters of the ERP projects are considered failures and many ERP projects end-up catastrophically.

Shanks et al (2000) state that ERP systems have been adopted throughout the world in many different cultural settings. However, there is little published research work on cultural differences in ERP systems implementation. Also, Talet and Al-Wahaishi (2011) and Rabaa'i and Gammack (2008) noted that several studies have identified critical success factors relevant to ERPs, but cultural fit is a particularly neglected factor in assessing ERP implementation success. Soh et al (2000) stress that the aspect of organizational culture is often over-looked in implementing ERP.

Organizational culture is a very significant concept in organizational study. In past few years, there has been a lot of focus on the development of organizational cultures that are favorable to achieving better results, superior performance and higher motivational levels of the employees. Organizational culture can be defined as an "abstract composite of assumptions, values, and artifacts shared by its members [that] can be reliably represented by the values...which drive its members' attitudes and activities" (Howard, 1998, p. 234).The model suggested in this study advocates that there is a crucial connection between an organization's culture and the achievement of strategic advantages from ERP. A Competing Values approach to measuring organizational culture is used to provide an empirical measure for an organization's culture (Quin and Spreitzer, 1991).The competing values method provides a profile of four cultural prototypes engaged in a particular organization. These prototypes are group, hierarchical, developmental and rational cultures. The combination of the prototypes describes the organizations culture profile.

Therefore this research is targeting the EABSC that have adopted SAP ERP system. This paper studies the relationship between Enterprise Resource Planning and organizational Culture theorizing that in order to achieve the strategic advantages from ERP an organization must look to its culture for help.

1.3 Statement Of The Problem

In the light of the previous discussion, the need to explain the organizational culture profile factor effecting achievement of strategic benefits of ERP in EABSC context is a must. Hence, this paper seeks to address the effect of organizational culture on an implemented ERP system as failure to study the impact may have a catastrophic effect to EABSC too.

1.4 Research Questions

The study will primarily try to address the following basic research question associated with this model.

- What are the types of Organizational cultural profile existing in EABSC?
- What are the major strategic advantages achieved by implementing ERP system (SAP) in EABSC?
- What is the impact of Organizational cultural profile on the achievement of strategic advantages of ERP system (SAP) in EABSC?

1.5 Study Objectives

1.5.1 General Objective

The general objective of the study is to identify the relationship between Organizational cultures with ERP strategic benefits and to see its impact in achieving the organization's overall strategic advantages on the day-to-day business execution.

1.5.2 Specific Objectives Of The Study

In achieving the above over-all objective, the specific objective is amid to:

- To identify the types of existing organizational cultural profile in EABSC.
- To determine and evaluate the major strategic advantages achieved by implementing ERP system (SAP) in EABSC.
- To Study the impact of Organizational cultural profile on the achievement of strategic advantages of ERP system (SAP) in EABSC.

1.6 Rationale Of The Study?

1. Many studies have addressed several serious issues for successful ERP implementation without making a clear link with achievement of ERP strategic benefits and cultural profiles.

2. To the best knowledge of the researcher, this is the first study that tries exploring the impact of organizational culture on achievement of ERP strategic advantages in Ethiopian business organizations and more specifically in EABSC case.

1.7 Significance Of The Study

Considering the importance of implementing ERP systems that contribute to the overall productivity of an organization and the existing burdens that are leading them to fail; the findings of this paper will be valuable in proposing some possible recommendations to the problems in the study area. This research will also be helpful to the management of EABSC to make further research in this area and develop strategies that can create suitable organizational culture to maximize the strategic advantages of the implemented ERP system (SAP).

The paper can also be an important input for further study in the area of the problem to other researchers especially in the Ethiopian Business environment. Besides to this, the research study will add considerable supplementary knowledge and skills of the researcher regarding the techniques, methods and systems of conducting related researches. It will also be a springboard for future wider scoped related researches.

1.8 Scope Of The Study

This research paper is only confined to examining the factors of organizational culture and their contribution to the achievement of strategic advantages of implementing ERP systems, its causes and implication to the productivity of an organization in general and to the current practices particularly in EABSC. The paper will neither address other issues related to other factors affecting ERP efficiency nor try to elaborate these variables with other related questions.

1.9 Limitations Of The Study

1. The researcher fears for lack of quality of data of the questionnaires due to the fact that some employees if not all, may not fill properly due to employee commitments, knowledge gap, and confidentiality on the utilization of the information. Despite this, care has been taken in designing the questionnaires. Moreover, there was an assurance of security and confidentiality of the responses for all respondents.
2. One is the possibility of self-reporting bias. Ahire and Golhar (1996) point out that "when one collects data from managers about their own organizations, and specifically about managerial issues with which they are closely associated, there is a potential for self-reporting bias." To help counteract any such bias, it has been suggested that multiple responses from the organization can be obtained. In this study, the researcher has tried to use all the management staff and system implementers to gain a wide variety of perspectives about the success of ERP via achievement of the perceived strategic advantages.
3. Self-reported data has also been associated with social desirability bias. In some situations, the respondent may be tempted to give a socially desirable response to a survey question rather than expressing what is really happening in the organization. Alreck and Settle (1995) state that "when personal preferences, opinions, or behavior deviate from what's socially prescribed, respondents are very prone to report what's socially acceptable, rather than the true answers." Some of cultural and strategic advantage questions had this potential weakness and it may be argued that they were therefore prone to such bias. However, the researcher took steps to alleviate this, notably by clarifying this possibility in the survey instructions. Furthermore, each question was a integral of the larger construct that was to be aggregated in the analysis, and thus a specific response on a specific question was not used to draw any inferences.
4. Due to the relative young age (14 months) of the implementation of the ERP system in EABSC and the important nature of this study, perhaps some of the management staff and system implementers may be reluctant to report or have reported randomly, on the successes and or failures. This could especially be in responses related to costs and profits as the financial numbers are not in yet and the year (2014) is not closed officaly.

1.10 Operational Definition Of Terms

- Systems, Applications and Products (SAP): Popular data processing German software system used to manage business operations and customer relations.
- Enterprise Resource Planning (ERP): system or solution, integrated computer-based application used to manage internal and external resources.
- Organizational culture: The set of values and behaviors that make up the unique social and psychological environment of an organization that effect on ERP implementation.
- Group Culture: An organization that concentrates on internal maintenance with flexibility, concern for people, and sensitivity for customers.
- Hierarchy Culture: An organization that focuses on internal maintenance with a need for stability and control.
- Developmental Culture: An organization that concentrates on external positioning with a high degree of flexibility and individualism.
- Rational Culture: An organization that focuses on external maintenance with a need for stability and control.
- ERP strategic advantages: a successful ERP that is characterized by the achievement of the strategic advantages that an organization is perceived to achieve by implementing ERP software packages.
- Top Management: The highest level of managers responsible for the entire enterprise.
- Middle Management: The management that are directly reporting to the top management.
- System Implementers: Employees and or expertise that have the highest value for the successful implementation of the ERP system (SAP) and its continued execution.

1.11 Organization Of The Study

The rest of this paper is organized as follows. Chapter 2 presents a brief literature review on Organizational culture and ERP. Chapter 3 provides the research methodology whereas Chapter 4 presents the Results and Discussions where the case studies results are analyzed and discussed in detail. Finally Chapter5will have Summary, Conclusions and Recommendations of the paper with providing some future research directions as required.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This section reviews the relevant literature touching organizational culture and ERP. The purpose of a literature review is to offer insight to the reader what literature was considered in formulating the arguments and perspectives in understanding the research questions and the resulting research objectives. The type of review in this research is of a theory review where its scope encompassed mostly journals, Open University MBA study material and management research websites, where the works of authorities on the research subject were referenced. It will also touch upon various other areas of importance to the concepts of Organizational Culture and ERP. The conceptual model used for the study will be presented following the list of reviews made on previous other related studies.

2.2 Organizational culture:

Culture can be seen from a number of different points. Of all levels of culture the concepts of national culture and organizational culture interests the business environment. National culture is important due to today's globalized economy where communication technicalities have begun to evolve. It is also important to the study of information systems technology and management. For example, Watson et al. (1994) looked at national culture as being a dimension, in a study looking at Group Support Systems success. This experimental study involved looking at the differences between groups from the U.S. and Singapore. For the majority of the business Literature on culture the level of analysis has dropped to the organization. The importance of studying an organization's culture is, like ERP, a fairly new concept.

An organization's culture can be defined by a number of constructs, such as the symbols, language, ideology, beliefs, rituals, and myths that affect an individual's behavior (Pettigrew, 1979). According to Pettigrew (1979), the culture constructs exist to provide some form of commitment to the established order. Hofstede et al. (1990) proposes a model of culture that is made up of values and practices. The practices reflect member beliefs about symbols, heroes and myths. In an exploratory analysis, Hofstede et al. (1990) found 3 factors affecting the values; yet, the core of organizational culture was represented by 6 dimensions of organizational practices. The dimensions represent opposing ideologies as to what constitutes proper practices. Using the

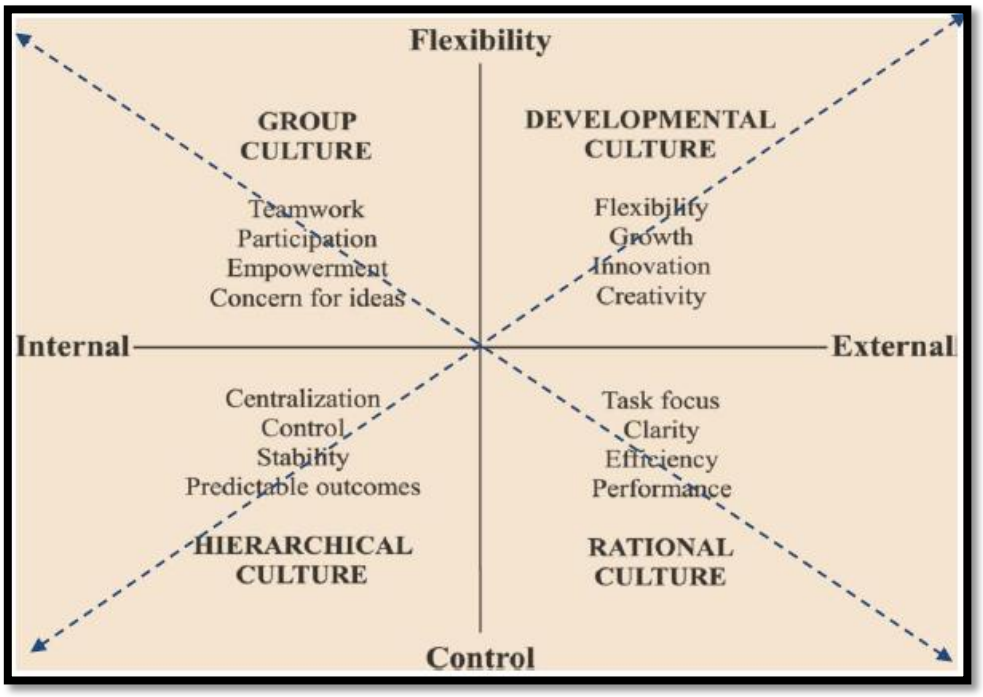
dimensions of organizational practices, Hofstede (1998) identified 3 distinct subcultures within 131 different work groups.

The 3 subcultures represented include a professional subculture, an administrative subculture, and a customer interface subculture. Quinn and Rohrbaugh (1983) developed a quantitative measure of organizational effectiveness, which was later successfully used to study organizational culture (see Kalliath et al., 1999, Howard, 1998, Quinn and Spreitzer, 199 1, Zammuto and Krakower, 1991, Yeung et al., 1991). Quinn and Rohrbaugh (1983) exploratory study revealed that organizational effectiveness can be represented by 3 distinct dimensions, a focus dimension (internal vs. external point of view), a structure dimension (flexibility vs. control orientation) and a means vs. ends dimensions. The authors call the resulting approach the Competing Values Approach to measuring organizational culture. The model in Figure-1 represents the competing values approach.

In Figure-1 each quadrant represents an ideal type of culture. A particular organization need not be classified exclusively as having one type of culture, but can be considered as containing elements from the four culture types, yet one type may be dominant (Quinn and Spreitzer,1991, Cameron and Freeman, 1991, Yeung et al., 1991). Each culture type is measured using 4 items, which are sum up to achieve a culture profile.

The core values of the Group culture are belonging, trust and participation, which are motivated by factors of attachment, cohesiveness and membership (Denison and Spreitzer, 1991). Like the group culture, the developmental culture also emphasis flexibility but focuses its attention on the external environment. Productivity, performance, goal fulfillment and achievement are the important factors for the rational culture. These cultures emphasize the pursuit and attainment of well-defined objectives.

Figure-1 Competing Values Framework for profiling organizational culture, adapted from Denison and Spreitzer (1991)



Finally, for the hierarchical culture, the "focus is on the logic of the internal Organization and the emphasis is on stability" (Denison and Spreitzer, 1991, p. 6) as the authors state, the motivating factors for this quadrant include security, order, rules and regulations.

A number of studies have been done, looking at and validating this framework. Quinn and Spreitzer (1991) performed a multi-trait-multi-method analysis as well as multidimensional scaling on two competing values' instruments (one using an ipsative scale measure, the other using a Likert type scale measure), The authors found evidence for both convergent and discriminant validity. Zammuto and Krakower (1991) looked for relationships between culture and other organizational variables including, centralization, moral, administrator credibility, conflict, strategic orientation and culture strength. The authors state that evidence for construct validity exists due to the correlation of the competing values measure of culture and the other variables stated. Yeung et al. (1991) studied the competing values measure of culture in relation to organizational performance, culture strength and human resource practices in a cluster analysis. The authors found that organizations from their study could be classified into 5 distinct culture types or profiles. Furthermore, the competing values framework was again validated in two more studies (see Howard, 1998; Kalliath, 1999).

Denison (1996) gave another perspective of culture by trying to research whether organizational culture and organizational climate were two different points of views or just a matter of perception. He further said that there are similarities and differences at the same time. Measurement of organizational culture is usually carried through qualitative analysis and deals with individuals set of beliefs, shared norms and perception. Organizational climate on the other hand is measured through quantitative methods like questionnaire and print outs etc. Other factors also helped to differentiate these two topics in the literature. Culture researchers were more anxious with the progress of social systems over time (Mirvis and Sales, 1990; Mohr, 1982; Pettigrew, 1979; Rohlen, 1974; Schein, 1985, 1990; Van Maanen, 1979), whereas climate researchers were generally less concerned with evolution but more concerned with the impact that organizational systems have on groups and individuals (Ekvall, 1987; Joyce and Slocum, 1984; Koyes and DeCotiis, 1991). The research also addressed to where does this organizational culture and climate originates.

Chatman (1989) says "In order for researchers to understand and predict behavior, they must consider both person and situation factors and how these factors interact. Even though organization researchers have developed interactional models, many have overemphasized either person or situation components and most have failed to consider the effects that persons have on situations. Using a Q-sort methodology, individual value profiles are compared to organizational value profiles to determine fit and to predict changes in values, norms, and behaviors". By this we understand that both the organization and individuals beliefs and norms complement each other and have an impact on over organizational environment which people and policies constitute. Therefore the significance of any single factor can never be underestimated while evaluating the type of profile organization maintains in terms of its culture.

