ADDIS ABABA UNIVERSITY

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Developing a framework for Evaluation of ERP Pre-Implementation Readiness: The Case of Dashen Bank Share Company.

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This is to certify that the thesis prepared by *Zewdu Ayenew* entitled *Developing a framework for Evaluation of ERP Pre-Implementation Readiness: The Case of Dashen Bank Share Company* and submitted in partial fulfillment of the requirements for the Degree of Master of Science in Information Science complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Name and signature of Members of the Examining Board

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_____	Examiner	_____	_____
_____	Examiner	_____	_____

DEDICATION

This work is dedicated to the Almighty God, for His strength and guidance that I continue to receive from him. It is also dedicated to my Mother W/ro kassaye Yalew and to my daughter Rewina.

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Abstract

In recent years the use of Enterprise Resource Planning (ERP) systems has been increasing in companies and government corporations in developed countries, while developing countries lag far behind. However, due to recent economic growth, developing countries such as Ethiopia are increasingly becoming major targets of ERP vendors. As a result, there is now an urgent need for understanding ERP implementation issues in developing countries. Since they face additional challenges related to economic, cultural and basic infrastructure issues.

The purpose of this study is to investigate ERP Pre-implementation readiness using parameters (constructs) such as technical, organizational, and cultural in the context of Dashen Bank Share Company with the view to develop a framework for evaluation of ERP Pre-Implementation readiness and design a solution framework to address those issues. The Pre-implementation aspect is a critical step in the implementation process. We must take the necessary steps to ensure any company hits the ground running with their new system.

For achieving the objective, the study adopted Somers and Nelson's twenty two CSFs (Critical Success Factors) as theoretical (conceptual) framework. In their study, they included ten financial institutions among others to study what CSFs can be relevant and appropriate. I believe the CSFs can represent the financial institutions in our country too. The adopted and other critical factors are discussed widely in various literatures and those are believed to be the key factors for successful ERP implementations by different researchers. This study provides some key insights into the Pre-implementation readiness issues in commercial banks in Ethiopia. In addition, the study investigates the challenges faced by organizations implemented ERP systems referring literature reviews and factors influencing ERP implementation in general.

This study employs survey method. Questionnaires were prepared based on the stated research model (theoretical framework). Twenty two end users from various departments of the organization with different job positions, roles, and work experience who also represented in the IT governance structure for ERP implementation were participated in this study. Purposive sampling were used for this research. These selected staff members are consisting of executive

management, project managers, risk managers, IT professionals and department managers and were involved in their respective work unit's business re-engineering processes for the proposed ERP implementation. Moreover, existing documents at the company were studied to gain more information about the company's profile, business process studies performed by the consulting firm, business case studies and request for proposal documents to learn about the company and its initiatives for the specified project.

The research can be taken as a framework that guides us through successful ERP Pre-implementation preparation and evaluation in commercial banks and can also be considered as a pre-investment activity on which we ask ourselves about the environment we are in. I believe it is a decent inquiry and a sensible decision to investigate what the ERP demands and our existing environment to reconcile the gap before we break out with the project.

In order to answer the research questions and achieve the objective of the study, a critical success factors framework was adopted from Somers and Nelson and incorporated into eleven pillars to overall assess every dimension of organizational setup. These eleven pillars ultimately were classified under organizational, technological and cultural readiness aspects.

The organizational aspect of the organization comprises five pillars namely: IT strategy and planning, IT governance, Risk Management, Capacity and Capability. The technological aspect of the organization was erected by three pillars namely: Application management, Service management and IT resource management. In relation to cultural aspect of the organization, communication, commitment and Change culture were identified as pillars.

Questionnaires were prepared based on the eleven pillars I mentioned above. The questionnaires were distributed to twenty two participants and twenty of them successfully returned. The survey shows that the case company has limitations on the number of dimensions and has also shows areas the company must pay a visit to fill the gap. Based on the findings, this study proposes a framework for evaluation of ERP Pre-Implementation. This study is believed to ensure that we have a solid preparation and understanding about the upcoming implementation project, and in order to stay on timeline and within budget that can improve

the implementation of ERP system in commercial banks. It is recommended that any organization interested in implementing ERP can use the proposed pre-implementation framework to addresses all aspects of an organization to attain implementation success.

Keywords: ERP, ERP pre-implementation readiness, ERP implementation

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ATM – Automated teller machine

CEO – Chief executive officer

CIO – chief information officer

CSF – Critical success factors

DAC- Development assistant committee

DB – Dashen Bank

ERP - Enterprise resource planning

EY - Ernst and Young

IS – Information System

ITG – Information Technology Group

ITIL – Information Technology Infrastructure library

ITSMF - Information Technology service management forum

JIT - Just-In-Time

MIS - Management Information Systems

MRP - manufacturing resource planning

PMI - Project Management Institute

POS - Point-of-Sale

PPM - The project phase model

RDBMS - relational database management systems

RFP – Request for Proposal

ROI – Return on Investment

SAP – Systems, Applications and Products in Data Processing

TQM - Total Quality Management

Chapter One

Introduction

This chapter presents an overview of this research. It provides the background for the study, the research gap and raises research questions. Next the chapter displays the objective of the research, scope and significance.

1.1 Background

Today, many organizations face continuous demands from rapidly changing and increasingly competitive global markets. They also must serve customers who want innovative, high-quality products that feature special options (Vinod Kumar, 2004).

To increase their competitive advantage, companies must have flexible business information systems that adapt to rapid changes. To address these needs, enterprise business applications must provide solutions that concentrate on the customer by integrating the supply chain (Vinod Kumar, 2004).

Enterprise resource planning (ERP) systems are used to unify organizations through the maintenance of a large database that stores, shares, and disseminates data in different business functions. ERP systems focus on the technical integration of different business functions such as accounting and finance, manufacturing and production, human resources, procurement, and distribution (Moutaz H. & Ahmed E., 2013). ERP systems are modular integrated systems, in contrast with legacy systems that are usually operating within organizations prior to ERP systems adoption. ERP projects may vary in size and structure, each requiring careful management decisions to be taken during the whole adoption process and stages (Moutaz H. & Ahmed E., 2013).

Enterprise Resource planning is a development of an enterprise-wide management system, which was also termed as MRP I, the modern version of the manufacturing resource planning system. What both these models purport to do is to integrate all the processes of the organization with the customer satisfaction side of the marketing equation. Simply put, ERP is the planning of the four M's of an enterprise's resources, Man, Money, Materials, and Machine to their best synergistic values (Vinod Kumar, 2004).

In this research, Dashen Bank Share Company is being considered for the case study to examine ERP pre implementation readiness issues. The study basically concentrated on the readiness of the case study company to implement ERP system. The main reason that the study focused on pre-implementation is that as a developing nation, before implementing any software projects, I believe we should know the readiness level of companies for the intended projects before any information systems' investments. On a study to measure ERP implementation readiness in small and medium enterprises, According to (A. Nazir et al., 2013), as the failures of ERP implementation is still considered quite high, they proposed a self- assessment of open source ERP implementation readiness which focused on the pre-implementation aspects of ERP. In addition to the above, previous studies report unusually high failure in ERP projects.
Thus, (J. Razmi et al., 2008) recommend that it is necessary to perform an assessment at the initial stage of an ERP implementation program to identify weaknesses which may lead to project failure.

The Ethiopian banking environment has changed more in the last ten years than in the previous two decades. The ability to respond to new customer needs and seize market opportunities as they arise is crucial. Successful companies today recognize that a high level of interaction and coordination along the supply chain and within departments will be a key ingredient to their continued success (Vinod Kumar, 2004).

The case study company, Dashen Bank Share Company, coined its name from the highest peak in the Country, mount Dashen, and aspires to be unparalleled in banking. Headquartered in

Addis Ababa, the Bank is the biggest private Bank in Ethiopia. It operates through a network of 165 Area Banks, nine dedicated Forex Bureaus, 220 ATMs and 873 plus Point-of-Sale (POS) terminals spread across the length and breadth of the nation. It has established correspondent banking relationship with 464 banks covering 71countries and 175 cities across the world. Dashen is the most reputable brand in the domestic banking market; a reputation earned through consistent delivery of values and preeminence unmatched by its competitors. The Bank also works in partnership with leading brands in the electronic payments industry.[1]

As stated in its mission statement, ‘‘Provide efficient and customer focused domestic and international banking services, overcoming the continuous challenges for excellence through the application of appropriate technology.’’[2].

Technological investments such as software acquisitions, hardware purchases and certification trainings can be mentioned as one area the bank invests its fortune to fulfill the mission and can be clearly seen in its financial statements every year.

Information technology has proved to be a major factor that may highly influence how a firm may perform. In cognizance of this major role in improving the competitiveness of organizations, the bank floated a request for proposals for ERP Software. It believes ERP can provide significant improvements in efficiency across a company. Indeed, many companies are implementing ERP packages as a means to reducing operating costs, increasing productivity and improving customer services. ERP systems can provide higher business agility, better productivity, less errors, better integration of information, in addition to allowing the automation of tasks and processes (Martin, 1998).

[1] Dashen Bank Share company Official website https://www.dashenbanksc.com/companyprofile/index.html
https://www.dashenbanksc.com/corporatestatements/index.html

[2] Dashen Bank Share company Official website https://www.dashenbanksc.com/companyprofile/index.html
https://www.dashenbanksc.com/corporatestatements/index.html

The aim of this research is to evaluate the readiness level of the case study company for the implementation of ERP system. We are going to assess the case company's existing environment and establish a match to ERP key critical factors identified by researchers for the implementation of ERP systems. It is not only the benefits that is central to the business case for deciding whether a firm will invents in an ERP system. Companies must study the current environment in which they are working and decide whether the right requirements / constructs are there for the successful implementation of ERP or not that helps to improve the successful implementation of the ERP system, to minimize failures and to achieve post-implementation utilization.

1.2 Research Background and statement of the Problem

Lured by guarantees of improved business productivity, streamlined business operations, and increased cost savings (Tilley et al., 2007), organizations worldwide have started to integrate ERP systems into their existing business environments. There has been a growing increase in using Enterprise Resource Planning (ERP) systems developed by, for example, SAP, Oracle, BaaN, PeopleSoft and JD Edwards as a business information system platform for large organizations and government corporations in developed countries such as USA, UK, Canada, and Australia (Davenport, 1998).

(Kumar & Hillegersberg, 2000) state that:

ERP systems have now been adopted by the majority of the Fortune top 500 firms, and as the high end of the market becomes saturated, ERP systems are filtering down to medium-sized organizations, and to regions beyond those initially penetrated in Europe and North America.

While there is wide adoption of ERP systems in Europe and North America, developing countries lag far behind, (Huang & Palvia, 2001). However, due to economic growth, developing countries such as Kenya are becoming major targets for ERP vendors (O'Kane, 2002; Davison, 2002; Huang, 2004). In some developing countries, for example Kenya, a number of large and mid-sized organizations have implemented ERP solutions and more are expected to follow. The majority of adopting organizations that joined the ERP bandwagon (Kraemers & Dissel, 2000)

presumed that with relative ease they can benefit from the alleged `best business practices' that are embedded within ERP systems.

However, the transfer of information systems like ERP -typically developed in developed countries - to developing countries is often marred by problems of mismatch with local, cultural, economic and regulatory requirements. For instance, (Huang & Palvia, 2001) state that:

ERP is beginning to appear in many organizations of developing countries. Little research has been conducted to compare the implementation practices of ERP in developed vs. developing countries . . . ERP technology faces additional challenges in developing countries related to economic, cultural, and basic infrastructure issues.

(Gargeya & Brady, 2005) state that studies, mostly conducted in developed countries, show that organizations often run into costly and sometimes fatal difficulties with implementation and subsequent maintenance of ERP systems. For example (Akkermans & van Helden, 2002) and (Monk & Wagner, 2006) observe that a typical ERP implementation initiative takes anywhere between one and three years and typical budgets are in tens to hundreds of millions of dollars.

Popular press and trade journals have documented both successes (Johnston, 2002), and failures (Voordijik et al., 2005; Kim et al., 2005; Alshawi et al., 2004; Sia & Soh, 2002) but with very little explanation on the underlying causes. (Poba-Nzaou, 2008) estimate the failure rate of ERP implementations in developed countries to be between 66% and 70%. Since the trade press is now replete with articles on ERP failures in Europe and North America where most these systems originate from, we agree with the (Huang & Palvia, 2001) argument that ERP implementation is likely to be more problematic in less developed countries given that ERP technology faces additional challenges in developing countries related to economic, cultural, and basic infrastructure issues.