Organizational effectiveness has long been a very vital area for the researchers to determine the causal relationship of organizational effectiveness and higher level productivity with several variables. Among them organizational culture have well been under the consideration by the researchers. The increase in the research intensification 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; Jelinek, Smircich and Hirsch 1983; Kilman, Saxton and Serpa 1985; Ouchi 1981; Owens 1987; Schein 1990; Trice and Beyer 1984).

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). The development of theory to guide the definition of organizational culture, therefore, is of primary importance to improving organizational performance, especially because the variables which comprise culture have been postulated to be under the control of organizational leaders (Deal and Kennedy 1982, Ouchi 1981, Owens 1987, Siepert and Likert 1973). Despite concern with achieving improved organizational productivity through focusing on the development of cohesive organizational culture, determining the parameters of this construct has been problematic.

The literature on organizational culture taps essential ideas, but the theory and technology to utilize the theory in improving organizations has remained fuzzy (Mackenzie 1986). As Trice and Beyer (1984) have argued, previous research on organizational culture has tended to focus on single, discrete elements of culture, while ignoring the multidimensional nature of culture, that is, a construct composed of several intimately interrelated variables (Schein 1990). Another problem has been that researchers are still not sure whether the association between culture and organizational performance reflects a "cause-effect" type of relationship (Saffold 1988). In fact, researchers have not really identified what specific variables comprise an effective organizational culture, nor have they provided convincing empirical evidence to suggest that if leaders in organizations increased the amount of time and quality of energy devoted to developing a particular type of organizational culture, then an organization would perform at a higher level of productivity (Barney 1986).

There is presently little agreement, therefore, about what the concept of organizational culture means or how it should be observed and measured (Schein 1990). Because of the lack of agreement concerning theoretical formulations about organizational culture, its delineation, and its possible relationship to performance outcomes, no significant body of empirical research exists. Instead, researchers have primarily focused on defining and describing the variables of organizational culture and cautiously suggested a possible relationship between organizational culture and outcomes (Owens 1987).

As Mackenzie (1986) argues, organizational culture as a concept may be a useful means of assessing the congruency of the organization's goals, strategies and task organization, and resulting outcomes. Without valid and reliable measures of the critical aspects of organizational culture, however, statements about its importance and effect on performance will continue to be based on speculation, personal observations, and case studies (Uttal 1983). As a consequence, management strategies and programs to create organizational change through under- standing the organization's environment and strategically manipulating aspects of its culture will continue to be poorly focused and difficult to implement and evaluate.

2.3 Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is relatively a new concept however now a days almost every organization ranging from small to large enterprise, devotes a major portion of its developmental budgets on the implementation of ERP software. ERP is not merely software but an approach of carrying out business operations in the modern times where technology plays a decisive role in making an organization a success story or failure. However An ERP software system can be described as "a set of integrated business applications, or modules, to carry out most business functions, including inventory control, general ledger accounting, accounts payable, accounts receivable, material requirements planning, order management and human resources, among others." (Martin et al., 1999). ERP is a technique to bring all of an organization's data and IS /IT resources under a single Information system (Oliver, 1999). The author affirms that "ERP systems evolved to help organizations manage their information throughout the Company, from the plant to the back office, and or the front office." (Oliver, 1999, p. 12).

More over Deloitte Consulting ERP Second Wave report published in 1998 provides a useful Starting point. According to Deloitte (1998), an ERP system is packaged business software system that allows a company to:

- automate and integrate the majority of its business processes,
- share common data and practices across the entire enterprise, and
- produce and access information in a real-time environment

ERP intends to integrate its core if not all of an organization's processes under a single ERP system. The processes can be seen in terms of a value chain (Porter, 1985), which connects the suppliers to the organization to the customers.

For example, think of a system where the customer orders a product over the Internet (e-commerce). As soon as the customer places the order, it is automatically sent to the manufacturing department, while at the same time sent to the accounting department for billing. The use of materials by the manufacturing department diminishes the stock, therefore a parts order is sent automatically to the supplier when reorder points are reached for refilling the stock. In traditional systems, time would be required for the sending of the messages between departments, for the reordering of the parts, and the billing of the customer.

ERP intends to automate these systems to achieve a number of strategic advantages. Implementation of ERP software can allow an organization certain strategic advantages (Radding, 1999; Stein 1998). The literature tells us that organizations can benefit from greater flexibility, increased efficiency (Radding, 1999), improved communication, Lower operating costs, increased revenue (Oliver, 1999). Reduced cycle times, better collaboration and higher profit margins (Stein, 1998). These strategic advantages affect not only the organization, but can affect all members of an organization's value chain. ERP is a system that seeks to unite all of a value chain's distinct processes.

An organization's value chain represents all of the different processes that involve organizational resources and that are needed to support the organization's operations. Porter (1985) developed a model of an organization's value chain. This model of the value chain contains 9 processes; 5 primary processes, and 4 support processes.

The organization's primary processes involve the production and delivery of the organization's products to the consumers (Bergeron, 1991). The processes involved in the primary activity are inbound logistics, operations, outbound logistics, marketing and sales, and customer service. The organizations secondary business processes represent the support processes for the primary activities and are, administrative coordination and support, human resource management, technology development, and procurement of resources.

Implementation of ERP systems were carried for a number of strategic nature benefits, on the other hand it bears extreme risks. The growing numbers of Unsuccessful stories have compelled managers to take a deep look into the causes of it. ERP tries to push the logic that the system has which is conflicting with the Business. It may sometimes also lead to integration where decentralization and fragmentation may best suit the organization. Furthermore, ERP may force the organization to go for generic processes than customization. Therefore ERP has to go along with technology and culture (Davenport, 1998). In contemporary organizations the data generation takes place at scattered places and the magnitude of the data is vast. Therefore a real

time access to the data becomes imperative for the data to deal with such complex nature of information. ERP aligns all the information into various functions like finance, operations, sales, and Customer relation e.t.c. subject to the nature of business an organization is into.

Enterprise resource planning system (ERP), as a type III IS innovation, has strategic Significance for the organization due to their integration into the core business processes or strategies can directly impact the firm's performance (Swanson, 1994; Sambamurthy et al., 2003; Sample, 1998). Consequently, many companies have started to develop strategy focusing on information technologies, with ERP adoption being a critical drive (Bharadwaj, 2000; Powell and Dent-Micallef, 1997; Robey et al., 2002). On the other hand, whereas the firm is on the lookout for competitive advantages by adopting this sophisticated IS, the tangible experiences have revealed ambiguity. Some organization are able to reap the true benefits of ERP whereas on the other hand majority of the firms face losses and failed to achieve the desired level of strategic and tactical benefits. (Scott and Vessey, 2002).

According to the survey conducted by Deloitte, the success rate of ERP implementation is less than 20% (Deloitte, 1998). Studies have reported several failed ERP attempts, and companies lost not only the capital Invested in ERP packages and millions paid to outside consultants, but also a major portion Of their business. Unisource's Worldwide, Inc., a $7 billion distributor of paper products wrote off $168 million in costs related to an abandoned nationwide implementation of SAP R/3 software while FoxMeyer Drug, a former $5 billion drug distributor, went bankrupt in 1996 and has filled a $500 million lawsuit against SAP (Monk and Wagner, 2006). FoxMeyer Charged the ERP giant that its package was a significant factor" that led them into financial ruin. Dell Computer Corp. abandoned a much-publicized SAP R/3 following Months of delay and cost overruns. Dow Chemical, after spending half a billion dollars over seven years of implementing SAP R/2, the mainframe version, decided to start all over again on the new client/server version (R/3) (Soh and Sia, 2004a).

Hence it is important for researcher to unlock the mystery of benefit realization in ERP adoption and theorize the important predictors' effect on ERP implementation practice (Brown and Vessey, 2003). Other than strategic benefit, ERP also contributes toward making an organizational structure more flat and flexible, enabling organization to streamline their management structures and more democratic organization. On the other hand it also involve the centralization of control over information and the standardization of processes, which are attributes more consistent with hierarchical command and control organization with uniform cultures (Davenport, 1998).

EABSC as a member of the CCS group countries has selected SAP R/3 among other ERP applications to align with all the other member countries and the group office as SAP was best suited to the current needs of the bottling business. Moreover SAP has more advanced and used innovative new approaches in its software. The SAP R/3 ERP system provides flexible, integrated client/server and mainframe-based business applications software that was compatible with most popular hardware, software, and database platforms at the time. According to the recent report on Forbes web site on Market Share Analysis: ERP Software, Worldwide, 2013 published by analysts posted, SAP has the highest market share in the ERP business as a single company with 24%. (Louis, 2014).

2.4 Some Review of Previous Studies

Research (A. Kappos, 2000) under the title “Organizational Culture and the Achievement of ERP Strategic advantages and BPR Performance Improvements,” This study looks at the relationship that organizational culture has with the achievement of strategic advantages from implementing Enterprise Resource Planning (ERP) software, and the achievement of performance improvements from performing Business Process Reengineering (BPR). A sample of 22 organizations that implemented ERP and 31 organizations that performed BPR across Canada were used to test a Number of hypotheses. A competing values approach to measuring organizational culture was used to quantitatively measure an organizations culture profile, and a modified version of the measurement instrument was used to measure the change in that profile due to ERP and/or BPR. Then, the relationship that the organization's culture and culture change has with ERP and BPR success was determined. This article showed that the organization's culture and the change in that culture is significantly related to the achievement of strategic advantages from implementing ERP and the performance improvements from performing BPR.

Researchers (Zhang et al, 2002) under the title "Critical Success Factors of Enterprise Resource Planning Systems Implementation Success in China," studied the critical success factors affecting enterprise resource planning (ERP) systems implementation success in China. They focused on both generic and unique factors and used a mail survey combining with Internet to examine the hypothesized factors and research framework and the questionnaire is adapted from prior literature. The result for the survey helped determine the scale developed to test the proposed model; two independent variables of business process

reengineering and organizational culture that are assumed to be extremely important factors in ERP implementation in China are examined and supported by empirical data

Research (Chadhar and Rahmati, 2004) under the title “Impact of national culture on ERP systems success,” aims to evaluate the overall success of ERP in terms of user satisfaction with respect to national culture users systems are selected from top management to end users. The sample of the research consists of a survey, interview and post-implementation document. These were taken from two organizations across two countries. Australia has been selected as a representative of the Western world and Saudi Arabia as a representative of Arab world. Users from three different levels were interviewed from 45 to 60 minutes. A questionnaire containing both open and close ended questions was posted to users. Documentations regarding post-implementation procedures and policies were analyzed. This article showed that the national culture seems to be a very important factor in Information System development. It has been explored with Decision making. Computers mediated communication, Group support system and consume behavior. Like other technologies, ERP system implementation is also be affected by it.

Another (Thavaruban, 2003) research under the title "Cultural influences on ERP implementation Success"), studied how culture influences user satisfaction with ERP implementation. The data collection for the research was conducted via three mediums: interviews, observations and documentation analysis from a large Australian University. The result identifies the importance of cultural influences on user satisfaction with ERP implementation, and also when implementing technology, the management of human and organizational risk is not only more difficult than managing the technical risk, it is crucial to the success of enterprise system.

Research (Rabaai, 2009) under the title “The impact of organizational culture on ERP systems implementation: lessons from Jordan” studied some aspects of Jordanian culture which influence ERP implantation and used a survey of 55 questions that was sent to 48 organization all over Jordan in both private and public sectors. The study displayed how the deep culture of public sector organizations affects timely implementation. While Jordan’s private sector will adopt a differentiated organizational culture more suited to rapid decision making in the future. Whether or not the Jordanian culture adapts to Western norms will be interesting to watch.

"Investigating the Impact of Organizational Culture on Enterprise Resource Planning Implementation Projects ", (Dezdar and Ainin, 2012) studied the effect of organizational culture on ERP implementation and discussed that there is couple of factors that affects ERP's implementation success or failure in organizations. So the need for better understanding and identifying became urgent. They used a survey questionnaire distributed among ERP users in Iranian organizations. The research results reconfirmed that organizational culture is positively related with successful ERP implementation; organizational culture has been overlooked in prior studies. The results recommend that ERP adopter companies should be aware of the cultural dissimilarities embedded in ERP systems. The data from the study revealed that the likelihood of ERP system implementation increases when organizations have such cultural attributes such as collaboration, consensus and cooperation.

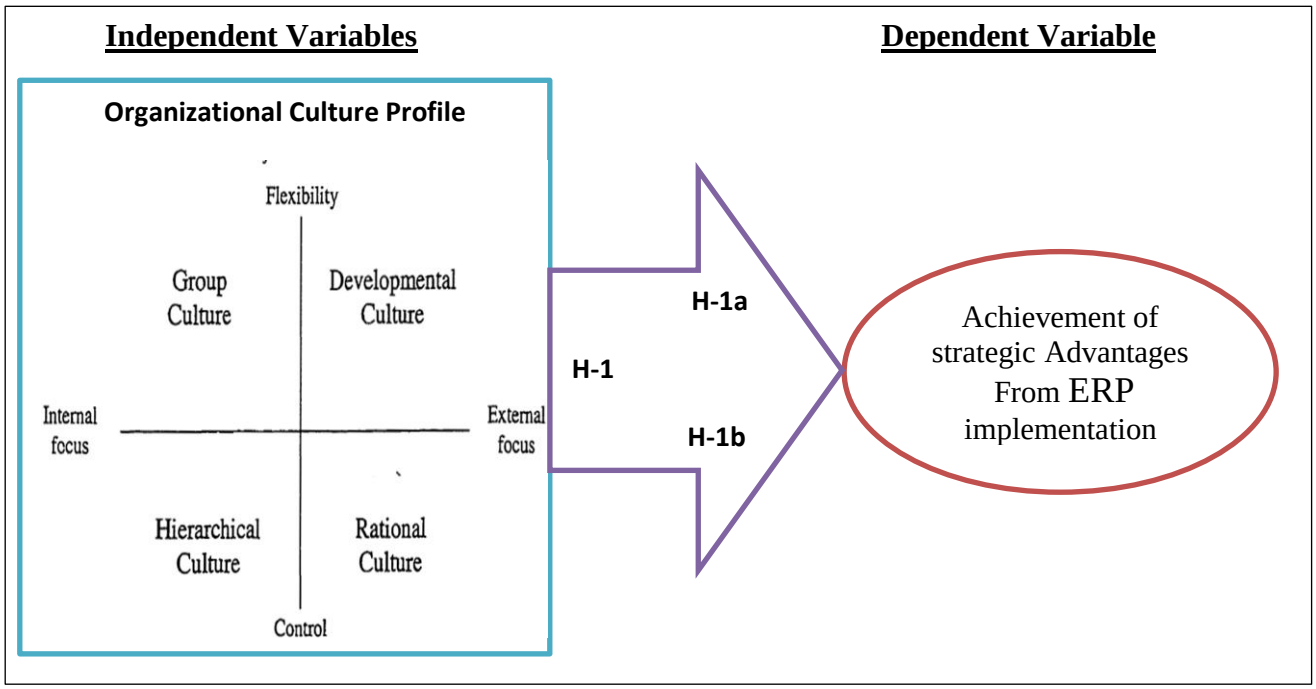
2.5 Conceptual Framework Of The Study

The model presented in Figure-2, is to be used to test the hypothesis developed based on the following studies:

1. Quinn and Rohrbaugh (1983). under the title "A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis"
2. Quinn and Spreitzer (1991) under the title "The psychometrics of the competing values instrument and an analysis of the impact of organizational culture on quality of life."
3. Radding (1998) under the title "ERP: more than an application."
4. Stein (1998) under the title "Extending ERP".
5. Oliver (1999) under the title "ERP is dead! Long live ERP!"