For example, In Kenya, the state-owned Uchumi supermarket chain closed down in June 2006 after admitting it was insolvent throwing more than 1,000 employees out of work and leaving debts of hundreds of millions of Kenyan shillings. The over-ambitious expansion strategy and the poor installation of the ERP system were cited by experts as some of the reasons which contributed to insolvency, especially since they were financed out of working capital which resulted in tying up the much needed financial resources to pay off suppliers, employees and other trade creditors. Analysts further argued that the ERP system was poorly integrated and implemented, staff was poorly trained, and costs were unjustifiable. *The Uchumi* supermarket experience is an example that there is an urgent need for understanding ERP implementation practices in less developed countries, and in Ethiopia in particular, because these systems are still in their early stages in these countries and face economic, cultural and infrastructure challenges. The adoption and use of ERP in Ethiopia raises a unique question for less developed countries within Sub-Saharan Africa that has not been addressed in previous studies, i.e. the challenges faced by user and vendor organizations during ERP implementation and the contextual factors (national and organizational) that influence ERP adoption, implementation, and use. This research as a case study will, therefore, study pre-ERP implementation readiness assessment issues on Dashen Bank Share Company as a case study company.

The difficulty in ERP implementation in developed countries may be exacerbated by the claim that ERP embodies established ways of doing business thereby requiring organizations adopting ERP systems to change their business processes to conform to business practices inbuilt in ERP packages. Vendors argue that the adoption of these best practices makes the configuring of the software less costly and brings about improvement in the organization's processes. Consequently, organizations and their members often experience pressure to adopt these practices (Gosain, 2004).

ERP systems are developed by vendors who draw on their existing sources of knowledge, resources and norms. These would include the developer organization's own business strategy and prevailing norms about what constitutes best practice. In general, the `spirit' of ERP

packages reflects beliefs about the value of having a single enterprise-wide system, and hence tend to have features that are aligned with cross-functional process integration and enterprise-wide data sharing (Markus& Tanis, 2000; Soh & Sia, 2004).

(Soh & Sia, 2004) further argue that developers, while modeling likely organizational requirements in order to design the system, usually draw on the network of organizations to which they have access. These `referent' organizations are usually those from their home market and other markets in which they have a major presence. Such markets are likely to be defined by national and industry boundaries. The structures embedded in the resultant package will therefore reflect the context of the group of companies that the developers interacted with most closely during the design and development of the software. As a result, organizations adopting ERP systems may find the assumptions embodied by these systems about the nature of organizations and the ways in which they operate run counter to their own existing structures and work practices. (Soh et al., 2000) for instance, observed misalignments between ERP packages and organizational structures expressed in formal rules, procedures, and cultural norms in their study which was conducted in Singapore. They stated that:

Some findings suggest the "misfit" issue (gaps between the functionality offered by the package and that required by the adopting organization) may be worse in Asia because the business models underlying most ERP packages reflect European or U.S. industry practices. Procedures in Asian organizations are likely to be different having evolved in a different cultural, economic and regulatory context.

Organizational practices different from those encountered in North America and Europe where most of ERP systems are developed, there can be significant problems associated with the reengineering of local practices and processes that exist in our country.
In line with these studies, we contend that no universal ERP system can be implemented in different countries successfully without resolving misfits resulting from national differences. The business models, including operating processes underlying most ERP software packages, reflect European and US industry practices. Such operating processes are likely to be different

in Sub-Saharan African countries, having evolved in a different cultural, economic, and regulatory environment. Potential misfits could arise from areas including data format, operational procedures (e.g., billing and collection), and output format. Resolving such misfits has required extra implementation time and expense which adds financial strain to these poor performing economies, whose priority investments is not in information technology (Montealegre, 1999; Wilson & Heeks, 2000). Furthermore, ERP being capital intensive is likely to be faced with constrained IT budgets (Heeks & Kenny, 2002) due to poor economic performance in this region. Cultural conflicts escalate implementation cost, and can lead to long implementation period as organizations spend more time and resources in resolving cultural conflicts. This becomes a twofold problem: companies lack the financial resources to gain access to tailored world-class ERP systems; and ERP companies are not prepared to deal effectively with the customization processes that these markets require. In many cases, the basic infrastructure for supporting ERP may be lacking or insufficient to enable organizations to reap optimum benefits from ERP investments. ERP implementation and usage also require specialized skills which may not be sufficiently available in developing countries.

The arguments above suggest that there is often a gap between the system and specific contexts, practices and requirements of particular user organizations. We can conclude that the underlying business models in-built in ERP have implicit contextual biases such as country (for example, European or American practices), sector (for example, private sector), industry (for example, manufacturing), and even biases in organizational practices (for example, process oriented workflow). On this note, I argue that where contextual difference between the ERP package vendor and the adopting organization exist, it is important to explicitly consider the difference and how it may influence the adoption and subsequently the use of the ERP package. Therefore, this research will try to find how the organizational, Technological and cultural contexts of a given organization influence ERP systems implementation and what sort of preparation must be performed before ERP implementation.

In spite of all the benefits, implementing ERP can be a risky undertaking (Poba-Nzaou et al.,2008). (Ward et al., 2005) observe that due to the behavioral and management related challenges in the implementation process, many ERP projects have been terminated. (Arif et al., 2005) and (Alshawiet al., 2004) assert it is imperative for organizations to be aware of the challenges and the experiences of others, and to learn from their challenges and practices, because of the complex and integrated nature of ERP, and the large investment involved. Identifying challenges relevant to local companies is one way to increase the chances of a successful local ERP implementation (Otieno, 2008; Leopoldo & Otieno, 2005). Therefore, this research will aim to identify key critical factors that directly influence the success of ERP systems implementation from different literatures.

As we have seen above, misalignment of ERP and the business model, cultural, organizational and economic factors have been mentioned as contributing elements for the failures of the ERP implementation. In this study, we try to evaluate the readiness levels of companies using eleven pillars to address the above mentioned issues.

1.3 Aims, Objectives and Research Questions

Despite the promises and the continued popularity of ERP Systems, evidence is accumulating to demonstrate that obtaining benefits from an ERP is not as straightforward as those selling and promoting such systems would like us to believe (Boersma &Kingma, 2005).

Although a number of challenges of ERP systems adoption and use have been identified, they are mainly experiences of companies in the developed countries. There is very limited empirical research on ERP implementation focused on developing countries especially on commercial banks. I presume that the cultural problems in developed countries especially in Europe and North America seem to be marginal and managerial approaches tend to be largely similar, which makes adaptation of ERP software relatively easy. Despite these still many failures have been reported in those countries as I discussed earlier. There is no study, in researcher's knowledge that has been carried out in Ethiopia concerning pre-implementation study in ERP

on commercial banks. Therefore, researchers in the field of Information Systems may be interested in reviewing the findings of this paper given the lack of literature covering commercial banks and more so those based in Ethiopia.

In addition, it is arguable that most ERP implementation frameworks and models reported in IS journals are based on ERP studies carried out in developed countries like United States of America, European countries, and Australia. The political, social, and economic uniqueness that these countries represents, an Ethiopian commercial bank, being the case study in this study, could provide researchers with fertile ground for fresh extensions of existing theoretical paradigms.

Lastly, there is a need to investigate the relevance of best practices in the context of developing countries. (Soh & Sia, 2004) state that ERP systems reflect Western ways of doing business. Based on the above discussion it can be argued that foreign developers of ERP systems usually make choices of what they personally consider relevant business practices. Their views are focused through their intentions and experiences. In other words, ERP developers understand and model the environment as they perceive it through their personal culture-bound perspectives which often do not coincide with the view of the local users.

In our context, now a days, banks are floating bids to purchase ERP systems. They are ready to invest a lot of money on this platform. (Rowe, 1999) states that ERP projects are large, costly and difficult and that they require large investment in capital, staff and management time. However, Liang estimated that 40% to 60% of the ERP projects failed. It can be concluded that ERP system implementation can be risky and perilous. Many studies have been done to survey the critical success factors (CSFs) of the ERP systems implementation and finding their important degree. The aim of this paper is also to investigate where we are now in terms of our readiness by building constructs. This will be done by reviewing various literatures and try to devise a framework for the banking industry on how to do the ground work before ERP

implementation and what prior ground work must be performed before the beginning of the project and the implementation.

In this study, we focus on the pre-implementation phase. In practical terms, readiness results from the extent to which the organization has put the employees' skills, resources and other factors in place which are necessary for the project to proceed smoothly and problem free.

Therefore, the study attempts to analyze pre-implementation readiness evaluation activities in addition to answering the following main research questions.

- What are the critical success factors for evaluating ERP Pre-Implementation?
- How do we validate usefulness of those CSF taken from literatures?
- How do we validate appropriateness of these CSF in the test company?
- How we are going to match CSF that are going to be identified to the existing banking environment?
- How those identified factors contribute to overall ERP pre-implementation readiness evaluation framework?

1.4 Objectives of the study

1.4.1 General Objective

The general objective of the study is to investigate the technical, organizational and cultural readiness level in an attempt to implementing ERP in the context of Dashen Bank Share Company and design a guiding framework to address those issues.

1.4.2 Specific Objectives

To achieve the general objective of the study, the following specific objectives are identified.

- To study the existing technical, organizational and cultural readiness level while trying to implement ERP.
- To identify key critical factors that directly has got a connection in ERP implementation.

- To match extracted critical factors with whether they are present in the company or not.
- To report the readiness level of the case study company
- To develop a pre-Implementation evaluation framework
- To draw conclusions and forward recommendations for further study

1.5 Significance of the Study

It is widely accepted that many change programs fail (Attaran 2000; Beer & Nohria 2000) and that more effective change management would enhance organizational effectiveness. Much is made of the best way to manage change (Kanter 1989; Kotter 1996), including a large body of work that argues that there is no point in undertaking change unless the organisation is actually ready and able to adopt the change (Armenakis & Harris 2002). This paper contributes to these literatures arguing that in cases of complex change, not only does there need to be readiness in terms of the change itself, but that there also needs to be readiness among the various aspects of the organisation. In addition, the study help companies to transform themselves into “ERP READY” companies before the real implementation commences.

1.6 Scope and Limitation of the Study

1.6.1 Scope and context of the study

This section explains the nature, coverage, and time frame of the study. It discusses the variables included in the study and the exclusion of other variables.

1.6.2 Scope

According to (Creswell, 2003) delimitation' is a parameter defining the boundaries, exceptions, reservations in a research, and its inclusion and position in a research proposal or write up varies from one situation to another. The delimitation defines the limit or scope of the research. To research into the entire ERP topic, will not only mean researching into a wide range of issues and assumptions but also researching into every aspect of ERP implementation,

especially when viewed from the point of the existing large amount of literature. Therefore, this section is aimed limiting scope and context of this research to in order to make it manageable.

This dissertation is defined by the following boundaries and considerations:

The case study is limited to only one commercial bank. The bank has been selected based on the number of years on the service, business model they practice, organizational culture and technology adoption experiences. I assume these criteria can represent most of commercial banks as most of the policies, regulations, cultural, operating and service delivery platforms are adopted from preexisted peer bank in the country. And I believe the output will fit into the inner workings of most commercial banks. It does not mean that business practices in different banks and conflict of interest among stakeholders (shareholders) are at the same level in all banks in equal magnitude.

1.6.3 Limitation

Like any other research, this study might encounter the following limitations and constraints.

- Limited or no literature and research on ERP in Ethiopian context for reference especially on banking environment.
- Limited availability and access to documents related to issues of readiness assessment in ERP implementation projects.

1.7 Expected Contribution to Knowledge

The findings of this research are expected to contribute towards ERP implementation practice. The findings of this research are expected to be of importance to various stakeholders. ERP implementers can also recognize the environmental and internal requirements and prepare accordingly. Given the complexity and integrated nature of ERP and large investment involved, it is imperative for organizations to study the experiences of others, and learn from their practices and success factors (Umble et al., 2003; Leopoldo & Otieno, 2005). In this light, organizations planning to implement ERP in Ethiopia, especially commercial banks, can learn

from the successes and failures of the organizations and therefore, avoid pitfalls which can lead to ERP project failures. Based on the findings of this study, we intend to come up with a set of systematic steps (implementation guideline) and a methodology for helping managers, implementers and organizations adapt to the demands of the environment.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 overview

This chapter reviews the academic and practitioners literature published on Enterprise Resource Planning (ERP) systems relevant to the focus of this research. (Easterby et al., 1991) notes that it is important for researchers to familiarize themselves with existing research prior to collecting their own data.