Figure-2 Research Mode1

(Note, arrows do not necessarily imply causality, prepared by the author)



As discussed on the literature review, a Successful ERP is represented by the achievement of strategic advantages (Radding, 1999, Stein, 1998). The organization's culture profile is linked to a successful ERP. Moreover the review of study done by Kappos (2000) confirms this. Thus the researcher has identified organizational culture profile as independent variable and achievement of ERP strategic advantages as dependent variable as seen in the model. The hypotheses considered in the research are as follows:

H-1: The Organizational Culture profile will be significantly linked to the achievement of Strategic advantages from the implementation of ERP,

H-1a: Flexible cultures will allow a greater achievement of ERP strategic advantages over Control cultures.

H-1b: External oriented cultures will allow a greater achievement of ERP strategic advantages over internal oriented cultures.

H-1 seeks to determine how an organization's culture can affect the achievement of ERP strategic advantages. It is assumed that organizations that have a flexible nature will familiarize more easily to the organizational changes that are required for a successful implementation of a particular ERP effort. As ERP arises often as an effort to become more competitive in the market, the mode1 also hypothesizes that cultures with a more external view will also achieve greater success.

2.5.1 Functionality Of Hypotheses And Variables

The constructs for this study are defined as follows. Radding (1999), Oliver (1999) and Stein (1998) have stated that there are 8 ERP Strategic advantages which include greater flexibility, increased efficiency, improved communication, lower operating costs, increased revenue, reduced cycle times, better collaboration, and higher profit margins. This is to note that those are the items to be used in the study to attempt to measure the strategic advantages of ERP. They are identified as prospective areas to be affected by ERP.

As mentioned in the literature review, organizational culture is made up of 4 cultural archetypes, group culture, developmental culture, hierarchical culture and rational culture as per Quinn and Spreizter (1991) article. They are presented in Figure 1.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

There are many research strategies that can be used for many different types of research. These strategies include experiment, survey, case study, action research, grounded theory, ethnography and archival research strategies. Each of these strategies can be used for exploratory, descriptive and explanatory (causal) research (Yin, 2003). Moreover, any one or a combination of more than one can be used according to the needs of the researcher, the research questions and objectives, the extent of existing knowledge, the amount of time and other resources available and the philosophical stance of researcher. To determine the appropriate research strategy, the focus of this research needs to be reviewed with regards to its stated aims and objectives.

Identifying the relationship between the organizational culture and achievement of ERP strategic advantages would add an additional and important level of understanding that can help in facilitating ERP implementation. Three main research questions as stated in chapter one are to: 1) find out the type of existing culture, 2) find out the ERP strategic advantages of inhibiting in the implementation of ERP and 3) investigate the relationships between the types of existing culture and achievement of ERP strategic advantages to enhance our understanding of the factors that are considered important in developing ERP implementation. This would help to determine the type of supportive culture which can either reduce or offset the achievement of those ERP strategic advantages. These data collection and hypotheses testing needs pointed strongly to the need for a positivism research philosophy and deductive research approach that in turn pointed strongly towards the need for a survey based methodology. Therefore, the census survey research strategy was appropriate to be used in this research process due to the deductive approach requirement.

The census survey strategy allows collection of data from a target population. Often obtained by using a questionnaire administered to the target population, these data are standardized for allowing easy comparison (Saunders et al., 2007). Moreover, the researcher is also trying to test hypotheses about cause-and-effect relationships of the impact of organizational culture on the achievement of strategic advantages stimulated to be gained from implementing ERP system like SAP in the context of EABSC.

3.2 Research Methodology

For producing empirical research, there are two methods of data collection: Qualitative and Quantitative. Both methods have their own strength and weakness. The qualitative method permits researchers to study selected issues in detail. Approaching research without being constrained by predetermined categories of analysis contributes to the depth, openness, and detail of qualitative inquiry. This method, however, typically produces a wealth of detailed information about a much smaller number of people and cases, which in turn increases understanding of the cases and situations studied but reduce generalization.

The quantitative method, on the other hand, requires the use of standardized instruments so that the varying perspective and experiences of the people can fit a limited number of predetermined response categories, to which numbers are assigned. The advantage of quantitative method is to measure the reaction of many people to a limited set of questions. Thus, it facilitates comparison and statistical aggregation of the data, which in turn gives a broad and generalized set of findings presented concisely and economically.

The research strategies adopted by the researcher in this study is quantitative by designing and distributing a questionnaire survey as this method has easiness of statistical analysis to obtain a generalized and brief findings.

3.3 Sources of Data

The data of the study relies both from primary and secondary sources which are believed to be the main sources of gathering information. The primary data are collected through questionnaire. Specifically speaking, questionnaires were designed and distributed via email to selected managements (AA and DD plants) and system implementers of EABSC.

The secondary sources of data that the researcher used were literature review of different related researches, publication papers, scientific studies, relevant books, journals, articles, senior thesis work, manuals, available documents, organizational chart, brochures, magazines, company official web sites, company manuals, and electronic retrievals.

3.4 Study Populations

In this study, the total targeted populations were 55 considering only those who were in company during the implementation and are still existing. Those who joined recently were not considered as they may not say much about the implementation or the organization culture due to their level of familiarity with the company.

Justification for using the managements and system implementers of the organization as respondents is that they are in the best position to evaluate the achievement of the strategic advantages of the implemented ERP system. Furthermore, culture and culture change are often imposed from the Top down (Parker, L996, Howard, 1998). That is, the initiative of imposing culture usually comes from the organization's top management. Management creates the boundaries to the organizations culture profiles while employees tries to leave the culture there by making it to flourish or fail depending on the management commitment to enforce it.

The list of the management staff and the system implementers was acquired from the HR module of SAP system and data base of the ERP system (SAP) users list of the IT section. Of those 55 target population the researcher has selected 49 for the final census survey as participants. The motive for selecting the 49 participants is mainly due to the fact that some of the target populations under consideration were not easily available for survey due to business travel schedules and personal leave plans during conducting this study. The total target populations with their category, selected for the census survey are shown below under Table-1.

Table-1 Target population category - Target and Actual

Population Category		**Target Population**		**Selected Actual Population**	
Management Staff	Top Management	8	39	5	33
	Middle Management	31*		28	
System Implementers	BPL's and PM	9	16	9	16
	MC's	7		7	
Total	**#**	**55**		**49**	

* Note: 5 of the Middle Management team were also MC's.

3.5 Data Collection Instruments

According to Saunder et al., (2007:145), quantitative method is predominantly used as a synonym for any data collection technique (such as questionnaire) or data analysis procedure (such as graphs and statistics) that generates or uses numeric data. In quantitative studies, paper-based survey instruments or electronic survey instruments are generally used for data collection. Data obtained through paper-based surveys can be collected through personal interviews, telephone interviews or distributing yourself or by sending the survey questionnaire through postal mail. Electronic surveys are commonly administered via the web or through email.

In this research, an electronic survey method was selected and a survey questionnaire was mailed to the targeted population via the companies e-mail address. According to Cobanoglu et al. (2001), the cost savings associated with eliminating the printing and mailing of survey instruments as well as time and cost savings of having returned survey data already in an electronic format are the possible advantages of using web-based surveys. Email was selected as all of the respondents are email users, the BPL's are sited in South Africa where the group office of CCS resided and the DD plant managements are at 55O KM away from AA. Moreover, the company promotes keeping Green the environment and printing is not encouraged if electronic messaging is possible in addition to the cost savings.

3.5.1 The Questionnaire Survey:

The measurement instrument is comprised of three sections, the first measuring the achievement of ERP strategic advantages, the second measuring the organizational culture and the third asking the respondent for some background information.

The respondents were asked to rate whether the implemented ERP (SAP) system has given their organization strategic advantages. The organizational culture instrument is be the one adapted from Quinn and Spreitzer (1991) and is shown below in figure 3 along with the authors reported Cronbach AIphas.

Figure-3 Competing Values measurement instrument with cronbach alphas. Source, Quinn and Spreitzer (1991)

Organizational Culture Scale	*Cronbach Alpha*
Group Culture	**.84**
• Participation, open discussion	
• Empowerment of Employees to act	
• Assessing employee concerns and ideas	
• Human relations, teamwork and cohesion	
Developmental culture	**.81**
• Flexibility, decentralization	
• Expansion, growth and development	
• Innovation and change	
• Creative problem solving process	
Hierarchical Culture	**.77**
• Control, centralization	
• Routinization, formalization and structure	
• Stability, continuity, order	
• Predictable performance outcomes	
Rational Culture	**.78**
• Task focus, accomplishment, goal achievement	
• Direction, objective setting, goal clarity	
• Efficiency, productivity, profitability	
• Outcome excellence, quality	

Each culture constructs value (i.e. Group, Developmental, Hierarchical, and Rational culture) is obtained by aggregating the value attributes for that culture construct. An organization's culture profile is represented as a combination of the four culture constructs. The respondents were asked to indicate the value placed on each attribute in their organization on a Likert scale response format. The anchors for the Likert scale were "not valued at all" to" Valued a great deal".

The questionnaire also assessed whether the organization uses an assimilation or integration methodology or not. It also assessed the amount of effort put into integration for the ERP software. The cover letter and questionnaire used annexed as Appendix-1 and 2.

Out of the 49 questionnaires that were emailed to the selected target population 45 were returned being filled by the respondents correctly. The response rate was 91.84% which is very good and acceptable. The status of the questionnaire distributed and their feedback is summarized in Table-4.

3.5.2 Pretest:

A pilot test was undertaken in some selected 5 respondents before the actual distribution and collection of the questionnaires. Modifications and improvements were made to the questionnaires according to the responses of the pilot sample to make it simple and understandable (as presented in Appendices 3 and 4). From the results of the pretest, the final version of the questionnaire was formulated (Appendices l and 2).

3.6 Method Of Data Analysis

This section provides details of the data management, data screening earlier to analysis, handling of missing data, outlier examination, normality test and reliability analysis tests and selection of statistical analysis tools for data analysis.

3.6.1 Data Management

Once the survey was conducted and the data were collected from the 45 respondents, the data was captured on to MS Excel (specifically Microsoft Excel 2010). Then it was uploaded into SPSS software to be analyzed. The dataset imported to SPSS didn't include any information (e.g., the title or position of respondent) that could identify the individual who provided the information. The only link to respondent information was a reference code that was known by the researcher in case of a need to contact the respondent for any verification. Furthermore, all data were combined to avoid any identification of individual response.

3.6.2 Data Management In MS Excel

Job title was an open ended question and respondents provided various job titles. In order to manage this, answers were scanned for common themes and the given job titles were categorized into two main categories by the researcher – MNGT (Management staff that includes Top and Middle management) and SI (System Implementers that incorporates BPL, MC and PM). The number of years respondents hold on their current post and the total years they have been working with the company were also open ended questions. Here they were captured on MS excel and imported on to SPSS as they are and the researcher has categorized on a scale rage for analysis. The number of years as less than or equal to 2 years, 2 to 4 years, 4 to 7 years, 7 to 10 years, 10 to 15 years, and more than 15 years.

3.6.3 Data Management In SPSS

After importing the data from MS Excel it was prepared according to the required data formats in SPSS. Using the SPSS data editor, the data file was prepared defining and labeling the variables and assigning numerical format to each of the questionnaire responses, such as assigning short names to variables; assigning descriptive labels to variables (descriptive labels are self-explanatory and act as code book); assigning numerical values to categorical variables (value label e.g. 0=No, 1=yes); and alignment, assigning type of measures to each variable (scale, ordinal, nominal), missing (data missing because the question didn't apply to that respondent or the respondent did not reply that question specifically), columns (width). Lastly, cautious verification of the data in the columns and rows for accuracy was made to rectify errors during the transfer. As a result all data was found in the correct positions.

3.6.4 Data Screening Prior To Analysis

A general requirement of analyzing the data is the accuracy of data. Data errors can occur at both respondent and researcher level - where a respondent may select 2 answers for a single question or where the researcher may enter incorrect data (enter the data in the wrong column, row, or incorrect value). Although a careful data entry procedure was made data screening was undertaken cautiously, including error checks, handling of missing data, and normality, as any of these may impact on the analysis and findings.

Error checks were made by looking for values that were out of range for a defined value of categorical variables. Using descriptive statistics, frequencies were checked to find mean, sum, minimum and maximum by using distribution and dispersion methods. No out of range values were detected.

Missing data is the second critical issue in data analysis. It is a common occurrence in certain areas of research which can affect the results (Tabachnick and Fidell, 2007). In part C of the survey that is related to background info there was no missing data observed. Questions on ERP strategic advantages and existing organizational culture were all on a Likert scale (1 to 5) and answers to these questions were mandatory. However, missing values of respondents were rechecked with some of them and they confirmed that they left them intentionally as they were not interested to answer or not sure to give any choice. Thus analysis was done excluding the missing values.

3.6.5 Descriptive Statistics: Constructs

The researcher has mainly counted on the descriptive analyses to get the means and the standard deviations for the study constructs along with their items. The items were measured using a liker-type scale as follows.

Table 2: liker-type scale

Agree Do not	**Agree Slightly**	**Agree Moderately**	**Agree at all**	**Agree very much**
Not Important	**Slightly Important**	**Moderately Important**	**Important**	**Very Important**
1	**2**	**3**	**4**	**5**

Based on the abovementioned details, the means of the study's constructs will be dealt with the following descriptive statistics formula (Awsi, 2013).

Interval Length = (Highest Value – Lowest Value) / Number of Levels

Interval Length = (5-1) / 3 = 4/3 = 1.33 and thus;

- **Low Level** = 1+1.33 = 2.33 and Less
- **Medium Level** = 2.34+1.33 = 3.67 so this level range is from 2.34 to 3.67
- **High Level** = 3.68 and above

The researcher has calculated the means and the standard deviations for the study constructs along with the items based on the responses the researcher has collected from the study's sample.

3.6.6 The Readiness And Validity Of Data For Analyses

To answer research questions and test the study hypotheses, a special type of regression analyses called PLS method of SEM needs to be run. However, there are three main prerequisites that should be satisfactorily met so as to ensure that the use of regression analyses is valid. Otherwise, non-parametric tests should be employed.