With the aim of searching for literature to understand the theoretical background of ERP, the researcher tried to collect a number of articles. A number of Key words were used in an attempt to retrieve relevant literature works. These include ERP, ERP overview, ERP implementation, ERP pre-implementation readiness assessment, critical success factors, ERP life cycles and ERP readiness assessment frameworks.

As discussed in Chapter 1, the focal point of this study is on pre-ERP implementation strategies, basically assessing ERP implementation readiness level on Dashen Bank Share Company. This research broadly classifies current ERP literature in terms of its contribution to understanding the nature of ERP implementation project initiatives. This approach provides a base in which to situate this study. The chapter begins by defining ERP and elaborating how `best practices' embedded in ERP systems have been used In financial institutions referring literatures, what were the major challenges faced during implementation, what factors were there that inhibits or facilitates the implementation of ERP, what critical factors can be taken as a bench mark for pre-ERP implementation study in banking industry and what other variables lead to organization restructuring and the likely consequences during implementation.

2.2 An introduction of Enterprise Resource Planning (ERP)

2.2.1 Definition

An Enterprise resource planning system is an integrated business management system (software) covering functional areas of an enterprise like Logistics, Production, Finance, Accounting and Human Resources. It organizes and integrates operation processes and information flows to make optimum use of resources such as men, material, money and machine.

Enterprise resource planning in general promises

- one database
- one application
- One user interface for the entire enterprise, where once disparate systems ruled manufacturing, distribution, marketing, finance and sales.

Here are some of the definitions extracted from research literatures about ERP.

Definition of ERP	**Source**
The business software systems that evolved as an extension of MRPII-type systems to include integrated modules for accounting, finance, sales and distribution, HRM, material management, and other business functions based on a common architecture that linked the enterprise to both customers and suppliers.	(Wylie, 1990) for Gartner, Inc. cited in (Jacobs & Weston, 2007)
A commercial software package that promises the seamless integration of all the information flowing through the company–financial, accounting, human resources, supply chain and customer information.	(Davenport, 1998)
Integrated, enterprise-wide, packaged software applications that impound deep knowledge of business practices accumulated from vendor implementations in many organizations. ERP systems are evolving to incorporate new technologies, such as E-commerce, data warehousing, and customer relationship management. ERP software is a semi-finished product with tables and parameters that user organizations and their implementation partners configure to their business needs.	(Shang & Seddon, 2000)
First, and most obviously, ERP is a commodity, a product in the form of computer software. Second, and fundamentally, ERP can be seen as a development objective of mapping all processes and data of an enterprise into a comprehensive integrative structure. Third, ERP can be seen as the key element of an infrastructure that delivers a solution to business.	(Klaus, Rosemann, & Gable, 2000)
The implementation of standard software modules for core business processes, usually combined with bespoke customization for competitive differentiation.	(Skok & Legge, 2002)

A collection of applications that can be used to manage the whole business. ERP Systems integrate sales, manufacturing, human resources, logistics, accounting, and other enterprise functions. ERP allows all functions to share a common database and business analysis tools.	Gartner, Inc. cited in (Yen, Chou, & Chang, 2002)
A packaged software system that enables a company to manage the efficient and effective use of resources (materials, human resources, finance, etc.) by providing a total, integrated solution for its information-processing needs. An ERP system supports a process-oriented view of an enterprise and standardizes business processes across the enterprise.	(Nah, Zuckweiler, & Lau, 2003)
An IT solution to provide a centralized IT application for business processes and functions within a company or group of companies. It is a software solution that integrates information and business processes to enable information entered once into the system to be shared throughout an organization. It covers manufacturing and production planning, order management, financial management, asset management, human resources management, marketing automation, electronic commerce, sales and supply chain systems.	(McAdam & Galloway, 2005)
Computer-based technologies that integrate data across an organization and impose standardized procedures on the data's input, use and dissemination.	(Grant, Hall, Wailes, & Wright, 2006)
Packaged software, which is pre-built by a vendor with the intention of licensing it to consumers in a mass market. Through the standardization of work activities, via software configuration, ERP packages aim to provide integrated support for organizational practices such as sales, distribution, manufacturing, human resources and finance.	(Light & Wagner, 2006)
A new breed of Information Technology (IT) solutions that promise to effectively integrate islands of information and structure systems to reflect best practices ensuring total transparency and real-time information sharing across the intra-organizational processes (major functional areas) as well as inter-organizational processes (suppliers and customers).	(Gupta & Kohli, 2006)
Integrated business processes and information technologies into a synchronized suite of procedures, applications and metrics that span intra and inter-firm boundaries.	(Wier, Hunton, & HassabElnaby, 2007)
Integrates all departments and functions throughout an organization into a single IT system (or integrated set of IT systems) so that employees can make decisions by viewing enterprise wide information on all business operations. An ERP system provides a method for effective planning and controlling of all the resources required to take, make, ship, and account for customer orders in a manufacturing, distribution, or service organization.	(Baltzan & Phillips, 2008)
Enterprise applications are systems that span functional areas, focus on executing business processes across the business firm, and include all levels of management. There are four major enterprise applications: enterprise systems, supply chain management systems, customer relationship management systems, and knowledge management systems. ERP systems, to integrate business processes in manufacturing and production, finance and accounting, sales and marketing, and human resources into a single software system.	(Laudon & Laudon, 2012)
Ability to deliver an integrated suite of business applications. These tools share a common process and data model, covering broad and deep operational end-to-end processes, such as those found in finance, HR, distribution, manufacturing, service and the supply chain.	(Gartner, Inc., 2012)

Table 1: DEFINITIONS OF ERP IN RESEARCH LITERATURE.

2.2.2 The structure of an ERP system.

Essentially, an ERP system consists of different modules. (Dahlen and Elfsson, 1999) state that, traditionally, a system must integrate three modules from the core group of manufacturing, distribution, finance and human resources to belong to the ERP classification. As figure 1 below from (Davenport, 2006) demonstrates the main structure of common ERP systems on the market.

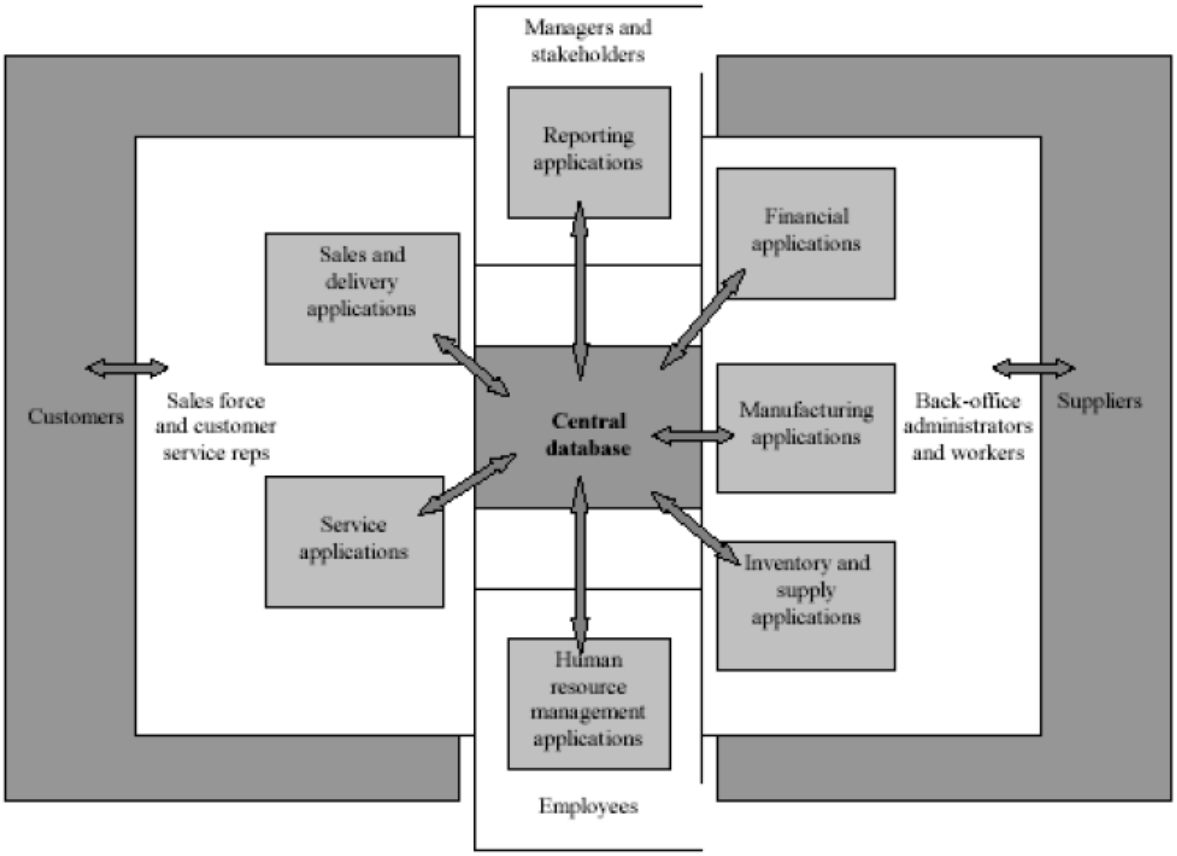


Figure 1: THE ERP SYSTEM (DAVENPORT, 2006)

As this figure demonstrates, the heart of an ERP system is the central database that feeds data among a series of applications supporting diverse enterprise functions. A single database provides consistency and serves to streamline the flow of information throughout a business (Dahlen and Elfsson, 1999).

The availability of a wide range of applications and modules in ERP packages has meant that user-organizations can satisfy most of their application needs with a single ERP. This has abolished integration complexities associated with applications purchased from many vendors and has enhanced information flow among internal processes. An integrated and centralized system provides complete data visibility for all levels of organizational management, thereby facilitating corporate and strategic decision-making (Hicks and Stecke, 1995; king, 2000: Ross and Vitale, 2000).

2.3 Readiness assessment.

Implementation of ERP projects often cannot run smoothly as expected. Many challenges in ERP implementation as it pose some risks. These risks should be measured as early as possible to avoid potential challenges in the later stages. This underlies the need for organizations to assess their readiness to implement ERP.

Readiness assessment was introduced as a separate stage in the ERP project, at which stage it should be carried out before the implementation phase. This assessment does not only show the capability of the company to implement ERP, but it also identifies any areas that are becoming weaknesses of the company, so that the company can improve performance in these areas to get to a higher level of readiness. These literatures helped me to frame the research questions, to understand most of statements of the problems and methodologies used to conduct the research. Here are some of the literatures reviewed that dealt with readiness issues with their description.

Topic of the research	Authors	Objectives of the study	Methodology used
Comparison of E-readiness assessment models. 2009.	Seyed Kamal Vaezi and H. Sattary I. Bimar	In the study, it is reported that one of the most important challenges in e-government and e-commerce area which governments face is the low number of the initiatives initiated in this area. Another one is the failure (complete or partial) of these few initiatives. It is reported that the main reason for these challenges is the lack of readiness for e-government	Comparison of different E-readiness assessment models and provide with a guideline for the choice.

		development in governmental organizations. It is important for them to understand what it means for a country or economy to be "e-ready" and conduct an evaluation based on objective criteria to establish basic benchmarks. In this paper the e-readiness assessment models found in literature have been studied and compared in some aspects such as definition of readiness, target point of model, and scope of application.	
Framework for Measuring ERP Implementation Readiness in Small and Medium Enterprise (SME): A Case Study in Software Developer Company. 2013.	Achmad Nizar Hidayanto, Muhammad Azani Hasibuan, Putu Wuri Handayani and Yudho Giri Sucahyo	The research was conducted to formulate the framework of self-assessment of open source ERP implementation readiness, which focused on the ERP pre-implementation aspects. The proposed ERP implementation readiness assessment framework was developed using the Fuzzy-based ANP (Fuzzy ANP), where the examined readiness factors are grouped into three categories, namely project management, organizational, and change management readiness.	The study adopts the framework of Razmi's Fuzzy ANP and framework defines the ERP implementation readiness in three categories, namely: • Project management readiness • Organizational readiness • Change management readiness
Developing a practical framework for ERP readiness assessment using fuzzy analytic network process. 2009.	Jafar Razmi, Mohamad Sadegh Sangari, Reza Ghodsi	In this study, after evaluating success key factors presented in literature of ERP systems, 15 factors were selected categorized in to five general groups as project, scope and goals, systems and processes, culture and structure, and human resource. The model assesses organizational readiness in three dimensions including organizational readiness, project management readiness and change management readiness. The model was finally applied in an industry and readiness of the organization was assessed regarding implementation of ERP systems.	A new look at the determinants of a firm's readiness to implement an ERP project was presented using fuzzy analytic network process
Soheila Shiri, Alireza Anvari, Hassan Soltani. 2014.	An Assessment of Readiness Factors for Implementing ERP Based on Agility (Extension of Mckinsey 7s Model)	The main goal of the study was to identify and prioritize organizational readiness factors for implementing ERP based on organizational agility. In this study, along with extension of McKinsey 7S model (strategy, structure, systems, skills, style, staff,	Agility criteria were weighted and rated using group AHP with fuzzy logic approach; so that accountability, speed and flexibility

		and shared values) to 9S (7S+ self-evaluation and supportive factors).	have obtained the maximum score.
Capaldo Guido, Rippa Pierluigi. 2015.	Awareness of Organizational Readiness in ERP implementation process: results from case studies	The goal of this article was to explore readiness issue through the use of three case studies from the US realized in the course of a visiting research period the authors were involved in. The data from the case studies is used to demonstrate whether the implementation teams had been aware, before the implementation project started, of the organizational problems and how they were able to measure the organizational readiness of the firm. Based on the unique patterns of the implementation process in each of the three different case studies, broader issues of ERP implementation are explored and directions for future research on change management in ERP implementation are proposed.	capabilities and indicators to assess organizational issues categorized under BPR and End Users Propensity. The research used dialectic organizational change theory. Organizational politics emphasizes relationships between social groups with opposing interests and social power. In the case of organizational culture, dialectics may describe the tension between established cultural practices and requirements for new practices.
Payam Fotouhiyehpour. 2008.	Assessing the Readiness for implementing e-CRM in B2B Markets Using AHP Method	In this research we classified and explained the most important aspects and factors which affect CRM readiness for B2B markets, according to their complicated network of relationships.	They suggested to use the hierarchical model for assessing CRM readiness in organizations based on six main dimensions, seventeen sub dimensions and forty eight indicators.

Golnaz Azhdari, Fariborz MousaviMadani, Mahdi ZareBahramabadi. 2012.	Measuring Knowledge Management Readiness in ERP Adopted Organizations: A Case of Iranian Company	This paper assesses the readiness of KM implementation in an enterprise which has successfully implemented ERP.	To this goal they surveyed the KM readiness with KM assessment tools such as KMAT and also different models of KM readiness and critical success factors. Finally, based on the proposed model, KM readiness of the organization under survey was assessed to be in the average level.

Table 2 : LITERATURES REVIEWED DEALING WITH READINESS ASSESSMENT

2.4 Choosing the right vendor.

Most ERP systems should be able to meet our basic needs and provide the bulk of the functionality we are after. So, we need to dig deeper into the company we're working with, how it handles implementation, and what it does to help customers be successful long term. We need to Take much of our time here and weigh all the factors as we're going to be "married" to ERP vendor for a long time.

Making the right ERP choices can be daunting for project managers or top executives. At the same time, the weight of those choices is at its heaviest because a wrong decision can stop production lines and profits.

MPI Group tips key attributes to consider in evaluating an ERP solution include:

- Flexibility: Architecture for easy upgrades and adoption of new production and business process technologies.
- Return on investment: TCO that factors in anticipated changes in the number of users, locations, customers and products.
- Breadth: support of global expansion (Multilanguage, reporting variations, compliance variation, etc.).

- Ease of use: Ability to support a dynamic workforce with variable skill levels, experiences, and backgrounds.
- Industry Expertise: Specific vertical needs of the industry and customers (purpose-built), with anticipation of how these may change (scalability and agility).
- Flat, future-oriented platform: support of collaborative, team-bases, dispersed decision-making and execution.

As the ERP system is a pricey piece of software that's going to be in use for a long time. So, every company will want to make sure the company they choose will be around to support it. In addition to those listed above, MPI group also suggests companies to consider the following:

• Vertical Expertise—can the vendor provide references from customers within your industry? Within your vertical? Do they offer industry-specific best practices and processes, built in to the system?
• Global/local presence—does this vendor do business in the locations where you do business? Do they offer a local presence where you need it? In the languages the company uses?
• Vision—what is this vendor's technology vision? Are they looking to innovate in ways that could benefit the company's business?
• Customer service—how is the vendor's track record of customer service? Where do they rank on surveys? How many customers are repeat customers?
• Credibility—what do existing customers have to say about the vendor? Beyond those references, what is the word on the street—from review sites, social media networks, etc.? Does this vendor have a good reputation?

Below, some of the well-known ERP vendors.

Figure 2: SOME OF THE WELL-KNOWN ERP VENDORS.

2.4.1Comparative Modules on some ERP software vendors

SAP	**Oracle**	**PeopleSoft**	**JDEdwards**
Sales and Distribution	Marketing, Sales	Supply chain	Order mgmt.
Material mgmt.	Procurement	Supplier relationship	Inventory, procurement
Production Planning	Manufacturing		Manufacturing mgmt.
Quality mgmt.		Enterprise perform	Technical foundation
Plant Maintenance	Service	Enterprise service	

Human Resource	Human Resources	Human capital mgmt.	Workforce mgmt.
Financial accounting	Financials	Financial mgmt. sol.	Financial mgmt.
Controlling			Time & Expense mgmt.
Asset mgmt.	Asset mgmt.		Enterprise asset mgmt.
Project System	Projects		Project mgmt.
Workflow	Order mgmt.		
Product planning	Contracts		Subcontract, real estate

Table 3: TOP ERP VENDORS AND THEIR SOLUTION AREAS.

2.5 ERP Software cost issues

Given the complexity and high costs of ERP systems, organizations need to think about many things, foremost among which is cost of adoption (Van Everdingen, Van Hillegersberg, &Waarts, 2000). With the shortage of proper representation of cost factors and cost estimation methods, especially for SMEs, ERP systems adoption projects are facing challenges in identifying and estimating costs, size, time, effort, productivity and other cost factors (M. Daneva, 2004; Irani, Sharif, & Love, 2001; Seddon, 2003; Stensrud, 2001). Furthermore, when ERP adopters cross their estimated budgets, this could be very critical for an SME with limited resources. Some studies argue that the rise in costs is sometimes not relatively high when measured against benefits. Although this argument might be true, still the main argument here is not the cost/benefit analysis, it is the projected budget vs. the actual money spent on the adoption project. Even if the expected benefits are high (usually long term), this would not protect companies from cancelling the project, or going bankrupt due to unanticipated cost overruns, which could exceed their allocated budgets and capacities. In addition, benefits and their

associated costs should be projected correctly prior to the project, as many companies Implementing ERP systems filed for bankruptcy (Al-Mashari, 2002; Moon, 2007; Newman & Zhao, 2008), and this was mainly due to a flawed ERP budget and schedule estimations (Holland & Light, 1999; Jones, 2007; Martin, 1998). Thus, the costs perspective could be more crucial despite the potential benefits, as you can often gain more benefits when you spend more money, but it is all about your budget constraints and availability of resources (Elragal & Haddara, 2010).

Commercial banks in this respect are more cost sensitive. Moreover, any cost rise or project delays would seriously affect bank's survival in the market. Since ERP adoptions within commercial banks in Ethiopia are still non-existent, researchers need to inspect and identify the basic drivers that influence ERP adoption decisions, especially ERP adoption costs. In general, IS and ERP implementations' costs are mainly divided to direct and indirect. Direct costs are the expenditures that are directly associated with the implementation and acquisition of new technology or system (Love, Irani, & Edwards, 2004). Clear examples of ERP direct costs could be the license and IT infrastructure costs. Alternatively, indirect costs would include human and organizational related costs that usually occur during the implementation process (Irani, Love, & Correspondence, 2002). Like business process re-engineering, HR costs, project schedule delays, etc.

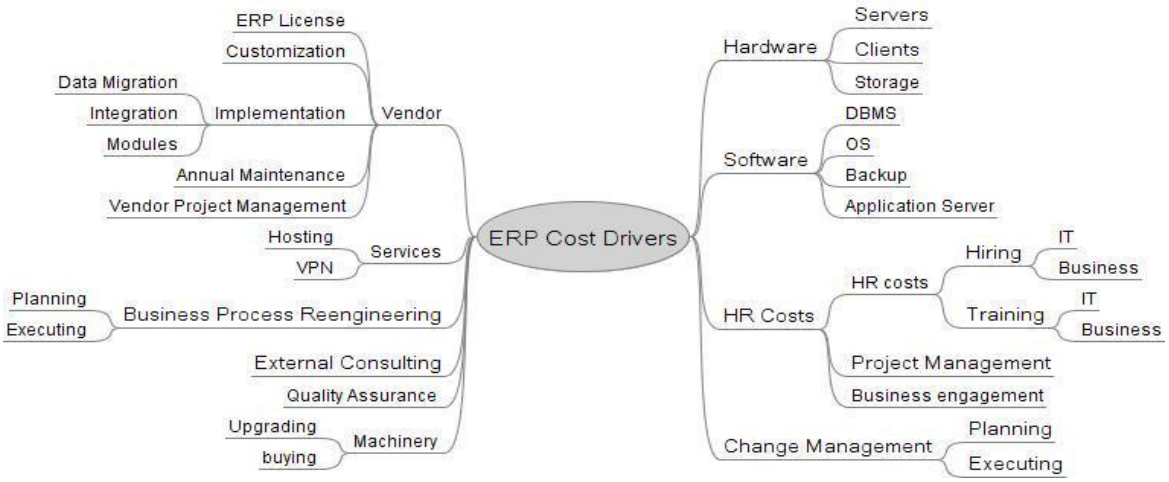


Figure 3: COSTS LIST

ADOPTED FROM (ELRAGAL & HADDARA, 2010).

2.6 ERP Implementation Approaches

The typical (and most common) categorization of ERP implementation approaches is based in two factors: scope and function. (Davenport, 2000) proposes a matrix of ERP implementation approaches based on these factors with two extremes: the incremental and big-bang approaches. The incremental approach "implements the system and associated business change in small pieces; a big-bang approach involves implementing everything at once". (Parr and Shanks, 2000) argue that the concept of ERP implementation is not a generic concept. Therefore, they developed a taxonomy of ERP implementation approaches that consists in ERP categories and characteristics. They defined three main categories of ERP implementations: comprehensive, middle-road and vanilla. They also defined the following ERP characteristics: physical scope, BPR scope, technical scope, module implementation strategy and, resource allocation. Each of these characteristics has a range of values which represent fundamental decisions which are made in the implementation process, and each of them has consequences for the implementation. Combinations of these characteristics serve to place an implementation within one of the categories. More than one combination of characteristics might result in the same category (Parr and Shanks 2000). Finally, software vendors and implementation consultants generally formalize their prior experience into an approach, or methodology that serves as the framework for an ERP implementation.

2.7 Implementing an ERP

In general, information systems implementations are not easy as it sounds. ERP implementations pose more technological and organizational challenges than a traditional IS implementation. For instance, a typical ERP (SAP) contains 8000 to 10000 configuration tables and 800 to 1000 business processes (Alvarez, 2002).

Implementation of a large ERP system requires not only substantial time and effort, but also a wide range of expertise and knowledge of the following: functional aspects of the package; system configuration and system integration; technical knowledge of the related hardware and software; project management and change management; making knowledge transfer and organizing user trainings. ERP- adopting organizations typically lack this expertise and usually outsource these activities to the ERP vendor, hardware vendor, and consulting firms (Simon, 1997; Holland, 1998; Sumner, 2000).

ERP implementation problems are well documented (Parr and Shanks, 2000). The following table presents the findings of the Standish group on ERP implementation from companies that had more than $500 million in annual revenue.

Stakeholder Expectation	Project Management Problem Areas	Results of ERP implementation
Stay within budget	Cost	178%
Finish on Schedule	Time	230%
System performs well	Scope	59%

Table 4: PROJECT MANAGEMENT PROBLEMS.