☆ The data should be normally distributed. Normality in the distribution of scores is a key theory in measuring variables. For analyzing the data, it is not always required, but is generally regarded as preferable if the variables are normally distributed (Tabachnick and Fidell, 2007). It can be measured by Kurtosis-Skewness test and Kolmogorov-Shapiro method (Field, 2005; Tabachnick and Fidell, 2007; Hair et al., 2007). The researcher has used descriptive statistics applied in SPSS to assess the Skewness and kurtosis (Table – Appendix-7) and Kolmogorov and the Shapiro method (Table Appendix-8 :). Skewness provides an indication of symmetry of distribution while Kurtosis shows the peakedness of distribution. Skewness-Kurtosis should be between ±2.54. Using Kolmogorov-Smirnov tests, data need to be significant so as to ensure its validity (Hair et al., 2006). Thus the researcher has confirmed normality as all the values of the Kurtosis and Skewness test indicated in the table are all within the range ±2.54 (Hair et al., 2006).. Moreover as indicated in the Table on Appendix-8 the researcher confirms that the data is normally distributed given that all constructs are significant at $p \leq 0.05$. Therefore, normality of data as one of the prerequisites for regression analyses is assured in this study via both methods.

☆ Multicollinearity amongst constructs should not be available so as to ensure independency of constructs. Multicollinearity (also collinearity) is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated, meaning that one can be linearly predicted from the others with a non-trivial degree of accuracy (Brien, 2007). To test of multicollinearity, both tolerance and Variance Inflation Rate (VIF) values are utilized to make sure that constructs are independent and multicollinearity is not a likely threat. As a rule of thumb the tolerance values should be more than 0.10 and VIF values should be less than 10 for constructs to be independent and for assuring that multicollinearity

is not available amongst constructs. The table under Appendix-9 confirms the independency of constructs given that the measured values meet the conditions of tolerance and VIF. Hence, the study constructs are independent and thus the second prerequisite for regression analyses is assured.

- ☆ The third test we need to do before the analysis that the correlation of constructs with themselves should be higher than their correlations with any other construct to ensure that each construct is independent and not part of any other construct. Bivariate Pearson Correlation test was conducted to assure the independency of data. The rule is that each and every construct should correlate with itself in a way that is much greater to its correlations with other constructs. If this rule is positive, then constructs are independent and data are ready and valid to be used within regression analyses. Based on the values in Table under Appendix-10, the constructs are independent as they correlate with themselves in a way that is stronger in comparison to their correlations with other constructs.

Based on the results of the above three tests, the researcher can now utilize regression analyses to test the research hypotheses.

3.6.7 Reliability

In order to measure the internal consistency and reliability of the study's constructs, Cronbach's alpha (α) measure was used. The scales' reliabilities were measured and the Cronbach's alphas of all scales as in Table 2 were ranged between (0.77) and (0.84); indicating good reliabilities of the scales. George and Mallery (2003) provide the following rules of thumb: "> 0.9 – Excellent, > 0.8 – Good, > 0.7 – Acceptable, > 0.6 – Questionable, > 0.5 – Poor, and < 0.5 – Unacceptable" (p. 231). The table shows that the reliability of each of the scales is well above the minimum recommended. Please note that the Cronbach's alpha (α) measure for the organizational culture constructs were directly taken from the Quinnn and Spreitzer (1991) on their CVMI as shown in section 3.4.1.

Table-3 Reliability Analysis for the Constructs

Reliability Statistics		
Construct	**N of Items**	**Cronbach's Alpha**
ERP Strategic Advantages	8	0.80
Group Culture	4	0.84 *
Developmental Culture	4	0.81 *
Hierarchical Culture	4	0.77 *
Rational Culture	4	0.78 *

*** CVMI with cronbach alphas source, Quinn and Spreitzer (1991)**

3.6.8 Main Analysis

First part of the analysis consists of examination of personal and organization demographics; profile of culture; and profile of ERP strategic advantages. Descriptive statistics in The Statistical Package for Social Science (SPSS) software Version 20 was used in analyzing the data for meaningful interpretation of findings. Second part of analysis is measuring relationships between organizational culture and ERP strategic advantages.

In general researchers use regression analysis (RA) to examine the relationship between a dependent variable and one or more independent variables. Specifically speaking, RA can be used to understand which independent variables are related to the dependent variable, and to explore the forms of these relationships. This study uses Structural Equation Modeling (SEM) to measure the relationships between the constructs.

SEM has become more and more a recognized method for examining the hypotheses and has additional functionality and power over and above RA. Moreover a second-generation statistical package, which is Partial Least Squares (PLS) specifically Smart PLS 3.0 (V 3.1.6) software, is being used. Smart PLS package adopts SEM for data analysis. PLS is a variance based approach to SEM. PLS allows for relatively small sample sizes with a strong rule of thumb of having a sample size that is ten times the size of the number of indicators for the largest construct. Yet this restriction can often be relaxed to 5 times the number of items in the largest construct (Chin, 1997).

To answer research questions, the researcher has also employed means, frequencies, and standard deviations. The Cronbach's Alpha test was also used to test the reliability and consistency of the data collection tool (i.e. questionnaire). To test the research hypotheses, the researcher utilized path analysis and T-values from the PLS software.

3.7 Ethical Considerations

The respondents were guaranteed that the information they provide is confidential and is solely used for the purpose of the academic research and would not be used for any personal interest. This is clearly stated on the cover letter (attached under APPENDIX-1) with the questionnaire. Moreover their participation was also based on voluntarism and if they wish they can have the right to reject the questionnaire. This was mainly aimed to give comfort to respondents. The study in the overall was tried to be confined with-in the standard professional ethics.

CHAPTER FOUR

RESULTS AND DISCUSSION

In this chapter the findings and discussion of the study is presented based on the demographics of the respondents in accordance with the research questions and research objectives of the study. Those objectives are mainly descripting the organizational culture profile, the achievement of ERP strategic advantages and analyzing the impact of organizational culture with the achievement of ERP strategic advantages.

4.1 Demographic Of Respondents

Demographic statistics include personal information, such as job Title, current position work experience and total years they have worked for the company. Many researchers have measured multiple demographic variables (e.g. age, education level, marital status and gender) and used them as control variables, particularly in regression analyses. However, in this study the effects of personal and organizational characteristics are removed from the regression analysis because these variables may undesirably impact on the core relationship examination, that is, the effects of the independent variable of organizational culture on the dependent achievement of ERP strategic advantages. Therefore, data on these variables was collected and analyzed only for descriptive purposes.

Table-4 General demographic profile of respondents and Status of questionnaires distributed

Population Category		Questionnaires sent		Questionnaires Returned		Returned Rate %	
Management Staff	Top Management	5	33	3	31	60.00%	93.94%
	Middle Management	28		28		100.00%	
System Implementers	BPL's and PM	9	16	7	14	77.78%	87.50%
	MC's	7		7		100.00%	
Total Responses		**49**		**45**		**91.84%**	

Tabel-4 shows the category and number of respondents with their respective percentage response rate according to the management staff and system implementers that the respondent's represent. The aggregate responses rate from a total population size of 49 is 91.84%. Getting a high

response rate (>80%) from a small, random sample is considered preferable to a low response rate from a large samples (Evans SJ, 1991). Majority of the respondents 63.27% (31 out of 45) are from management staff and the rest 28.57% (14 out of 45) are from system implementers. It also illustrates the general demographic profile of the respondents by management level, (Top management, Middle management), System implementation level (BPL, PM, and MC).

Table-5 General demographic profile of respondents related with their work experience

Category	Sub category	N	%
Years occupied on current position			
	less than 2 Years	29	64%
	2 to 4 Years	8	18%
	4 to 7 Years	3	7%
	7 to 10 Years	3	7%
	10 to 15 Years	0	0%
	More than 15 Years	2	4%
	Total	**45**	**100%**
Total years worked for the organization			
	less than 2 Years	12	27%
	2 to 4 Years	18	40%
	4 to 7 Years	6	13%
	7 to 10 Years	5	11%
	10 to 15 Years	1	2%
	More than 15 Years	3	7%
	Total	**45**	**100%**

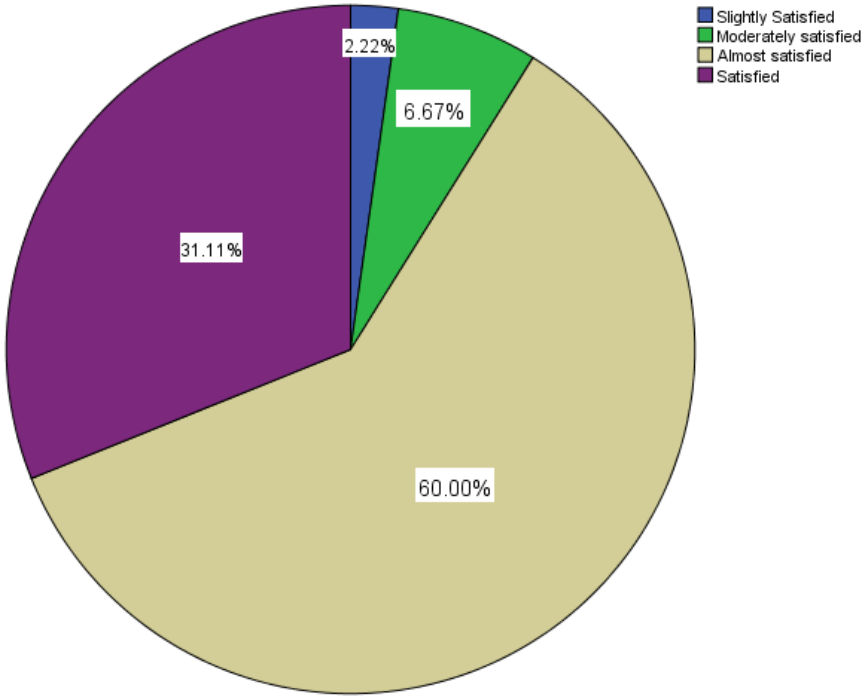
Table -5 also shows the demographic profile in terms of Years occupied on current position. About 64% of the respondents hold their current position for less than or equal to 2 years, 18% for 2 to 4 years, 7 % for 4 to 7 years, 7% for 7 to 10 years and 4% have stayed more than 15 years on their current position.

Moreover, on the second part of the table we can also see the total years worked for the organization of which 27% have stayed less than or equal to 2 years, majority of the respondents 18 (40%) have 2 to 4 years employment length with EABSC, 13% from 4 to 7 years, 11% of them stayed 7 to 10 years, while 2% of the respondents stayed 10 to 15 years and 7% more than 15 years. Employees longer period of staying with the company have a major effect on the evaluation of the system and performance of the organization due to developed skills and knowledge of the workforce.

4.2 Level Of Satisfaction With ERP System (SAP) Implementation

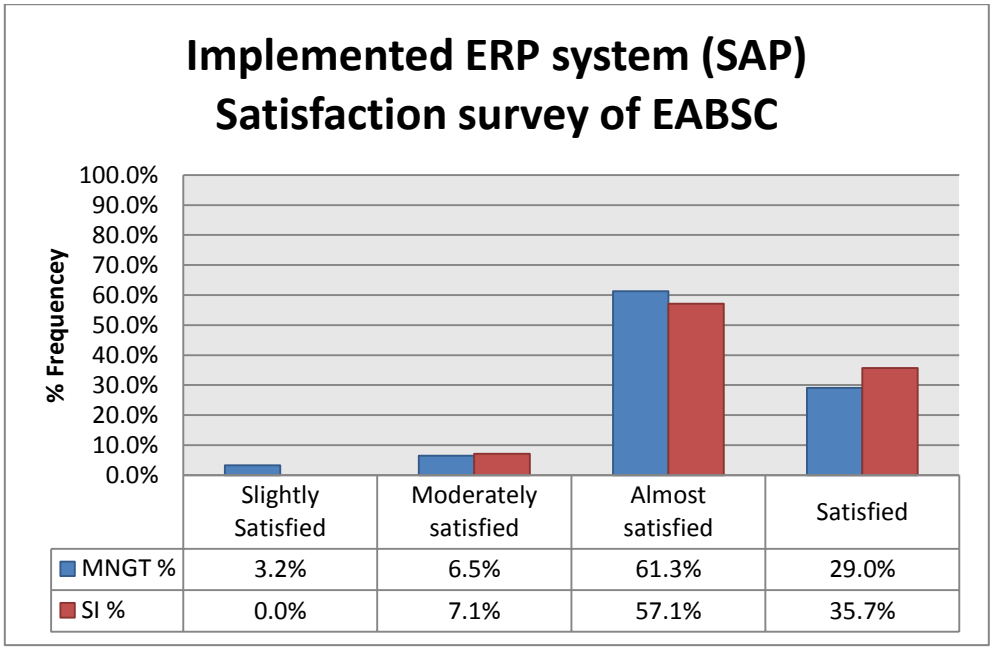
The survey conducted on part-A of the first question replayed by respondents assessed on the overall satisfaction level of the implemented ERP system (SAP) over the last 12 months. The result is summarized in the below Figure.

Figure-4 Level of Satisfaction with ERP system (SAP) Implementation of EABSC



31.11% (14) of the respondents were satisfied with the implemented ERP system (SAP) and 60.00% which account 27 of the respondents were almost satisfied by the software system in place. 6.67% (3) were moderately satisfied while 2.22% (1) is slightly satisfied in relation with the other respondents. This shows that of the total respondents more than 90% (91.11%) were satisfied and almost satisfied by the implemented ERP system (SAP).

Figure-5 Implemented ERP system (SAP) Satisfaction survey by staff category of EABSC



In Figure-5 we can see that 3.2% of the management staffs are slightly satisfied but there are none system implementers with slight satisfaction. 6.5% of the management staffs are moderately satisfied while this is 7.1% for system implementers. The almost satisfied percentage for management staff is 61.3% is higher than the system implementers that have 57.1%. However, the satisfied system implementers are 35.7% much higher than the 29% management staff. To sum up, the percentage of satisfaction by system implementers is higher as shown in the above table. All the system implementers have a moderate satisfaction and above while for management staff this is 96.8%.

Even though the ERP system (SAP) is in place for almost a year, the satisfaction level of the respondents, which are the key stake holders of the company to evaluate the output and implementation success, is high. Furthermore none of the respondents have also replied as 'unsatisfied' with the ERP system in place.

4.3 Research Questions Answers and

Q.1 What Are The Types Of Organizational Cultural Profile Existing In EABSC?

Here the researcher will do analyses on the overall mean scores of each organizational culture type. Table 6 presents the overall means, ranking, standard deviation and level of the organizational culture type.

Table 6 Descriptive Analysis for the Construct: Organizational culture

Type of Organizational culture	Mean	Ranking	Std. Deviation	Level	Valid N
Rational culture	4.51	1	0.526	High	45
Group culture	4.34	2	0.599	High	45
Developmental culture	4.20	3	0.445	High	45
Hierarchical culture	3.86	4	0.565	High	45
Mean of all constructs	**4.23**		**0.534**	**HIGH**	

According to the results in table 6, rational culture is the most dominant culture in EABSC with a mean value of 4.51. Group culture with a mean score of 4.34 is the second most dominant, while developmental culture is third in ranking having a mean mark of 4.20. Finally, hieratical culture was the weakest of all cultures that have a mean rate of 3.86 in EABSC. All the above results are as per the respondents survey who are the key stakeholders for evaluating and enforcing organizational culture.