Different ERP implementation models have been created in an attempt to describe or remedy these difficulties. The following section discusses two generic implementation models. These are the project phase and the four-phase model of ERP.

Even if the intent of the research is to study the ERP pre-implementation readiness level of the case study company, it won't be a time wasting to visit the number of models that is being used to implement ERP.

2.7.1 The project phase model (PPM)

(Parr and shanks, 2000) synthesized existing ERP process model to create the ERP project phase model. It includes planning and post-implementation stages but its primary focus is the implementation project and the factors which influence successful outcomes at each implementation phase. (Parr and shanks, 2000) state that "the implementation process of an ERP system is best conceptualized as a business project rather than the installation of a new software technology". The following figure shows the process of the PPM.

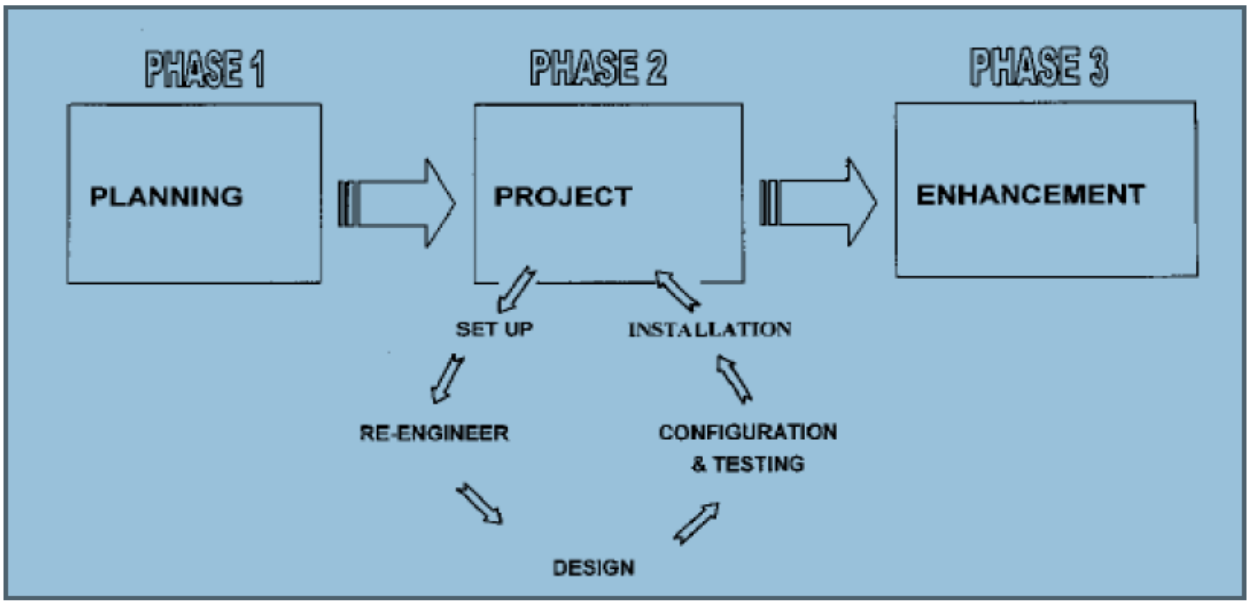


FIGURE 4: THE PPM OF ERP IMPLEMENTATION (PARR AND SHANKS, 2000).

(Parr and Shanks, 2000 justify highlighting the implementation phase as the focus of their model with three points:

1. Many problems in ERP literature relate to the actual implementation project;
2. The PPM model relates success factors to the phases of the ERP implementation process. These augment the model by linking factors leading to success with implementation stages;
3. The purpose of a process model of implementation is to provide guidance for successful ERP project implementation.

There are three major phases in Parr and Shanks, 2000 PPM model:

4. Planning involves selecting the ERP; assembly of a steering committee; determining of high-level project scope and broad implementation approach; selecting of a project team manager; and resource administration.
    1. The project phase is divided into five sub-phases.

        a. Set-up – includes selection and structuring of project teams with appropriate mix of technical and business expertise and clarification of reporting processes and guiding principles.
        b. Re-engineering – includes analysis of current business processes, installation of the ERP, mapping of the business processes on to the ERP functions and training of the project team(s).
        c. Design – consists of high-level design following by detailed design subject to user acceptance.
        d. Configuration and testing – includes development of a comprehensive configuration, population of the test instance with real data, building and testing interfaces, writing and testing reports, system and user testing.
        e. Installation – comprises building networks, installing desktop and managing user training and support.

    3. The enhancement phase goes on for many years and includes system repair, extension and transformation.

    Par and shanks recommend that critical success factors in each phase augment the PPM. The PPM provides practitioners with guidance in the planning and monitoring an ERP implementation.

2.7.2 The four-phased model of ERP implementation.

The four phased model builds on evolving process theory developed by Markus and Tanis (Markus and Tanis,2000).

(Markus and Tanis, 2000) model divides and ERP implementation into four phases;

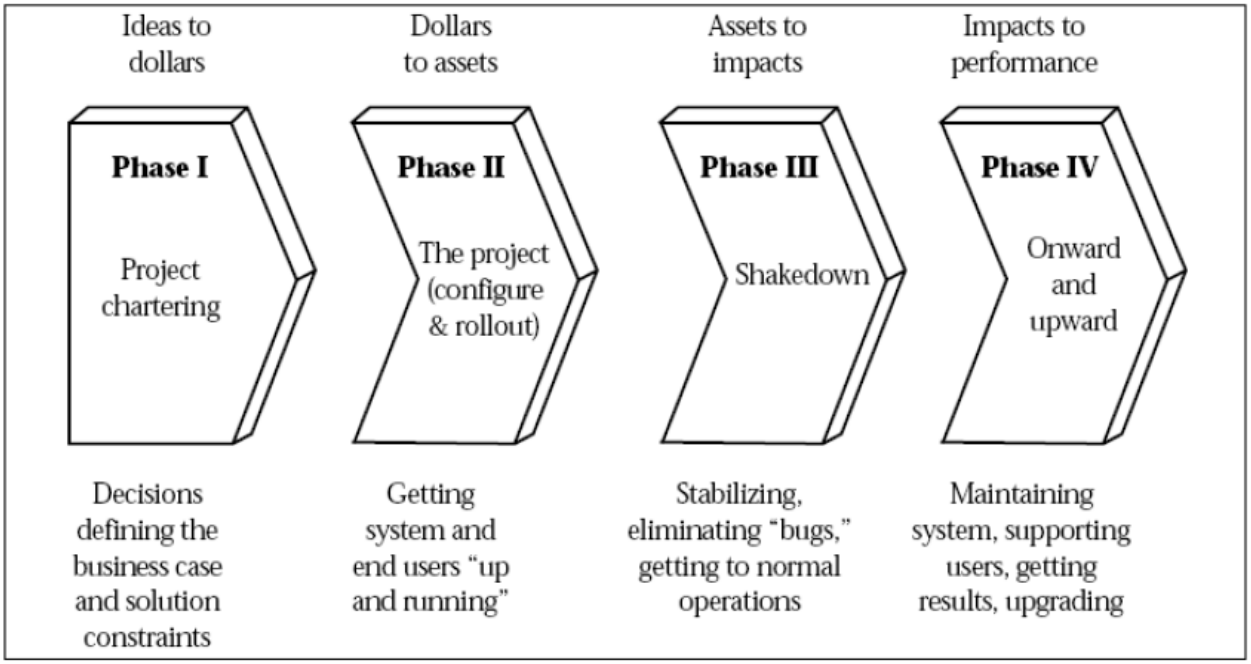


FIGURE 5: FOUR-PHASED ERP IMPLEMENTATION (MARKUS AND TANIS, 2000).

1. The chartering phase includes decisions leading to funding of the ERP system project. The most important activities include building a business case for enterprise systems; selecting a software package; identifying a project manager and approving a budget and schedule. The outcome is decision about whether to proceed with the project or not.

2. The project phase includes system configuration and rollout. Key activities here include software configuration, system integration, testing, data conversion,

In those two models above, the intent was to depict the implementation of ERP along stages and does not clearly see how ready or prepared the companies are for such kinds of projects. As already discussed above, the failure rate for such projects in the developed nations are on the range of 40-60 % and it would be wise to study the readiness level of companies before embarking on such project implementations and this is the essence of this very research.

2.8 ERP successes and benefits

(Davenport, 1998) has provided an extensive discussion of the successes and failures of firms that implemented ERP systems. His examples show that firms need to fully understand the

inherent problems/organizational needs and appropriately choose and implement an ERP system that would benefit the firm, instead of implementing an ERP system to imitate the competition. Successful ERP implementation is defined as the achievement of the firm's strategic business objectives within specification, planning and budget. Business benefits from ERP use are multidimensional, ranging from increasing productivity with standardization of processes, creating more cooperation among organizational entities by linking them together seamlessly, providing organizational design and process improvement options which enable a firm to maintain its competitive advantage, operational improvements through decision-making enhancement throughout the organization, to support for strategic goals including both tangible and intangible benefits (Legare, 2002; Davenport, 2000). ERP systems can also yield many intangible benefits such as flexibility, integration, process-orientation and synergy building (Al-Mashari, 2003).However, the ERP benefits discussed in the literature tend to be either snap-shots taken at one moment in the life of an ERP system or very high-altitude pictures of ERP benefits. None of them offers the comprehensive view of long term benefits needed if sound evaluations of investments in enterprise systems are to be made.

2.8.1 Why ERP-Motivations for ERP?

ERP adoption is often a lengthy process. Implementing can involve high expenditures and new rewards from implementation may be elusive. (Ross and vitale, 2000) cite six common motivations for ERP adoption:

1. Need for a common platform
2. Process improvements
3. Data visibility
4. Operating cost reductions
5. Increased customer responsiveness
6. Improved strategic decision making.

(Ross and Vitale, 2000) further state that these reasons are interrelated: a new system's platform enables new capabilities, which In turn generate important performance outcomes.

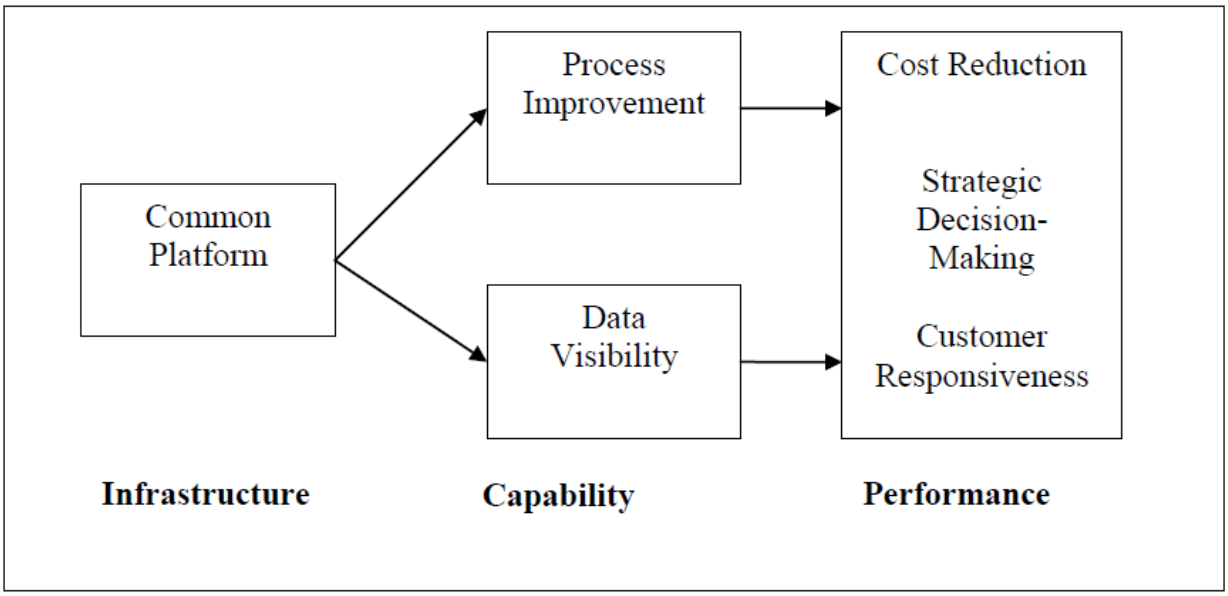


FIGURE 6: MOTIVATIONS FOR AN ERP (ROSS AND VITALE, 2000, P.234)

Some of the Motivations that cause the case study company to consider ERP solutions include:

- **A desire to grow the business**

Many businesses want to grow either through acquisition or organically. However, Dashen Bank existing processes or business applications may be unable to adequately manage the bank. For example, existing consolidated financial system are compiled manually; the company needs an ERP software application to standardize business processes across the organization. The company needs a new business system to handle growing numbers of users and transactions; need more advanced functionality, such as sophisticated reporting and business analytics.

- **Inefficient Business Processes**

Dashen bank perform business processes in a time-consuming, inefficient, error-prone manual fashion. For example, employees may manually extract information from spreadsheets to create reports.

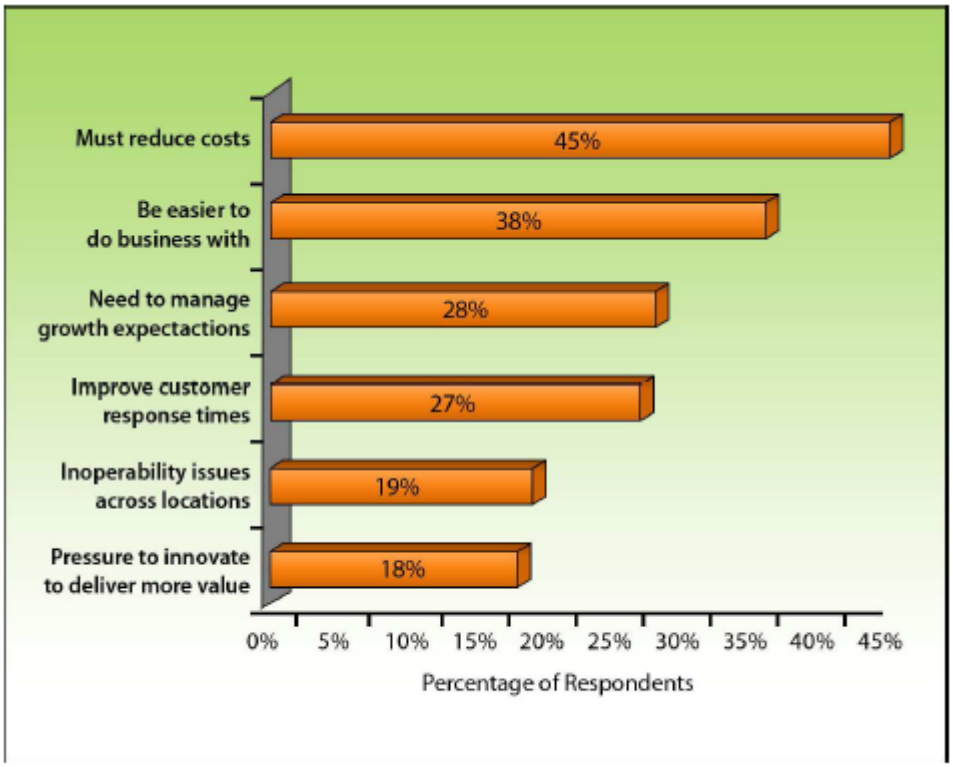
- **A Need to Reduce Costs**

Dashen bank look to reduce their operating costs to shore up profit margins. DB also wish to implement an ERP to automate manual business processes and allow staff to focus on exceptions. DB also seek to reduce distribution and transportation costs by bringing their

operations closer to the customer. DB need standardized processes for managing geographically distributed operations while allowing the company to consolidate financial information.

2.8.2 Reducing cost

Of all the software an organization can deploy, ERP has potentially the most direct impact on reducing costs. When asked in a 2010 survey conducted by the Aberdeen Group of Small and Medium Businesses (SMBs) what factors drove them to implement an ERP solution; nearly half cited the need to reduce costs to improve operating margins. Improving customer service was the second most cited reason. The distribution of responses to this survey appears below.



Source: Aberdeen Group survey, August 2010

Figure 7: SURVEY CONDUCTED BY ABERDEEN GROUP.

A survey conducted during much the same period by AMR Research in 2010, confirms these findings. Fifty percent of their respondents named cost reduction and improved efficiencies among their top two priorities.

2.8.3 Tangible and intangible benefits

Perhaps the most similar study was that developed by (Deloitte Consulting 1998), and discussed in (O'Leary, 2000), that investigated the rationales and benefits for why firms choose to implement ERP. That study broke benefits into two broad categories: Tangible Benefits and Intangible Benefits. Deloitte Consulting's study was based on interviews with 62 client firms. As part of a large-scale project, client firms were asked which tangible and intangible benefits had been realized. The results present the percentage of firms that indicated which benefits would be realized, allowing for multiple responses for each firm.

Tangible Benefits	Percentage of Benefits realized (%)
Inventory Reduction	32
Personnel Reduction	27
Productivity Improvements	26
Order Management Improvements	20
Financial Close Cycle Reduction	19
IT cost Reduction	14
Procurement cost Reduction	12
Cash management improvement	11
Revenue/profit increases	11
Transportation/logistics cost reductions	9
Maintenance reductions	7
On-time delivery	6

Table 5: TANGIBLE BENEFITS REALIZED.

Intangible Benefits	Percentage of Intangible Benefits realized (%)
Information/visibility	55
New improved processes	24
Customer responsiveness	22
Cost reduction	14
Integration	13
Standardization	12
Flexibility	9
Globalization	9
Business performance	7
Supply/demand chain	5

Table 6: INTANGIBLE BENEFITS REALIZED. Source: Deloitte Consulting (1998).

2.9 ERP implementation and poor ERP implementation results

The implementation of legacy MRP systems took place on a custom-design basis, requiring unique user interactions, while ERP systems are off-the-shelf package systems, which usually require organizational or process changes for implementation (Yusuf and Little, 1998). ERP systems are complex (Soh, 2000) and implementing one can be challenging, time consuming and expensive (Davenport, 1998). It requires a very high level of administration costs and it takes a long time. Furthermore, it requires high hardware investment and an appropriate project planning and project management is necessary. Implementation of ERP systems often cost more than estimated, take longer than planned, and are often scaled back in mid-stream (Cliffe, 1999). An ERP implementation can take many years to complete, and may cost millions of dollars for a moderately sized firm and upwards of US $ 100 million for large international firms (Mabert, V.A., Soni, A., Venkataramann, 2000). The market for ERP software packages grew from US $ 4billion in 1995 to US $ 10 billion in 1997, US $ 18.3 billion in 1999, US $ 19.9 billion in2000, and was estimated to be US $ 52 billion in 2002 (Colkin, 1998;Shang & Seddon, 2002).

Due to ERP implementation, organizational cultures and businesses had to go through a lot of changes. Large investments were often required to change the organizational culture to the new working environments (Al Mashari, 2003; Davenport, 2000; Markus, 2000; Adolph, 1996).Such programs of change frequently failed partially with irreversible impacts on business at the cultural, economic and social level. People, organizations and society as a whole were not able to dampen these shocks (Lee, 1991; Kumar, 2002; Parr &Shanks &Darke, 1999). The problems of ERP implementation often led to the failure of meeting the firms' strategic business objectives. A premature and over-eager approach to new trends not only resulted in ERP implementation failures but it also for some firms to a total business bankruptcy (Cliffe 1999; Bulkeley, 1996). Others have achieved some benefits despite decidedly rocky beginnings (Cole-Gomolski, 1998; Stedman, 1998a, 1998b, and 1998c; Stedman, 1999). Many have failed to achieve the hoped for financial returns on their ERP investment (KPMG, 1998, Stedman, 1999).ERP systems can have a remarkable impact when they work as promised. Yet today, ERP

systems implementation fails more often than not. There are many horror stories concerning implementation gone astray (Laughlin, 1999; Bancroft, N., Seip, H., Sprengel, A., (1998). In fact, 65 % of executives believe that ERP systems have at least a moderate chance of hurting their businesses because of the potential for implementation problems and three quarters of the ERP projects were judged to be unsuccessful by ERP implementing firms (Cliffe, 1999; Griffith, 1999). Based on empirical research, Quinn and Bailey (1994) found that the investments made in IT did not result in any improvements in industrial productivity (Palaniswamy and Tyler, 2000). Of the US $ 275 billion spent by U.S. firms in 1996 on software applications including ERP, 53% of the projects failed and these failures were not because the software was coded incorrectly, but rather the companies failed to understand their real needs and the systems required to solve their problems (Edwards, 1999). (Swan, J., Newell, S., Robertson, M., 1999), has argued that the root of such a high failure rate is to be found in the difference in interests between customer organizations who desire unique business solutions and ERP vendors who prefer a generic solution applicable to a broad market.

2.10 ERP implementation drawbacks, horror stories.

1. Hershey Foods Corp. completed installation of a new US $ 112 million enterprise resource planning system (Stedman, 1999). The objective of implementation was to increase its ability to access product order information from its retailers and improve the management of finished goods industry. Hershey had considerable trouble to fulfill retail orders through its new system; there were extensive shipment delays and a number of unfilled orders. Hershey failed in its implementation due to lack of integration between the new information system and existing operational processes (Stedman, 1999). Hershey's situation provided an example of the importance of operational processes, and of the fact that the new information system that contributes to the latter's success or failure (Davenport, 1998).

2. Another horror story of a failed implementation occurred at Foxmeyer Drug, a US $ 5billion pharmaceutical company. The company filed bankruptcy in 1996 and argued that the primary cause of its difficulties was a failed ERP implementation that crippled the business (Escalle and Cotteleer, 1999).

3. At firm α, an international manufacturing firm, where the total IT department vanished as a result of implementation failure, the new ERP project manager described the failure as; "We made all those generic mistakes written in ERP books in our ERP implementation efforts, and the result was devastating at the end. It took a year to get the right implementation strategy on the track "

4. The technology director (UK 2000) of the firm β, an international engineering and service firm, described the return on its two-decade investments in IT as follows; "There has been a lot of cultural resistances to new ways of working, our professional staff do not utilize most of the facilities provided by ERP and paperless environment in their works. "

5. The supplier of installations, building and industry, Hagemeyer, lost half of its revenue in Europe. It lost 9% of its sales in the 1st quarter of 2003 (11% in Germany, and 17 % inU.K.) (June 13th 2003, Beleggers Belangen No.24). The U.S. revenue of 25% fell to 7%. The firm has not only had a backlog of investment but its internal businesses have not been functioning well either. The firm had problems with implementation of the new distribution system, the Global Hagemeyer Solution. The firm not only lost clients but it also had to invest more on the system implementation while a cost reduction and control on working capital was required. The failure in implementation of an IT system, Movex, in the U.K. was primarily the reason for the situation in 2003. Hagemeyer booked a loss of six million Euros in comparison with a positive balance of euro 111 million in the first half of 2002. The ERP Movex functioned well but the impact of the logistics system was lower than expected. Hagemeyer lost clients in shrinking and tough competitive market with prices constantly under pressure (August 29, 2003). Hagemeyer stopped implementing the system, which desperately needed (Sept. 2003, Beleggers Belangen, No. 36).

[3]

[3] *ERP implementation drawbacks, horror stories 1-5. Taken from Farshad Salimi's ERP Implementation Methodologies, 2005.*

Chapter 3

Research Methodology and procedures

This study has attempted to study ERP pre-implementation readiness assessment the case study company based on eleven constructs so that the company compares the existing environment against those listed below. These are, IT Resource Management, Service Management, IT Governance, capacity, capability, communication, commitment, change, Risk Management, Applications Management and IT Strategy and Planning. Moreover, it has tried to show what ground work must be established before any ERP implementations.

This chapter presents the methodology that is used to achieve the objective of the study. First, the general research approach is described. Then, the model of the research put along with their justifications. Next, population of the study, sampling techniques, sample size, data collection instrument and data collection procedure are discussed.

3.1 General Research Strategy

Research methodology is the set of processes, methods, tools and techniques deployed and used to conduct a research and reach to the final output of the study. The methods and techniques used for this research are explained here below.

3.1.1 Research Approach

The general approach of this research is a case study in which a quantitative methods is used to collect and analyze data.

Researchers claim that a case study research can employ both quantitative and qualitative sources of data collection in order to best answer research questions (Creswell, 2003). A great value of this method comes from its strength for exploiting the 'richness' of the situation which permits deeper insight of the subject under the study (Creswell, 2003).