Q.2 What are the significant strategic advantages achieved by implementing ERP System (SAP) in EABSC?

Strategic advantages of ERP system

As described in the literature review, this construct compromises eight perceived strategic advantages from ERP implementation. Those are greater flexibility, increased efficiency, improved communication, lower operating costs, increased revenue, reduced cycle times, better collaboration and higher profit margins.

Table 7 Individual Descriptive Analysis for the Construct: Strategic advantages of ERP

S.no	Items	Mean	Std. Deviation	Rank	Level	Valid N
1	Lower Operating Costs	3.61	0.722	4	Medium	43
2	Better Collaboration	4.14	0.765	2	High	43
3	Greater Flexibility	3.41	0.996	8	Medium	43
4	Increased Efficiency	4.02	0.657	3	High	43
5	Reduced cycle time	3.48	0.902	7	Medium	43
6	Improved Communication	4.27	0.618	1	High	43
7	Increased Revenue	3.58	0.906	5	Medium	43
8	Higher Profit Margins	3.50	0.952	6	Medium	43
Overall Mean		**3.75**	**0.815**		**High**	

Table 7 shows the mean, standard deviation, ranking and level of the individual indicators for the strategic advantages of ERP construct in the EABSC sample. The results show that the mean of the construct items range between (3.41) to (4.27) with an overall mean of (3.75). The level of such an overall mean is high. The major strategic advantages of ERP system are under Item number 6 (Improved Communication) with highest mean, which is (4.27) with a standard deviation of (0.618). Followed by better collaboration (4.14) and increased efficiency (4.02) which are considered to be high in terms of level.

On the other hand, item number 3 (Greater Flexibility) came last on the basis of mean values. The mean of this item is (3.41) and its standard deviation is (0.996) and thus considered as medium but it is adjacent to high level. The other items in this construct are lower operating costs (3.61), reduced cycle time (3.48), increased revenue (3.58), and higher profit margins (3.5).

Having said so, factor analysis concluded that the 8 items representing the achievement of ERP strategic advantages converged into a single factor. As indicated in the reliability test (under section 3.6.7) this was supported by the fact that the Cronbach alpha for those items (all eight included) was 0.804. Thus the above table (Table 7) was only used just for discussion on the descriptive statistics in terms of means, standard deviations, ranking and level for items of the ERP construct. Therefore for this analysis purpose the mean of the eight items was taken to represent this dependent variable.

Q.3 What Is The Impact Of Organizational Cultural Profile On The Achievement Of Strategic Advantages Of ERP System?

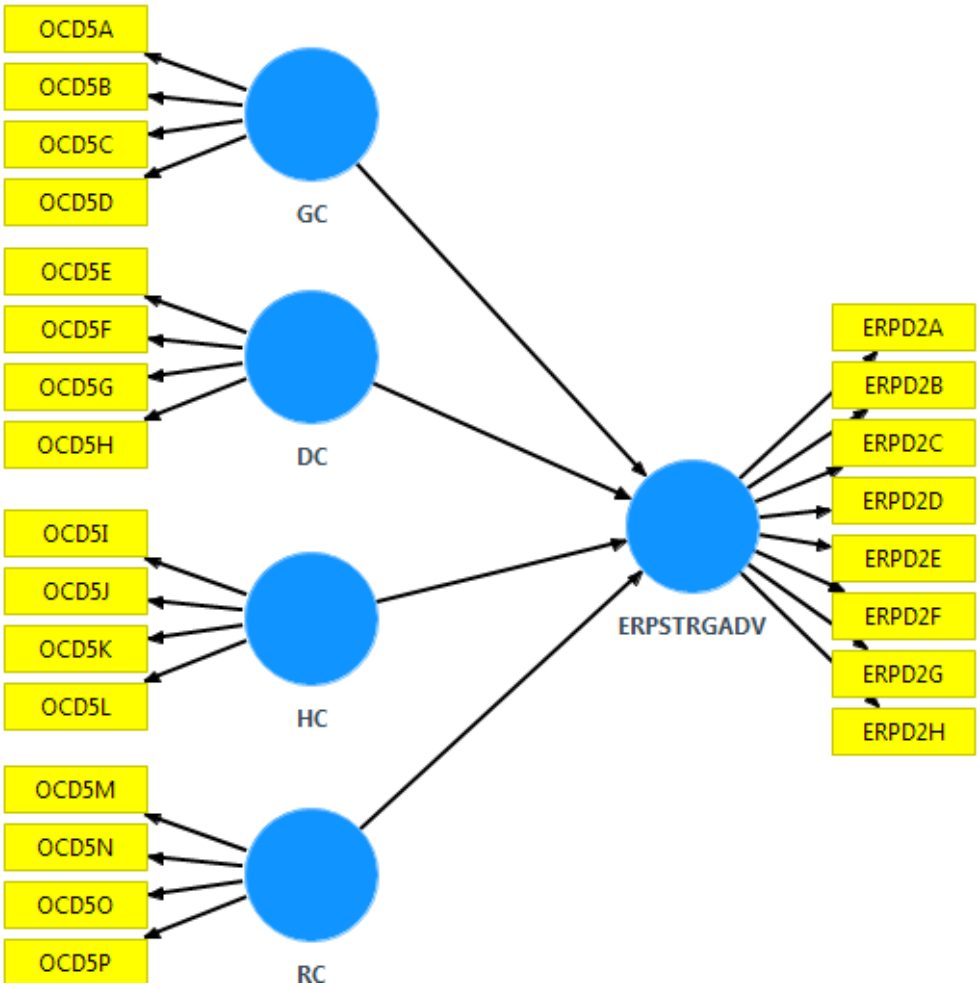
To answer this question, the researcher tested the hypothesis presented under section 3.1.1 as shown in the next subsection (4.4). The researcher presents the SEM models that were developed using PLS. This will be followed by a summary of the test of hypotheses using the PLS models.

4.4 Study Hypotheses Testing

ERP strategic advantages and organizational culture

The research mode1 presented in this paper (as shown in Figure-2) hypothesizes a link between the organizations culture profile made up of the four culture archetypes and the achievement of strategic advantages from the implementation of ERP software. Figure 6 below shows the 5 construct measurement model of culture and ERP strategic advantages. The measured variables are shown as a box with labels corresponding to those shown in the questionnaire. Latent constructs are circled.

Figure 6 Graphical displays of 5 Construct Path analyses Model in Smart PLS

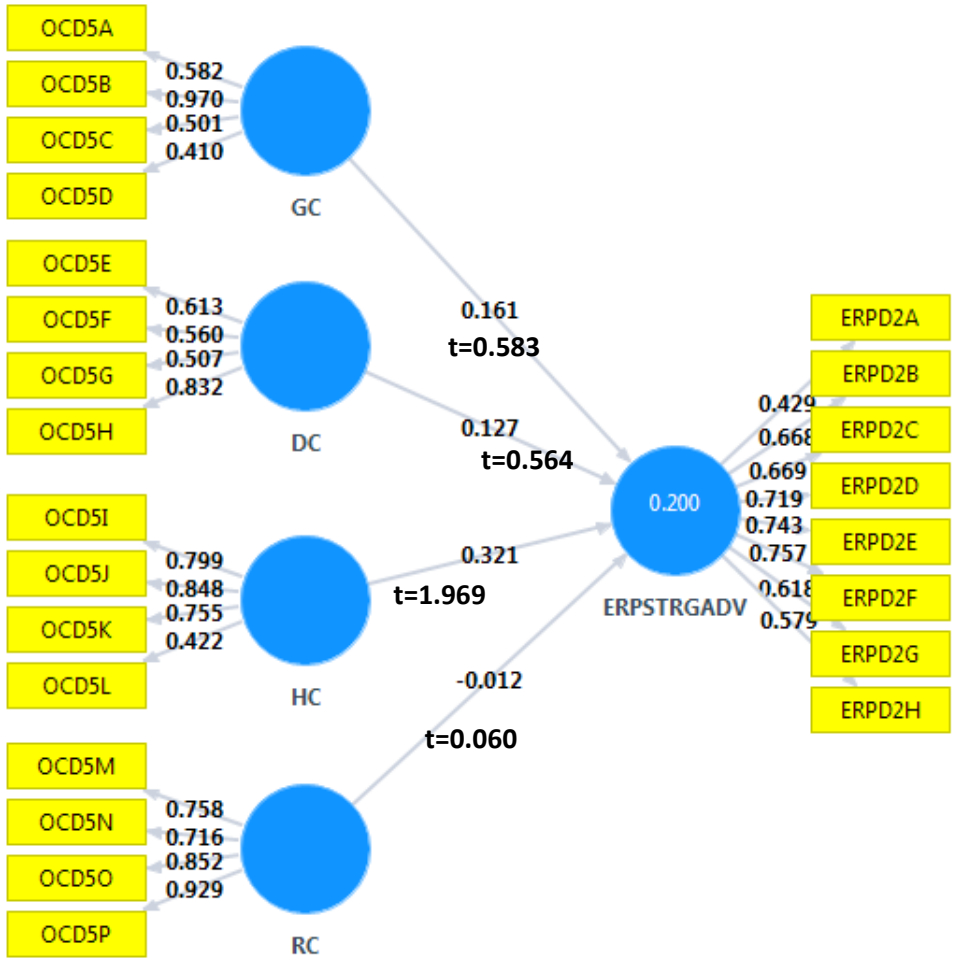


The path analysis presented in Figure 7 describes the relationship between the organization's culture and ERP strategic advantages. The values that appear over the arrows represent the path coefficients, the size and sign of which determines the magnitude and its type of its relationship with the dependent variable.

The value (0.200) on the dependent variable ERPATGADV (ERP strategic advantages) called the R Square (R^2) represents the proportion of its variance that is explained by the relationships directed toward it. Thus the culture profile explained 20.00% of ERP strategic advantages variance. The factor loadings, the values between the constructs and their corresponding items are all positive conforming that those items are positively related to their constructs or variables (dependent and independent).On the other hand the path coefficients, values between the independent variables and the dependents variables are both negative and positive as we can see from the Figure 7.

The PLS relationship between these constructs and on the basis of t values, shows that there is a relationship between the organizations culture and the achievement of ERP strategic advantages. Hypothesis-1 (H-1) can be accepted since the path between ERP strategic advantages is significantly related to some of the culture profile archetypes.

Figure 7 Path Analysis relationships between the organizational culture profile and ERP strategic advantages in Smart PLS *P<0.05



As shown in Figure-7 Group (GC), Developmental (DC) and Hierarchical Culture (HC) are positively linked with ERP strategic advantages as they have 0.161, 0.127 and 0.321 coefficient values respectively. However the rational culture value is negative (-0.012), showing that rational culture is negatively linked to ERP strategic advantages. As discussed on the literature review under section 2.3 Figure -1 shows that the CVF put the four culture archetypes in to a two by two matrix with a featuring two different dimensions represented by Internal focused VS. External focused and Controlled VS. Flexibility orientation (Denison and Spreitzer, 1991, p. 6). Group and hierarchical cultures are both internal cultures, but group is flexible whereas hierarchical is control oriented. Figure-7 tells us that internal oriented cultures are more

significantly related to the achievement of ERP strategic advantages than are external cultures. This is confirmed by the fact that the path coefficients are fairly high for the internal cultures (Group 0.161 and Hierarchical 0.321) and the t-values (Group 0.583 and Hierarchical 1.960). But in this case Hierarchical is twice as high as group showing significance. This may also explain that control cultures have greater achievement of strategic advantages from ERP than does flexible cultures. The T-Value and other statistics for the ERP-Culture model can be found in Appendix-11.

The results of this mode1 point out that we should reject hypothesis H-1a and Say that Flexible cultures do not allow achievement of ERP strategic advantages whereas control cultures may. In similar way, Hypothesis H-1b should be rejected and we can Say that external cultures do not allow achievement of ERP strategic advantages while internal cultures do.

In summary, Hypothesis 1 tested the relationship between the organization's culture and the achievement of ERP strategic advantages. The results found that group, developmental and hierarchical cultures were positively linked to ERP strategic advantages, and that rational culture was negatively linked to ERP strategic advantages. Hypothesis 1 was thus accepted. Hypothesis H-1a was rejected as there was no specific evidence that flexible cultures enjoy greater ERP strategic advantages. Hypothesis H-1b was also rejected due to the lack of relationship between external cultures and ERP strategic advantages whereas the results actually showed a relationship between internal cultures and the dependent variable.

4.5 Discussion

This study has empirically examined evidence on the impact of characteristics of organizational culture on the achievement of ERP strategic advantages. The main purpose of this study was to identify the relationship between Organizational cultures and ERP strategic benefits and to see its impact in achieving the organization’s overall strategic advantages and gain a better understanding of the factors affecting ERP implementation. It is expected that replication of this study in other organizations with different cultural profile and context may further help in developing an improved model of ERP implementation. In this context, the study has first identified the type of organizational culture in EABSC and secondly identified the major ERP strategic advantages existing with the overall achievement. Moreover it has also investigated the relationship between the type of organizational culture and achievement of ERP strategic advantages.

Here discussions on the findings are presented and systematically review how this research has addressed the research questions formulated in chapter 1. First, the state of existing organizational culture in the EABSC is discussed by looking at the characteristics of each type of organizational culture in the context of achievement of ERP strategic advantages. Then, the status of ERP strategic advantages in the survey population is examined. Finally, the impact of organizational culture on achievement of ERP strategic advantages is discussed via examining the observed relationships between the two.