For this research, Dashen Bank Share Company is selected as a case for this study. This company was selected based on two reasons. The first reason is that the company already floated a bid to purchase an ERP system and I thought it would be very interesting to know the readiness level before the company engages fully into implementation. The second reason is that the business experiences (20 Years), asset level and number of services offered by the company are believed to represent most of commercial banks. Moreover, the researcher has worked for about 7 years in the organization with different positions. Hence, the exposure of the researcher in the organization can positively contribute to the success of the research.

Quantitative research methods were originally developed in the natural sciences to study natural phenomena. Examples of quantitative methods now well accepted include survey methods, laboratory experiments, formal methods (e.g. econometrics) and numerical methods such as mathematical modeling. According to (Creswell, 2003) the use of quantitative methods is recommended when the researcher:

- Tests or verifies theories or explanations.
- Identifies variables to study.
- Relates variables questions or hypotheses.
- Observes and measures information numerically.
- Uses unbiased approaches.
- Employs statistical procedures.

For the purpose of quantitative analysis, a survey is conducted through a questionnaire to investigate the commitment level, capacity, capability, culture, communication, IT Resource Management, Service Management, IT Governance, Strategy and Planning, Risk Management, Applications Management and IT Strategy and planning readiness issues that are believed to directly affect implementation of ERP system in the case study company.

3.1.2 Research Purpose

According to (Yin, 1994), the purpose of an academic study can be exploratory, descriptive or explanatory.

- Exploratory studies are practical if we wish to clarify our understanding of a problem (Saunders et al., 2000). (Robson, 1993) describes exploratory studies as a method of finding out what is happening; to seek new insights; to ask questions and to assess phenomena in a new light.
- Descriptive studies are appropriate when you wish to portray phenomenon such as events, situations or process. Furthermore, a descriptive is also appropriate about the connections between causes and symptoms.

- Explanatory studies are useful when you wish to establish causal relationships between variables. The emphasis in this sort of study is to examine a situation or a problem in order to explain the relationship between variables (Saunders et al., 2000).

The purpose of this thesis is exploratory since I wish to assess the readiness aspect in implementing ERP in a case study company in light of critical success factors and try to match the existing organization setting with the ideal organization setting which ERP implementation yields fruit.

3.1.3 Research process Map

Research process map is defined as depicted in figure 8. The model illustrates the steps we follow throughout the research process to evaluate the readiness of the case company for ERP implementation and at the same time we urge others to follow the steps in their endeavor to study ERP readiness. As can been seen, it starts with CSFs identification and goes all the way to the implementation decision that is going to be made by the company. In this study we adopted Somers and Nelson's CSF and validation was performed bases on criticality and usefulness. Then we grouped the twenty two critical factors into eleven pillars to tackle the witnessed problems that believed to have caused failures and to assess the readiness level of the company from these eleven aspects. To evaluate the company, the questionnaire was made to incorporate these eleven aspects of the organization. Then, evaluation will be performed by analyzing the collected data. After that the ERP implementation decision will be made by the company.

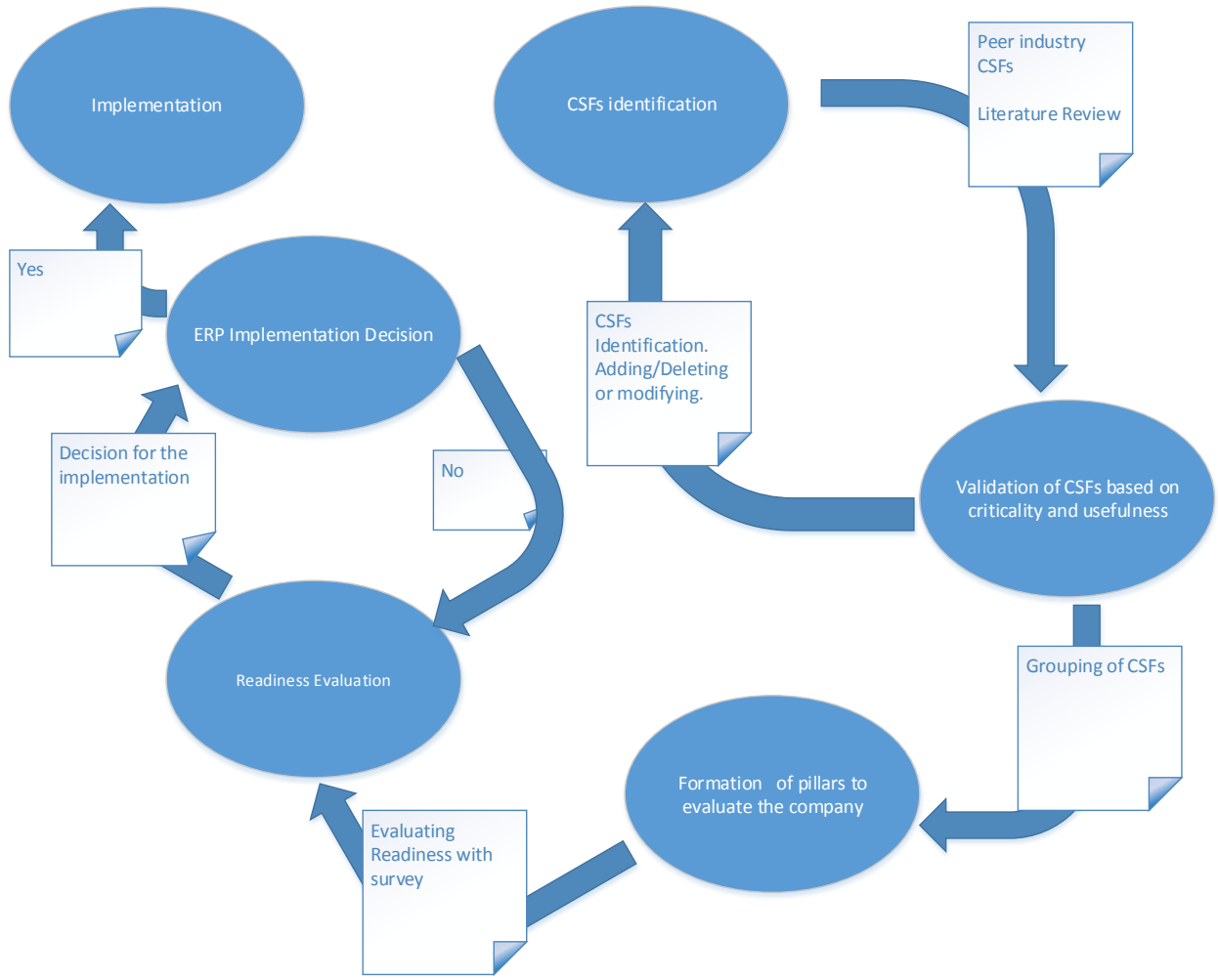


Figure 8: RESEARCH PROCESS MAP.

3.2 Study Design

3.2.1. Research Population

Approaches from previous ERP researches include questionnaires, observations, interviews, system interactions, inspections of internal functioning, and literature reviews. The primary source of this paper will be the literature review from peer-reviewed sources as ERP is a new phenomenon for our country; in addition, this paper will be supplemented by questioner surveys distributed to various Top level executives. Strategic planning is done by the bank's top

officials who are concerned with strategic directions and long term strategic goals of the bank. In addition to this, they participated in preparing RFP's and have got deep knowledge of ERP. This approach will enhance the construct validity of the study and to get the exact responses from the stakeholders themselves. This gives an exploratory nature of the research. The qualitative data also provided content and discovery of elements that surround each construct to identify those facilitating and challenging factors that lead to ultimately successful or unsuccessful ERP projects.

For this research, one case study company were selected based on number of branches, year of establishment, ease of access of information, business model they practice, organizational culture and technology adoption experiences.

Questionnaires will be distributed to access and match the desired environment that suppose ERP to be implemented against the existing working environment respondents answers will be compared with the desired factors collected from literatures that are known as enabling foundation stones for successful ERP implementation.

3.2.2. Sampling Techniques and Sample Size

Sampling is the process of selecting units or individuals from a population which can be included in the study, for instance, to answer interview questions or respond to survey questionnaires. For this research, purposive sampling technique was used. In case study, the sample units must have the potential and richness in information to be key informants for the study. First, initial discussions were made with the ERP project steering committee members and stake holders. These members are composed from different departments, branches and work units in the company. CEOs', vice presidents, project managers, CIOs', IT professionals, change managers, finance mangers, Human resource managers, and accountants, supervisors, operational Managers, were all represented in the committee and they are too the targets for the survey.

Twenty two individuals were selected as respondents for the survey questionnaire. Twenty of them have responded to the survey while two of them returned the questionnaire blank. These individuals are selected as key informants and respondents based on their involvement, exposure and role in the ERP project and functional role in the company. As can be seen from the project governance structure established by the bank for this particular project, I preferred to distribute the survey for members of the group.

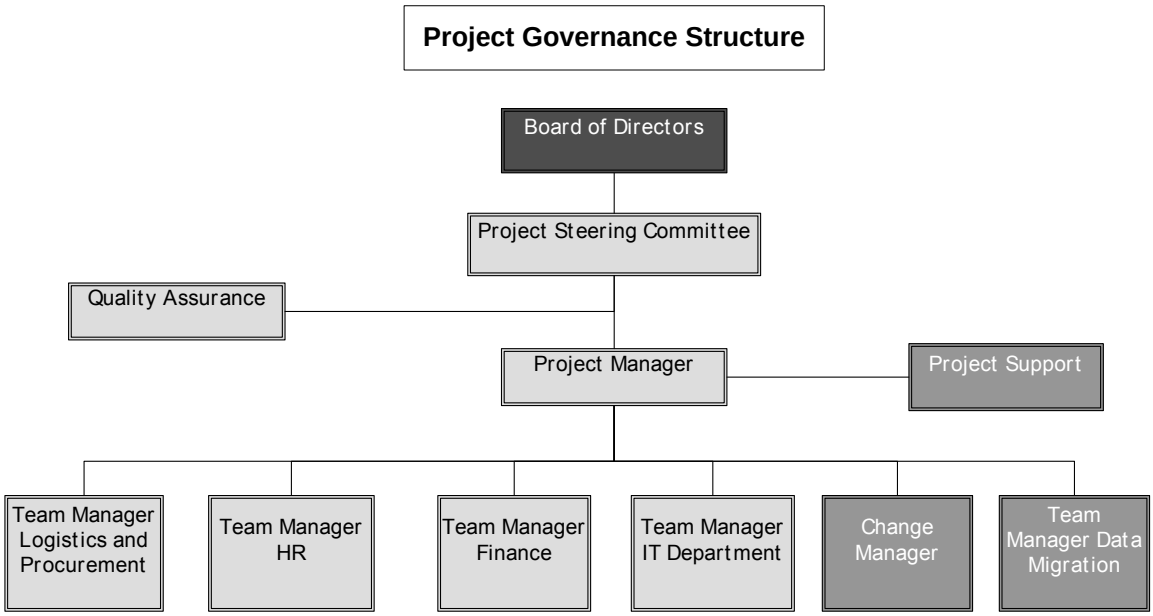


Figure 9: PROJECT GOVERNANCE STURCTURE OF THE CASE COMPANY.

3.2.3. Who are represented?

Role in the structure	Position in the Company
Top Management	CEO & VP
Project Manager	The Project Manager
Project Support	Project Assistants (2), Risk Mgr, Corporate Planning and Dev't Mgr.
Change Manager	Modernization and Change Mgr.
IT	D.Mgr, Security Division Head, HW Division Head, Datacenter Supervisor, System Admin. Head.
Finance	D.Mgr.
HR	Mgr, D.Mgr, Division Head, Training & Dev't Division Head
Logistics & Procurement	Mgr, D.Mgr, Division Head, Property Admin. Head

3.2.4. Data Collection Instrument

The instruments used for collecting the required data were questionnaire. The data collection instruments are further described below:

3.2.3.1. Questionnaire

Survey questionnaire is the primary data source used for this research. It is used to extract the existing readiness level of the company. Accordingly, the questionnaire was hand delivered to the twenty two selected respondents physically by the researcher and communicated to honestly report their observation. Subsequently, continuous follow-ups conducted through phone and also visit to encourage the respondents to finalize the questionnaires timely. Microsoft Excel 2010 sheets were used to summarize this survey data.