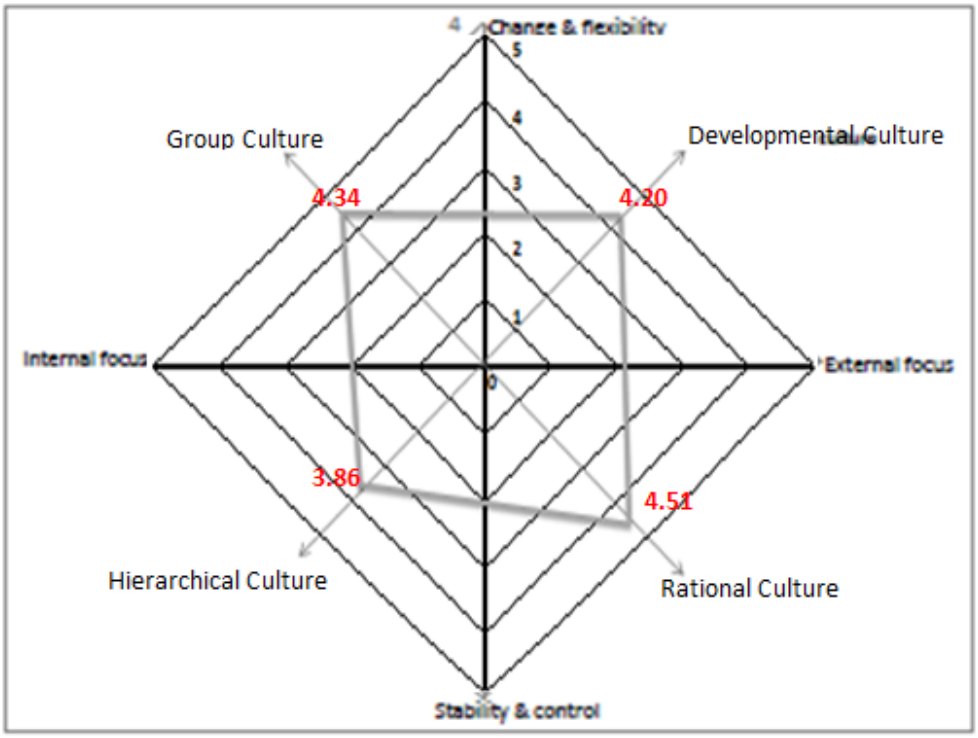
4.5.1 Organizational Culture

It is becoming clear that business excellence can't be achieved merely by rudimentary improvement strategies but by fostering capability to do the right things through a persistent and lasting set of norms and values (Oakland, 2003). Such built in norms, values, beliefs, behaviors and climate are referred by many scholars as an organizational culture (Denison and Spreitzer, 1991; Cameron and Quinn, 1999). Therefore, understanding the cultural profile of an organization and mapping this profile to the steps needed to accomplish a change is an important part of the change (Cameron and Quinn, 1999). In this context, the organizational culture profile observed in the survey population is discussed from the data collection perspective on the four types of culture - group, developmental, rational and hierarchical.

The graphical presentation of results in Figure-8 below, displays an organizational culture profile. The highest score (Rational 4.51) is oriented towards attention on the external environment, Productivity, performance, goal fulfillment and achievement. The second dominate culture (Group 4.34) is focused on internal environment valuing belongingness, trust and participation. Third is the developmental culture (mean value of 4.20) is oriented towards decentralization which reflects flexibility and impulsiveness. The weakest of all with 3.86 mean value (hierarchical) most tenets centralization which reflects stability and control. This indicates that the focus of the EABSC based on the survey population is a lot more on Productivity, performance, goal fulfillment rather than stability, order, and control.

We need to note that there is no significant difference in the mean value of the cultural profile implying that EABSC can adapt different types of cultures at different times. This is supported by the FMCG business nature to have result oriented and performance driven operation coupled with high level of team work that is based on mutual trust as shown on the Figure-8.

Figure 8 Mean score of each culture profile types of EABSC



Denison and Spreitzer (1991) argue that none of the cultural types are wholly good or bad in essence, because any type of culture can be useful based on the organizational goals. They further state that the four cultures in their typology should be viewed as ideal types, meaning that organizations are characterized by some combination of these four culture types – although some types could be more dominant than the others. Thus, a particular organization need not be classified exclusively as having one type of culture, but can be considered as containing elements from the four culture types, where one type may be more dominant (Quinn and Spreitzer, 1991, Cameron and Freeman, 1991, Yeung et al., 1991). As McDermott and Stock (1999) noted "as such, a high rating on one dimension (e.g. internal orientation) does not exclude a high rating at the opposite end (e.g. external orientation)". Quinn (1988) explained this more clearly, arguing that "we want our organizations to be adaptable and flexible, but we also want them to be stable and controlled. We want growth, resource acquisition, and external support, but we also want positive information management and formal communication. We want an emphasis on the value of human resource but we also want an emphasis on planning and goal setting."

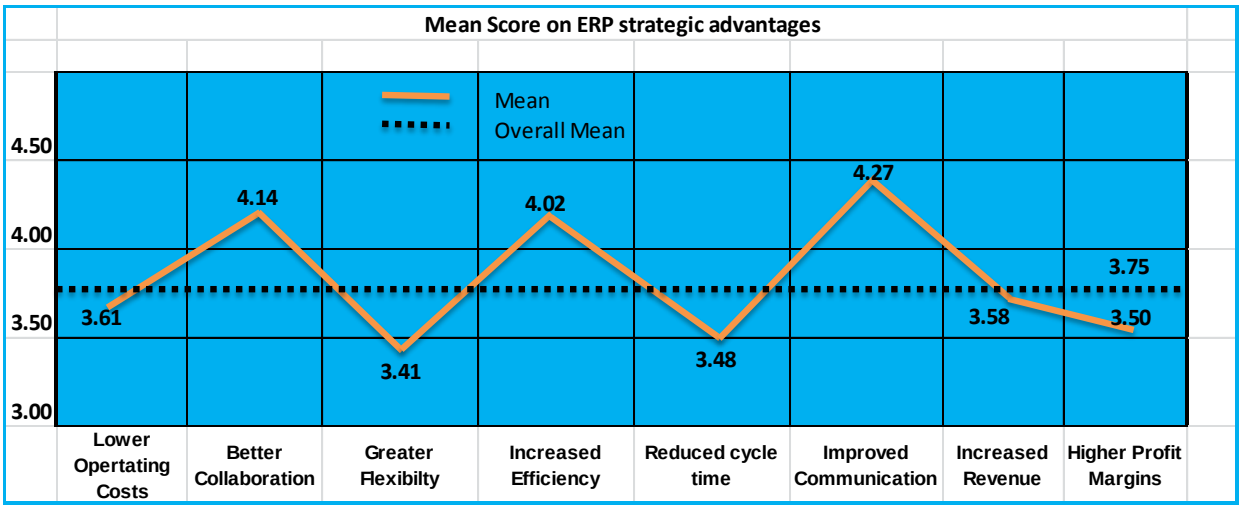
4.5.2 ERP Strategic Advantages

Here the results for the ERP strategic advantage construct and its indicators are discussed. Table 7 in section 4.4 illustrates the mean, standard deviation and total number of respondents for each

ERP strategic advantage indicators. Accordingly, Improved Communication, better collaboration and increased efficiency are the highest items based on their mean value and level respectively, whilst greater flexibility is found to be the lowest of the strategic advantages from the perspective of this study's sample. Accordingly, the descriptive statistics concerning the construct (Strategic advantages of ERP system) indicate that achievement of Strategic advantages of ERP system for EABSC is considered high in terms of overall mean and level when it comes to the implementation and operation of ERP Systems.

The Overall mean score of the construct is 3.75; this is well above the middle value 3.67 on the likert scale of 1 to 5, an indication of high overall score of construct in the survey population. This shows that EABSC is overwhelmed with all indicators of ERP (SAP) system strategic advantage achievement. Figure 9 below is constructed from Table 7 in section 4.4 which illustrates the overall score of ERP strategic advantage achievement construct.

Figure 9 Mean score of ERP strategic advantage items for EABSC



4.5.3 Organizational Culture And The Dependent Variable - ERP Strategic Advantages

In section 4.5 under the Study Hypotheses Testing, hypothesis 1 was accepted, that there was a relationship between the organizations culture and the achievement of ERP strategic advantages. However hypotheses H-1a and H-1b were both rejected. The assumed hypothetical undercurrents of the relationship between organizational culture and ERP strategic advantages was not present (i.e. the importance of flexibility and an external view). What was seen instead was that internal cultures play a large role in achieving ERP strategic advantages, and the beginning of evidence showing that control cultures also play a role.

One of the aims of ERP is to electronically and technologically align some if not all members of a value chain. Thus it was assumed that an external view would be more favorable to the

organization in its implementation of an ERP. Yet we cannot forget that the implementation of ERP software also represents the implementation of software that will affect the organizations internal environment. Perhaps what the results Say is that organizations need to focus on the internal environment if the changes that are made internally like ERP are to be effective.

It was also seen that the relationship between the culture profile and ERP strategic advantages is greater for the control cultures (Hierarchical and Rational vs. the flexible ones of Group and Developmental). Which is also against the initial hypothesis made based on the related literatures. It was assumed that flexibility would be more of an advantage than would be control in the implementation of organizational change. On the contrary the results indicate antagonistic in relation to ERP strategic advantages. What's more is, the strength of the path coefficient found between hierarchical culture and ERP strategic advantages in comparison to the weaker one, the group culture construct is higher; which confirms the interpretation that control cultures may achieve greater success with organizational changes such as ERP.

In this study two out of three hypotheses are either not supported or not fully supported. It should be remembered that if a hypothesis is not supported, it should not be considered as absolute scientific proof that prediction is wrong (Jaynes, 2003). Rejecting a hypothesis is also very useful, informative and worth knowing because often, data that initially may seem to be inconsistent with a theory may in fact lead to new important predictions (Royall, 1997). In this study, the real world data did not fully agree with some of the hypothesized predictions indicating that the implications of theory were not totally supported by the facts in this study’s context. Whatever the reason for rejecting a hypothesis, it triggers a need for further inquiry and testing. Whether a hypothesis is supported or rejected, the best course of action in academic research is to test it again and again with different settings.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study is aimed at studying the impact of organizational culture on the achievement of strategic advantages of ERP systems (SAP) in a case of EABSC. It tries to determine the organizational culture profile and evaluate the main perceived ERP perceived strategic advantages in EABSC. Finally, this study is also intended to understand the impact of organization culture profiles on achievement of ERP strategic benefits. Certainly, in this new digital world of business, the ERP system seems to be the right solution. This is because in the current business environment ERP can provide organizations with various benefits such as greater flexibility, increased efficiency, improved communication, lower operating costs, increased revenue, reduced cycle times, better collaboration and higher profit margins.

To achieve the objectives of this study, the researcher has developed a model to measure the impact of organizational culture on the strategic benefits of ERP based on the extensive literature review done. The model has two main constructs: Organizational culture and achievement of strategic advantages from ERP implementation. The construct of organizational culture includes the four culture profiles: Group, developmental, rational and hierarchical cultures, while the construct of achievement of strategic advantages from ERP implementation is represented by the eight strategic advantages described above that are analyzed as a single variable.

The model developed was applied and tested in the context of EABSC, which has successfully implemented ERP system (SAP) about a year ago. The sample was determined to include management staffs and system implementers of EABSC as they are best suited to impose organizational culture and evaluate the effectiveness of the ERP system in place. For hypotheses testing, a questionnaire instrument was designed on the basis of the constructed model. Prior to data collection, it was validated by selected candidates for testing. Validation was in terms of clearance, meaning, format, and its ability to measure the constructs included within the research model. Accordingly it was updated to include the accepted comments and suggestions received and distributed to the sample of the study. As a result, 45 responses considered valid for data analysis were collected. The analysis was conducted using both Statistical Package for Social

Sciences (SPSS 20.0) and Partial Least Square (PLS-SEM) and more specifically SmartPLS V.3.1.6. Following data analysis, results were obtained and reported in chapter four.

5.2 Summary Of The Main Findings

The study explored a number of important and significant results that the researcher hopes would help other business organizations and more specifically EABSC to trigger a number of critical decisions related with ERP implementation and their view of organizational culture. It also hoped that such decisions would be reflected positively on their business' benefits. Based on the data analysis and hypotheses testing in chapter 4, the research results generated from this piece of work can be summarized as follows.

- All the cultural profiles types Rational culture, Group culture, Development culture and Hierarchical culture in EABSC are considered high in terms of level when it comes to the achievement of strategic advantages ERP Systems.

- In the organizational cultural profile, the rational culture is the highest in terms of rank and mean value for EABSC, whilst Hierarchical culture is the lowest one in the context of ERP Systems implementation, operation and achievement of perceived benefits.

- The overall organizational culture for EABSC is high in terms of level as per the views of the study sample.

- Overall strategic advantages for EABSC due to ERP implementation are high in terms of level from the perspective of the samples of the study.

- The ERP strategic advantages of improved communication, better collaboration and increased Efficiency for EABSC are considered to be high in terms of level as per the opinion of study sample.

- Lower operating costs, greater flexibility, reduced cycle time, higher Profit margins and increased revenue strategic benefits due to ERP implementation are considered medium in terms of level from the perspective of the study's sample for EABSC.

- One of the strategic advantages of implementing ERP, improved communication, is the highest in terms of rank and mean value. However, greater flexibility was found to be the lowest as per the perception of the study's sample of EABSC.

- The culture profile explained 20.00% of ERP strategic advantages variance.
- Group culture, developmental culture and hierarchical culture have a positive impact on achievement of ERP strategic advantages while rational culture does not.
- There is no significant impact of rational, developmental and group organizational culture on the achievement of ERP strategic advantages.
- There is a significant positive impact of hierarchical culture on the achievement of ERP strategic advantages

5.3 Conclusions

On the basis of the results of this study, the researcher concludes the following points.

From the culture perspective, the finding of this study show the primary existence of a culture characterized as controlled structure oriented represented mainly by rational culture. The mean score of this rational culture in the survey population indicates their dominance which, in turn, reflects a strong hold of culture that, according to the literature (Cameron and Quinn, 1998) which is not in line with what may be considered as an 'ideal' ERP culture as discussed in chapter 2.This cultural profile in the survey population appears partly uncomplimentary for ERP interventions in the dominant existence of rational culture types.

However the second dominant culture profile for EABSC is Group culture as per the mean value of all the cultures. This culture is characterized as its flexibility related to structure dimension unlike rational culture discussed above. Thus EABSC may have the custom of exercising rational culture that is oriented towards attention on the external environment, Productivity, performance, goal fulfillment and achievement at times and may shift to Group culture that is focused on internal environment valuing belongingness, trust and participation. In the context of combinations of cultures as found in this study, the previous research on organizational culture suggests that organizations are unlikely to reflect only one culture type and that to be effective, the adoption of some elements of each of the four ideal culture types (group, developmental, rational and hierarchical) is necessary. Therefore, a favorable mix of characteristics of organizational culture is desired that not only meets the competing demands of change and stability but also, provides enough flexibility to accommodate innovation and growth (Prajogo and McDermott, 2005).

In the context of EABSC the overall achievement ERP strategic advantage construct is high in terms of level. This is confirmed with The Improved Communication strategic advantage of ERP systems being the highest item whereas the Greater Flexibility is found to be the lowest of the strategic advantages from the perspective of this study's sample. This is even strengthened by the fact that more than 90% of the respondents have reported on being either slightly satisfied or satisfied even if the ERP system has been in place for almost a year. Furthermore none of the respondents have also replied as unsatisfied with the ERP system in place.

This study is based on the argument that it is the organizational culture that will impact achievement of ERP strategic advantages. The findings of this study also suggested that organizational culture has a significant impact on achievement of ERP strategic advantages. For example, hierarchical culture significantly relates to the dependent variable achievement of ERP strategic advantages. This is followed by group culture. However rational culture construct is negatively related to ERP strategic advantages.

The researcher wants to reiterate that the results gained above are only from the perspective of EABSC study samples perspective.

5.4 Recommendations

According to the results and the drawn conclusions of study, the researcher here offers some recommendations that would enhance the deployment and utilization of ERP systems among other Ethiopian organizations. The researcher hopes that such recommendations would be taken seriously into consideration so as to enhance the perceived strategic advantages of ERP system.

- ⇨ Identifying and understanding the organizational culture is necessary before ERP implementation as there is a clear indication of a positive relationship that an appropriate culture is vital to the success of ERP. Here in this study hierarchal, group and developmental cultures were found to be positively linked to the achievement of ERP stated advantages while the rational culture is negatively linked and will affect its success undesirably.
- ⇨ Organizations can enhance the likelihood of an effective implementation of ERP by understanding the impact of organizational culture on the achievement of strategic benefits of ERP implementation. In order to accomplish this task, organizations need to know which type of culture can help to achieve those benefits. Therefore, there is a need to identify variables of organizational culture and ERP strategic advantage achievements

and to establish the relationships between these two variables through empirical evidence, so that they can be built into implementers' models for ERP implementation. Here in EABSC hierarchal culture that is characterized by control, reutilization, formalization, Stability, continuity, order, and Predictable performance outcomes should be enhanced to achieve the benefits to the highest level.

- ⇨ Business organizations like EABSC that use ERP systems should pay more attention to combining companywide support, awareness and continuous sentience campaign to ensure the success of ERP system in delivering its expected benefits.
- ⇨ Business organizations, which are thinking to buy or upgrade the available ERP system, should pay more emphasize to create a culture that believes in ERP system expected benefits.
- ⇨ EABSC managers, system implementers (especially BPL'S and MC's) and other business organization managers should measure achieved ERP strategic advantages more frequently to gauge its impact on the overall organizational performance.
- ⇨ There should be a continuous and regular training and development program to enrich the skills of users (SU, EU and new users) so that all the ERP (SAP) system routines are understood by every stake holders and the appropriate outputs are continuously reviewed.
- ⇨ ERP implementation is not a one-time game, thus there should be a process in which a regular follow-up and evaluation of the system, users' needs to be done. From this corrective action plans needs to be developed and act accordingly.

5.5 Directions For Future Research

- ✍ The current research depends mainly on a questionnaire to collect relevant data. This tool is not free of bias; future research can utilize other approaches' such as interviews or focus groups to understand fully the phenomena under investigation.
- ✍ The current study depends on two sources of informants (management staff and system implementers) without making consideration other system users like Supper Users, End Users. Future studies can make contemplation of those ERP system users to further our understanding about why some users perceived more benefits than others.
- ✍ The researcher wants to state that other Ethiopian organizations need to do similar study or a wider scoped study that comprises many other Ethiopian organizations for the results to give generic deductions from the Ethiopian context.

REFERENCES

Amburgey, T.L., Kelly, D., Barnett, W.P., **(**1993). Setting the clock: The dynamics of Organizational change and failure. *Administrative science quarterly*, Vol. 38, pp.51-73.

Awsi OR. (2013). The Impact of key Organizational Factors on Microsoft Dynamics Great Planes (ERP) Perceived Benefits, *Master thesis*, Middle East University.

Bartholomew, D., (1999). Process is back. *Industry Week*, Vol. 248, No. 20, pp. 31-36.

Bergeron, F., Buteau, C., Raymond, L., (1991). Identification of strategic information systems opportunities: Applying and comparing two methodologies. *MIS Quarterly*, Vol. 15, No.1, pp. 89-101.

Cameron, K.S., Freeman, S.J., (1991). Cultural congruence, strength, and type: Relationships to effectiveness. *Research on organizational change and development*, Vol. 5, pp. 23-58.

Chadhar M. A and Rahmati N. (2004). *Proceedings of the Second Australian Undergraduate Students' Computing Conference* 23-30.

Chin, W.W., (1997). *Overview of the PLS method*. http://disc-nt.cba,uh.eddchin/PLSINTRO.HTM.

Cobanoglu, C., Warde, B. and Moreo, P.J. (2001) A comparison of mail, fax and web-based survey methods, *International journal of market research*, vol. 43, no. 4, pp. 441-452.

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests, *Psychometrika*, vol. 16, no. 3, pp. 297-334.

Davenport, T.H. (1998) Putting the enterprise into the enterprise system. *Harvard Business Review*, 76, (4), (121-131).

Deloitte, Consulting. (1998). ERP's second wave. *Technical report*. Deloitte Consulting, New York, NY.

Denison, DR., Spreitzer, G.M., (1991). Organizational culture and organizational development. *Research in organizational change and development*, Vol. 5, pp. 1-21.

Denison, D.R. (1996). What is the difference between organizational culture and organizational

climate, *A Native's point of view on a decade of paradigm wars*? Academy of Management Review, 21(3), 619-635.

De Vaus, D.A. (2002) Surveys in social research, *Psychology Press*.

Dezdar S. and Ainin S. (2012). Investigating the impact of organizational culture on enterprise resource planning implementation projects. *World Applied Sciences Journal* 17 (9): 1125-1133.

Ehie I. C. and Madsen M. (2005). Identifying critical issues in enterprise resource planning (ERP) implementation. *Global Business Solutions* 545-557.

Esteves, J., Pastor, J. and Carvalho, J. (2003) *Organizational and National issues of an ERP Implementation in a Portuguese Company*. 8, pp. 139-154.

Evans SJ. (1991), *Good surveys guide*. BMJ. Feb 9;302 (6772):302-3. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1669002/pdf/bmj00112-0008.pdf

Fichman, R.G., Kemerer, C.F., (1997). The assimilation of software process innovations: An organizational learning perspective. *Management science*,Vol. 43, No. 10, pp. 1345-1363.

Field, A. P. (2005). *Discovering statistics using SPSS*: 2nd edn. London: Sage.

George, D., and Mallery, P. (2003). SPSS for Windows step by step: *A simple guide and reference*. 11.0 update (4th ed.). Boston: Allyn and Bacon.

Grabski, S.V., Leech, S.A. and Lu, B. (2001). *Risks and controls in the implementation of ERP systems.*

G. Stewart, M. Milford, T. Jewels, T. Hunter, and B. Hunter (2000), "Organizational readiness or ERP implementation," *Proceedings of the Americas Conference on Information Systems*, pp.966-971

Hair, Joseph F., Barry, B. (2007). *Multivariate Data Analysis*.(6th Edition).

Hair, Joseph F, William C. Black, Barry J. Babin, and Ronald L.Tatham, (2006). *Multivariate Data Analysis.* 6th edn. New Jersey: Pearson Education, Inc.

Hofstede, G., (1998). Identifying organizational subcultures: An empirical approach. *Journal of Management Studies*, Vol. 35, No. 1, pp. 1-12.

Hofstede, G., Neuijen, B., Ohayv, D.D., Sanders, G., (1990). Measuring organizational cultures: A qualitative and quantitative study across twenty cases. *Administrative science quarterly*, Vol. 35, No. 2, pp. 286-3 15.

Howard, L.W., (1998). Validating the competing values mode1 as a representation of organizational Culture. *The International Journal of Organizational Analysis*, Vol.6, No.3, pp. 231-250.

Huang, J.C. and Newell, S. (2003) Knowledge integration processes and dynamics within the context of cross-functional projects. *International Journal of Project Management*, 21(3), pp.167-176.

Jaynes, T. (2003). Probability Theory: *The Logic of Science. Bretthorst. G. L.Edition Ed. Cambridge: Cambridge University Press.*

Jelinek, Mariann, Linda Smircich, and Paul Hirsch (1983),*"Introduction: A Code of Many Colors," Administrative Science Quarterly*, 28 (September), 331-8.

Kalliath, T.J., Bluedorn, AC, Gillespie, D.F., (1999). A confirmatory factor analysis of the competing values instrument. *Educational and psychological measurement*, Vol. 59, NO.1, pp**.** 143-158.

Kilman, R.H., Saxton, M.J., Serpa, R. (1985). *Gaining control of corporate culture***.** San Francisco, Jossey-Bass

Kappos, C., (2000). A master's thesis. *Organizational culture and the achievement of ERP strategic advantages and BPR performance improvements*. Concordia University, Montreal, Canada.

Kettinger, W.J.; Teng; J.T.C-, Guha, *S, (*1997). Business process change: A study of methodologies, techniques and tools. *MIS quarterly*, Vol. 21, No. 1**,** pp. 55-80.

Louis, C. (2014, May 12). TECH: *Gartner's ERP market share update shows the future of cloud ERP is now*. Forbes. Retrieved from http://www.forbus.com/.

Markus, M. L. (2000). *Conceptual challenges in contemporary IS research*, Journal of Global Information Management 8(3): 42-48.

Martin, E.W., Brown, C.V., DeHayes, D.W., Hoffer, J.A., Perkins, W.C., (1999) Managing information technology: *What managers need to know*, 3rd ed., Prentice Hall, Inc., New Jersey, ,Chapter 5.

McDermott, C.M. and Stock, G.N. (1999). Organizational culture and advanced manufacturing technology implementation, *Journal of Operations Management*, vol. 17, no. 5, pp. 521-533.

Meyer, A.D., Goes, J.B., (1988). Organizational assimilation of innovations: A multilevel contextual analysis. *Academy of management journal*, Vol. 3 1, No. 4, pp.897-923.

Monk, E.F., and Wagner, B.J. (2006). *Concepts in enterprise resource planning*. 2nd edn. Boston: Thomson Course Technology.

O'Brien, J.A- (1999). Management information systems: *Managing information technology in the internet worked enterprise*. 4th ed**.** McGraw-HU, Module III.

O'Brien, R. M. (2007). A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Quality & Quantity* 41 (5): 673

Oliver, R.W., (1999). ERP is dead! Long live ERP! *Management review*, Vol. 88, No.10; pp**.** 12-13.

Parker, M.K., (1996). *Strategic transformation and information technology*, Prentice-Hali, Chapter 8.

Peng, G.C. and Nunes, M.B. (2009) Identification and assessment of risks associated with ERP post-implementation in China. Journal of Enterprise Information Management, 22(5), pp.587-614.

Pettingrew, A.W., (1979).Studying organizational cultures. Administrative science quarterly, Vol. 24, pp. 570-581.

Porter, M.E., (1985). How information gives you competitive advantage. *Harvard business review*, Vol. 63, No. 4, pp. 149-161.

Quinn, R.E., Rohrbaugh, J., (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management science*, Vol- 29, No. 3, pp. 363-377.

Quinn, R.E., Spreitzer, G-M, (1991). *The psychometrics of the competing values instrument and an analysis of the impact of organizational culture on quality of life*. I, Vol. 5, pp.J.15-142.

Rabaai A. (2009). The impact of organizational culture on ERP systems implementation: lessons from Jordan. *AIS Electronic Library AIS el***.**

Rabaa'i, A.A. and Gammack, J. (2008) A hiccup or a rift? *ERP implementation success in Jordan.*

Radding, A., (1998), ERP: more than an application. *Information week*, Apr 5, 1999, Iss.728; pp. 1-10.

Raho, L.E., Belohlav, J.A., Fiedler, K.D., (1987). Assimilating new technology into the organization: An assessment of McFarlan and McKenney's model. *MIS quarterly*, Vol. 11, NO. 1, pp. 47-57.

Royall, R.M. (1997) Statistical evidence: *A likelihood paradigm, Chapman and Hall/CRC*.

Saunders, M. "Lewis P and Thornhill A. (2007): Research Methods for Business Students",Fourth Edition, Pearson Education Limited, Harlow UK.

Sarker, S. and Lee, A.S. (2003) Using a case study to test the role of three key social enablers in ERP implementation. *Information & Management*, 40(8), pp.813-829.

Shanks, G., Parr, A., Hu, B., Corbett, B., Thanasankit, T. and Seddon, P. (2000) Differences in critical success factors in ERP systems implementation in Australia and China: a cultural analysis. 2000 *Citeseer*, pp. 537-544.

Sia, S. K., and Soh, C. (2002). *Seventy assessment of ERP: Organization misalignment*.

Stein, T., (1998). Extending ERP. *Information week*, June 15, 1998, Iss. 686, pp. 75-82.

Tabachnick, B. and Fidell, L. (2007). *Using Multivariate Statistics*., 5th edn. (Allyn and Bacon: Boston, MA.)

Talet N. and Al-Wahaishi S.H. (2011). The Relevance Cultural Dimensions on the Success Adoption and Use of IT. *International Proceedings of Economics Development & Research*; Vol. 19, p132

Thavaruban X. (2003). Cultural influences on ERP implementation Success *School of Computing and Information Technology*, Griffith University, Nathan, Brisbane, Australia ,pp: 93-99.

Trinskjær, J. K. (2009). Combining Enterprise Architecture and ERP Systems, *Master's thesis, the IT University of Copenhagen.*

Watson, R.T., Ho, T.H., Raman, K.S., **(**1994). Culture: a fourth dimension of group support systems. *Communications of the ACM*, Vol., 37, No. 10, pp. 45-55.

Yeung, A.K.O., Brockbank, J.W., and Ulrich, D.O., (1991). Organizational culture and human resource practices: an empirical assessment. *Research in organizational change and development*, Vol. 5, pp.59-81.

Zamrnuto, R-f., Krakower, J.Y., **(**1991). Quantitative and qualitative studies of organizational culture. *Research in organizational change and development*, Vol. 5, pp.83-1 14.

Zhang L., Lee M. O., Zhang Z. and Banerjee P. (2002). Critical success factors of enterprise resource planning systems implementation success in china, *Proceedings of the 36th Hawaii International Conference on System Sciences* 1-10.

Zikmund, W.G. (2003). *Business Research Methods. 7th, Oklahoma, EUA: Thomson*.

APPENDIX

Appendix 1: Cover Letter

Date:……

To: EABSC management, BPL's, PM and MC's,

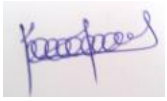
CCS, EABSC

Greetings!

I am the Trade services Manager and SAP PM-Trade MC in EABSC. Currently I am completing my post graduate study at St. Mary's University, Addis Ababa , Ethiopia in Masters of Business Administration specializing in General Management. For the partial fulfillment of my study, I am currently doing a study on **the impact of organizational culture on the achievement of strategic advantages of implementing Enterprise Resource Planning (ERP) systems like SAP in EABSC's** perspective. This study will attempt to measure the organization's culture using a cultural values questionnaire, and then find the link between the organization's culture and the achievement of the performance improvements of the implemented ERP (SAP) project. My study is supervised by Ass. Pro. Dr. Tilaye Kassahun.

I would ask your help by carefully answering this designed questionnaire. Responding should not take more than 10 minutes. No single response will be used out of the research purpose. All the information you provide while responding will be kept strictly confidential. Any inconveniences resulting from the responses and ideas given will be fully under the responsibility of the researcher. Your participation in this study is completely voluntary.

With kind regards,



Yonas Sbhat K.

Trade Services Manager & SAP PM-Trade MC| East Africa Bottling S.Co (EABSC)|

MBA. Student |St. Mary's University| School of Post Graduate Studies | Faculty of Business |

☎: +251 911 907 875 or +251 912 61 13 45|

💻:ysbhat@et.ccsabco.com or yonas.sbhat@gmail.com|

skype:yonasyonny|

✉:3290 code 1250, Bole Road, Addis Ababa , Ethiopia|

Appendix-2: ERP And Culture Questionnaire

ERP and Culture Questionnaire

Part A: Achievement of ERP Strategic Advantages.

1. Please indicate how satisfied you are with the ERP software implemented (SAP) ?

	Unsatisfied				Satisfied
SAP ERP system	1	2	3	4	5

2. Do you agree that ERP software has given your organization the following strategic advantages?

	Do not agree at all	Agree slightly	Agree moderately	Agree very much	Agree completely
Lower Operating Costs	1	2	3	4	5
Better Collaboration	1	2	3	4	5
Greater Flexibility	1	2	3	4	5
Increased Efficiency	1	2	3	4	5
Reduced Cycle Times	1	2	3	4	5
Improved Communication	1	2	3	4	5
Increased Revenue	1	2	3	4	5
Higher Profit Margins	1	2	3	4	5

3. Please rate your organization's acquisition of the skills and knowledge necessary for effective ERP software (SAP) utilization.

Negligible				Excellent
1	2	3	4	5

4. Please rate the effort that was given by the company to the acquisition of the skills and knowledge necessary for the ERP software (SAP) implementation.

Negligible				Excellent
1	2	3	4	5

Part *B:* Organizational Culture

5. Please indicate the importance of the following attributes for the organization. Please try to value all the attributes

	Not Important		Moderately Important		Very Important
a. Participation, open discussion	1	2	3	4	5
b. Empowerment of employees to act	1	2	3	4	5
c. Assessing employee concerns and ideas	1	2	3	4	5
d. Human relations, teamwork and cohesion	1	2	3	4	5
e. Flexibility, decentralization	1	2	3	4	5
f. Expansion, growth and development	1	2	3	4	5
g. Innovation and change	1	2	3	4	5
h. Creative problem solving process	1	2	3	4	5
i. Control, centralization	1	2	3	4	5
j. Routinization, formalization and structure	1	2	3	4	5
k. Stability, continuity, order	1	2	3	4	5
l. Predictable performance outcomes	1	2	3	4	5
m. Task focus, accomplishment and goal achievement	1	2	3	4	5
n. Direction, objective setting, goal clarity	1	2	3	4	5
o. Efficiency, productivity, profitability	1	2	3	4	5
p. Outcome excellence, quality	1	2	3	4	5

Part C: Background Information.

6. Does EABSC use some specific plan of action to promote the successful adoption of organizational changes required for the ERP implementation? ☐ Yes ☐ No

7. What is your title? _____.

8. How long have you occupied this position? _____ *Years*

9. How long have you worked for the organization? _____ *Years*

Thank you for your time and collaboration!!

If you have any inquires or questions that you would like to ask, please feel free to contact me on any of my addresses indicated.

This confidential number is used only as a reference_____.

Appendix-3: Pretest Questions And Resolutions

1. How long did it took you to respond to the questionnaire?_____ min.

2. Was the vocabulary used clear?

Comments (if needed for all questions):_____

3. Do you think that the vocabulary was appropriate?

Comments _____

4. Were the directions for responding clear?

Comments:_____

5- Did you find any of the questions to be leading you to respond other than you feel?

Comments:_____

6. Did you understand what was being asked of you?

Conunents:_____

7. Did you find offense with anything at all in the questionnaire?

Comments:_____

Appendix-4: Pretest Comments And Resolutions

A. Cover letter: .please rephrase the wording "…you for your help by answering this carefully designed…"

   This comment was valid and the wording has been rephrased as "…your help by carefully answering this designed …" as the meaning may have a negative message to respondents on the care they give in answering.

   Accepted.

B. Introduction of the questionnaire. The wording "I am currently doing a study on ……of the implemented ERP (SAP) project." Seems a duplicate as it was indicated in the cover letter.

   Considering the intro part being actually in the cover letter and since both the cover letter and questioner are to be sent together, the comment was taken as important. As a result it was removed from the questioner.

   Accepted.

C. Part A: the ERP definition given on the Part A is not important as the people who will answer the questioners are management staff, system implementers so they have the know-how of ERP definition. So it is better that it is removed.

   Comment accepted and the ERP definition was removed accordingly.

   Accepted

D. Cover Letter; the cover letter is not important and the questioner by itself is enough.

   Here all the contents of the cover letter are vital as they are required for a research to give a back ground, aim of the research, that the responses are confidential, participation is solely voluntarily and that it's important that respondents know the background of the researcher in respect to the company and his background on SAP system.

   Rejected

E. Q-4 which effort is the question asking for? Individual, company or vendor? Not clear.

   Although the intention was meant to be the company, the comment was taken to avoid confusion. Accordingly it was adjusted by adding "…by the company …"

   Accepted

Appendix-5: Constructs Of The Research And Their Dimensions

Variables	Description	New composite variable
ERPD1A	ERP satisfaction Level	ERP satisfaction Level
ERPD2A	Lower Operating Costs	ERP Strategic advantages -ERPSTGADV
ERPD2B	Better Collaboration	
ERPD2C	Greater Flexibility	
ERPD2D	Increased Efficiency	
ERPD2E	Reduced cycle time	
ERPD2F	Improved Communication	
ERPD2G	Increased Revenue	
ERPD2H	Higher Profit Margins	
ERPD3A	Level of Acquisition of Skills and Knowledge	Level of Acquisition of Skills and Knowledge for ERP
ERPD4A	Effort for Acquisition of Skills and Knowledge	Effort for Acquisition of Skills and Knowledge for ERP
OCD5A	Participation, open discussion	Group Culture - GC
OCD5B	Empowerment of employees to act	
OCD5C	Assessing employee concerns and ideas	
OCD5D	Human relations, teamwork and cohesion	
OCD5E	Flexibility, decentralization	Developmental Culture - DV
OCD5F	Expansion, growth and development	
OCD5G	Innovation and change	
OCD5H	Creative problem solving process	
OCD5I	Control, centralization	Hierarchy Culture - HC
OCD5J	Routinization, formalization and structure	
OCD5K	Stability, continuity, order	
OCD5L	Predictable performance outcomes	
OCD5M	Task focus, accomplishment, goal achievement	Rational Culture - RC
OCD5N	Direction, objective setting, goal clarity	
OCD5O	Efficiency, productivity, profitability	
OCD5P	Outcome excellence, quality	

Appendix-6: Checking Normality Of Data Distribution By Kurtosis And Skewness

Variable	N		Statistic		Skewness		Kurtosis	
	Valid	Missing	Mean	Range	Statistic	Std. Error	Statistic	Std. Error
ERPD2A	44	1	3.61	3	0.358	0.357	-0.422	0.702
ERPD2B	44	1	4.14	3	-0.566	0.357	-0.036	0.702
ERPD2C	44	1	3.41	4	-0.477	0.357	0.086	0.702
ERPD2D	45	0	4.02	3	-0.526	0.354	1.195	0.695
ERPD2E	44	1	3.48	4	-0.726	0.357	1.17	0.702
ERPD2F	45	0	4.27	2	-0.231	0.354	-0.527	0.695
ERPD2G	43	2	3.58	4	-0.456	0.361	0.433	0.709
ERPD2H	44	1	3.5	4	-0.508	0.357	-0.076	0.702
OCD5A	45	0	4.44	3	-1.297	0.354	1.672	0.695
OCD5B	44	1	4.45	2	-0.533	0.357	-0.607	0.702
OCD5C	45	0	4.13	3	-0.74	0.354	0.026	0.695
OCD5D	45	0	4.36	3	-1.033	0.354	0.564	0.695
OCD5E	45	0	3.82	3	-0.378	0.354	0.171	0.695
OCD5F	45	0	4.24	2	-0.396	0.354	-0.914	0.695
OCD5G	45	0	4.33	2	-0.424	0.354	-0.622	0.695
OCD5H	45	0	4.4	2	-0.634	0.354	-0.547	0.695
OCD5I	45	0	3.33	3	0.205	0.354	-0.458	0.695
OCD5J	45	0	3.89	3	-0.415	0.354	0.06	0.695
OCD5K	45	0	4.02	2	-0.037	0.354	-1.196	0.695
OCD5L	45	0	4.18	3	-0.647	0.354	0.238	0.695
OCD5M	45	0	4.36	2	-0.165	0.354	-0.690	0.695
OCD5N	45	0	4.49	2	-1.022	0.354	-0.181	0.695
OCD5O	45	0	4.58	2	-1.201	0.354	0.452	0.695
OCD5P	45	0	4.6	2	-1.307	0.354	0.712	0.695

Appendix-7: Checking Normality Of Data Distribution By Kolmogorov-Smirnov

Tests of Normality

Variable	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ERPD2A	.291	42	.000*	.817	42	.000*
ERPD2B	.260	42	.000*	.828	42	.000*
ERPD2C	.221	42	.000*	.898	42	.001*
ERPD2D	.348	42	.000*	.770	42	.000*
ERPD2E	.240	42	.000*	.857	42	.000*
ERPD2F	.317	42	.000*	.766	42	.000*
ERPD2G	.242	42	.000*	.878	42	.000*
ERPD2H	.267	42	.000*	.881	42	.000*
OCD5A	.328	42	.000*	.733	42	.000*
OCD5B	.335	42	.000*	.722	42	.000*
OCD5C	.242	42	.000*	.819	42	.000*
OCD5D	.302	42	.000*	.772	42	.000*
OCD5E	.303	42	.000*	.840	42	.000*
OCD5F	.244	42	.000*	.795	42	.000*
OCD5G	.292	42	.000*	.752	42	.000*
OCD5H	.302	42	.000*	.758	42	.000*
OCD5I	.258	42	.000*	.870	42	.000*
OCD5J	.299	42	.000*	.839	42	.000*
OCD5K	.227	42	.000*	.811	42	.000*
OCD5L	.258	42	.000*	.818	42	.000*
OCD5M	.327	42	.000*	.733	42	.000*
OCD5N	.367	42	.000*	.706	42	.000*
OCD5O	.395	42	.000*	.672	42	.000*
OCD5P	.395	42	.000*	.672	42	.000*

*Significant at p≤0.05

Appendix-8: Multicollinearity Test

Variable	Collinearity Statistics	
	Tolerance	VIF
ERPD2A	.484	2.066
ERPD2B	.234	4.277
ERPD2C	.287	3.486
ERPD2D	.299	3.343
ERPD2E	.235	4.248
ERPD2F	.230	4.339
ERPD2G	.235	4.256
ERPD2H	.225	4.447
OCD5A	.312	3.203
OCD5B	.193	5.188
OCD5C	.218	4.582
OCD5D	.223	4.488
OCD5E	.381	2.622
OCD5F	.283	3.536
OCD5G	.444	2.254
OCD5H	.300	3.334
OCD5I	.239	4.176
OCD5J	.314	3.188
OCD5K	.261	3.831
OCD5L	.162	6.178
OCD5M	.300	3.329
OCD5N	.200	5.003
OCD5O	.121	8.292
OCD5P	.147	6.794

Appendix-9: Table – Bivariate Pearson Correlation Test

Bivariate Pearson Correlation

	ERPD2A	ERPD2B	ERPD2C	ERPD2D	ERPD2E	ERPD2F	ERPD2G	ERPD2H	OCD5A	OCD5B	OCD5C	OCD5D	OCD5E	OCD5F	OCD5G	OCD5H	OCD5I	OCD5J	OCD5K	OCD5L	OCD5M	OCD5N	OCD5O	OCD5P
ERPD2A	1																							
ERPD2B	.224	**1.00**																						
ERPD2C	.031	.474**	**1.00**																					
ERPD2D	.299*	.611**	.469**	**1.00**																				
ERPD2E	.464**	.401**	.420**	.598**	**1.00**																			
ERPD2F	.380*	.420**	.437**	.489**	.590**	**1.00**																		
ERPD2G	.393**	.141	.160	.272	.358*	.322*	**1.00**																	
ERPD2H	.321*	.160	.147	.189	.306*	.218	.788**	**1.00**																
OCD5A	.104	.268	-.185	.122	.104	.135	-.017	.017	**1.00**															
OCD5B	.161	.194	.105	.151	.232	.450**	.141	.116	.428**	**1.00**														
OCD5C	.050	-.029	-.122	.118	.172	.061	-.090	-.143	.534**	.560**	**1.00**													
OCD5D	-.133	.037	-.064	.118	.061	.082	-.174	-.268	.482**	.492**	.728**	**1.00**												
OCD5E	.209	.044	.101	-.131	.199	.203	.229	.129	.023	.382*	.147	.151	**1.00**											
OCD5F	-.006	.241	-.003	.183	.081	.055	.066	-.103	.401*	.384*	.323*	.416**	.254	**1.00**										
OCD5G	.189	.092	-.005	.144	.114	.173	.011	-.133	.409*	.369*	.253	.306*	-.016	.216	**1.00**									
OCD5H	.077	.264	.002	.244	.094	.349*	.124	.019	.480**	.559**	.355*	.432**	.195	.273	.435**	**1.00**								
OCD5I	-.224	.102	.403**	.068	.055	.129	.301*	.408**	-.172	.122	-.253	-.149	-.155	-.062	-.167	**.04**	**1.00**							
OCD5J	-.064	.297	.352*	.228	.231	.111	.135	.285	.090	.114	-.012	-.122	-.035	-.032	-.061	.045	.573**	**1.00**						
OCD5K	-.153	.114	.325*	.091	-.035	.280	.035	.176	.065	.264	.067	.025	.128	-.053	-.063	.258	.413*	.471**	**1.00**					
OCD5L	.004	-.004	.115	.084	.161	.092	.137	.065	.354*	.467**	.503**	.478**	.424**	.472**	.158	.223	.083	.192	.437**	**1.00**				
OCD5M	-.046	.043	.140	.160	.129	.241	.013	-.085	.379*	.394**	.420**	.428**	.152	.397**	.291	.402**	.171	.297*	.299*	.435**	**1.00**			
OCD5N	-.041	-.125	.181	.075	-.001	.166	.014	-.017	.281	.270	.274	.346*	.084	.212	.188	.210	.026	-.066	.283	.354*	.526**	**1.00**		
OCD5O	-.018	-.069	.253	.135	.127	.241	-.082	-.098	.224	.456**	.371*	.414**	.275	.393**	.191	.202	-.029	.042	.312*	.508**	.626**	.752**	**1.00**	
OCD5P	.054	.315*	.201	.246	.190	.345*	.145	.157	.406**	.583**	.323*	.447**	.285	.486**	.173	.518**	.216	.285	.410**	.404**	.542**	.519**	.675**	**1.00**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix-10: T-Statistic For ERP Culture Model *(See* Figure 5)

	Original Sample (O)	Sample Mean (M)	Standard Error (STERR)	T Statistics (|O/STERR|)	P Values
DC -> ERPSTRGADV	0.127	0.263	0.225	0.564	0.573
GC -> ERPSTRGADV	0.161	0.067	0.277	0.583	0.560
HC -> ERPSTRGADV	0.321	0.307	0.164	1.960	0.051
RC -> ERPSTRGADV	-0.012	0.020	0.207	0.060	0.952

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of my advisor, Tilaye Kassahun (PhD), and all sources of the materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Yonas Sbhat K. _____

Name Signature & Date

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

Tilaye Kassahun (PhD) _____ _____

Advisor Signature and Date

St. Mary's University, Addis Ababa **Jan, 2015**