3.2.3.2 Document Review

For this research, detailed and focused literature review has been done to understand more about Enterprise Resource Planning concepts and ERP implementation framework. More research works conducted on ERP implementation experiences in developing countries are reviewed. Somers & Nelson's critical success factors mentioned in literature are adopted as a benchmark. This study tried to match the existing environment of the case company to the adopted critical success factors by categorizing those factors in various dimensions to study the readiness level of the company. The company's website was also assessed for the profile and history of the company. Even if detail literature review is done, there is limited or no research or document on pre- ERP implementation in Ethiopian context especially in Banking Industry.

3.3 Research methods

Following (Robey et al., 2002), I make a distinction between two types of approaches to research on ERP – the variance and process approaches. The variance approach, which has dominated the ERP literature in the past decade, focuses on the variables that affect or are

affected by the ERP project, while the process approach deals with the manner in which the ERP implementation process unfolds throughout the life of the project.

The major findings from the variance approach relate to the factors that lead to successful outcomes and the nature of the outcomes. A large part of the studies on ERP implementation are the result of exploratory case studies (Motwani et al., 2002; Subramanian et al., 2005). Many of these studies were based on different types of samples and different research settings, which may have placed more emphasis on some critical success factors (CSF) more than on others (Capaldo G. and Rippa P., 2009).

This research follows the variance research approach in which I adopted Nelson and Somers 22 CSFs that believed to affect the ERP project.

Phase 1

Objectives	Method
1. To formulate CSFs framework	Review of the literature
2. Validation of CSFs about criticality	Survey questionnaires for Expert groups
3. Validation of CSFs for appropriateness and usefulness	Survey questionnaires for Expert groups

Phase 2

Objectives	Method
To evaluate the readiness in a real test study company	Survey questionnaire

Phase 3

Objectives	Method
Readiness check	Analysis of data

Phase 4

Objectives	Method
Readiness evaluation Framework	Proposal of the framework
Validation of the framework	Interview Expert groups or consultants/ Interview peer companies

FIGURE 10: PHASE 1 OF THE RESEARCH OBJECTIVE.

3.3.1 Techniques for CSF Identification

There are many techniques to identify CSF. Table 7 summarizes some studies that I found in the literature and the research methods applied. Each of these methods has its respective strengths and weaknesses

Research method	Reference
Action-research	Kock et al. 1999
Case studies	Holland et al. 1999
Focus groups	Lawley et al. 2001
Group interviewing	Khandewal and Miller 1992
Literature review	Esteves and Pastor 2001
Structured interviewing	Bullen and Rockart 1986

Table 7 : MOST COMMON USED RESEARCH METHODS.

3.3.2 Phase 1: critical success factors identification.

Critical success factors can be viewed as situated exemplars that help extend the boundaries of process improvement, and whose effect is much richer if viewed within the context of their importance in the implementation process.

The aim of this section is to select the CSF's as they are an important part before starting any ERP implementation. There are high chances of failure in the ERP implementations because of many reasons, and the benefits associated with ERPs can only be achieved through successful implementations. To achieve a positive result or success in implementing ERP, I have reviewed extensive literature reviews and finally chose to adopt Somers & Nelson's Twenty two CSFs that I believed would be valuable for the case study. A wide variety of industries (86) were represented in the responses. Financial industries (10) were represented adequately and respondents of the questionnaires were selected fairly in the specified industry. Somers & Nelson identified 22 CSF's in their paper even if they admitted that there are number of paper available where some other researchers compare their case study work with their developed

CSF. The selected CSFs are, therefore, appropriate for determining ERP implementation readiness and determining a process model into which the selected CSFs can be situated.

Industry	Number of Companies
Education	3
Insurance	6
Retail	8
High Technology	10
Financial Services	10
Manufacturing	20
Utilities	7
Healthcare	13
Government	4
Professional Services	2
Telecommunication	2
Other	1
Total	86

Figure 11: INDUSTRY TYPES STUDIED BY SOMERS AND NELSON TO IDENTIFY CSFS.

The 22 identified CSFs were then grouped into 11 Pillars named,

1. IT Resource Management
2. Service Management
3. IT Governance
4. Risk Management
5. Applications Management
6. IT Strategy and Planning
7. Capacity
8. Commitment
9. Capability
10. Change culture
11. Communication

3.3.2.1 Grouping of CSFs into eleven pillars.

Measuring dimension	CSFs
IT Resource Management	Project management Dedicated resources
Service Management	Management of expectations Data analysis and conversion
IT Governance	Steering committee Business Process Reengineering Architecture Choices
Enterprise wide Strategy and Planning	Top management support Clear goals and objectives Education on new business processes
Risk management	Careful package selection User of consultants
Application management	Vendor support Minimal Customization Vendor Partnership Vendor tools
IT Strategy and Planning	Clear goals and objectives Education on new business processes
Capacity	Dedicated resources User training
Commitment	Top management support Business Process Reengineering Dedicated resources
Capability	Project Team Competence Project management
Change culture	Business Process Reengineering Architecture Choices
Communication	Interdepartmental Co-operation Inter-departmental Communication

Table 8: PILLAR FORMATION BASES ON CSFs.

Grouping of those CSFs into eleven pillars were made to assess every aspect of the organization and to show and to make sure every aspect of the organization is represented in the research. The grouping is merely based on similarity of concepts and the researcher's judgment.

Having identified a set of appropriate CSFs for ERP implementation, the next task was to select a process model into which the CSFs could be situated. The purpose of introducing the process model was to identify when in this implementation process each CSFs are most relevant. There are many process models in the ERP literature. Each process model varies in terms of the number and nature of stages used. For example, (Markus and Tanis, 2000) recommend a four stage model (project chartering, configure and rollout, shakedown, and onward and upward). (Somers and nelson, 2004) divide the process model into six stages (initiation, adoption, adaptation, acceptance, routinization and infusion). (Motwani et al., 2005) propose a three stage process model (pre-implementation, implementation and post implementation). To measure organizational readiness for ERP implementation, Motwani's model appeared to be a suitable process model in this research. This structure was used to determine the stages in which the CSFs of ERP implementation readiness are most critical and relevant.

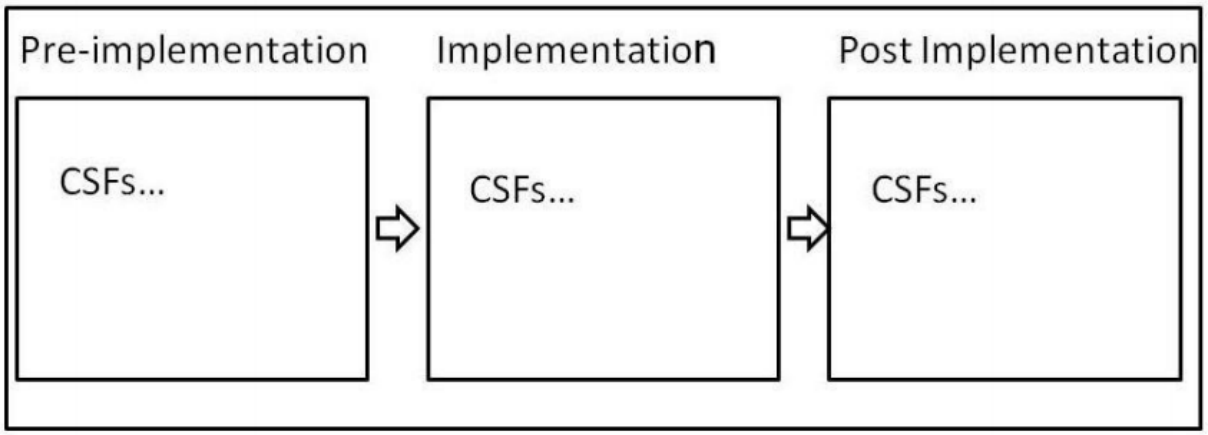


FIGURE 12: PROCESS MODEL ADOPTED FROM MOTWANI ET AL, 2005.

3.3.3 Phase 2: Validation of the CSF framework and a process model

Having produced the CSF framework, the design science approach requires us to evaluate or validate the artifact. This was done by having a group of experts evaluate the usefulness and completeness of the set of CSFs and the appropriateness of each CSF to the stage to which it had been allocated in the process model.

3.3.4 Questionnaire development.

The questionnaire was intended to gather two different pieces of information about each of the 22 CSFs in the CSF framework. The first piece of information for each CSF was the extent to which a respondent believed the CSF to be critical to ERP Pre-Implementation stage. The second piece of information was the stage of stages of the process model in which the respondent believed the CSFs to be important.

To allow respondents to focus on each CSF in turn, the two pieces of information were gathered in parallel columns on the questionnaire. The second column, concerning the criticality of the CSF, used a 5-point likert scale. The third column in the questionnaire asked respondents to indicate in which phase of the process model each CSF was important for ERP implementation. For each CSF, participants could indicate one or more of the three: pre-Implementation, Implementation or post- Implementation.

As the relevance of the CSF framework must be evaluated, in this study, exert validation are used to evaluate the process model and the CSF framework. Accordingly, survey questionnaire are prepared and distributed to eight field experts.

The success factors which are adopted from Somers& Nelson are listed below.

1. Top Management Support
2. Project Team Competence
3. Interdepartmental Co-operation
4. Clear Goals and Objectives

5. Project Management
6. Inter-departmental Communication
7. Management of Expectations
8. Project Champion
9. Vendor Support
10. Careful Package Selection
11. Data Analysis and Conversion
12. Dedicated Resources
13. Steering Committee
14. User Training
15. Education on New Business Processes
16. Business Process Reengineering
17. Minimal Customization
18. Architecture Choices
19. Change Management
20. Vendor Partnership
21. Vendor Tools
22. Use of Consultants

The above twenty two critical factors will be validated for usefulness and appropriateness in the pre-implementation stage using motwani's process model.

3.4 Data analysis

Each of the evaluator's numerical scores were keyed-in using MS-Excel. The mean scores for the criticality of the CSFs were then calculated. The usefulness and accuracy of the CSFs on the process model also checked. The evaluator's comments were manually transcribed by identifying key points that corresponded with each row of the CSF framework and finally coded. The results of the individual validations are shown at the appendix section.

The result of the analysis will be presented in chapter four.

3.5 Conclusion

This chapter has described the main objectives of this research and the research design used to achieve those objectives. The chapter has also evaluated the proposed process models and CSF framework by expert groups. The following chapter presents the result of this research.

Chapter four

Data presentation, Analysis and Discussion

4.1 Introduction

The previous chapter explained what research methods were adopted in this research. As stated in the previous chapter, the aim of this study is to develop a readiness assessment framework based on CSFs so that an organization can use to evaluate how ready it is to implement ERP. To achieve this aim, the research objectives of the study has been divided into four phases as can be seen below.

Phase 1

Objectives	Method
1. To formulate CSFs framework	Review of the literature
2. Validation of CSFs about criticality	Survey questionnaires for Expert groups
3. Validation of CSFs for appropriateness and usefulness	Survey questionnaires for Expert groups

Phase 2

Objectives	Method
To evaluate the readiness in a real test study company	Survey questionnaire

Phase 3

Objectives	Method
Readiness check	Analysis of data

Phase 4

Objectives	Method
Readiness evaluation Framework	Proposal of the framework
Validation of the framework	Interview Expert groups or consultants/ Interview peer companies

Figure 13: PHASE 2 OF THE RESEARCH OBJECTIVES.

Objective one was achieved through an in-depth review of literature. This was presented in the literature review chapter (Chapter 2).

Objective two of this research is to have the CSF framework validated by expert practitioners. This validation was undertaken by an Expert group (EG) consisting of project managers, change and modernization officers and a senior IT practitioner group (ITG). The validation process gathered two sets of data:-

1. To determine which CSFs are critical in ERP implementation
2. To determine in which stage of ERP implementation process these CSFs are most applicable.

These sets of data are presented and discussed in the following sub-sections.

4.2 Overview of Dashen Bank Share Company

Dashen Bank S.C is a privately owned financial service provider established in 1995 and currently operating through a network of 161 branches including forex bureaus, five Forex Bureaus, 220 ATM's and 873 P0S terminals spread across the nation.

The Bank which was established with a paid up capital of Birr 14.9 million has grown in leaps and bounds through the last 20 years. The following figures indicate the position of the Bank as at June 30, 2013, the closing date of the last fiscal year.

As of June 30, 2015

	(Audited)
Total Assets	ETB 24.8 billion
Total Capital	ETB 2.9 billion
Deposits	ETB 19.8 billion
Loans & advances	ETB 11.3 billion
Number of Depositors	1.4 million
Number of Dashen Card Holders	367569
Profit before tax	ETB 964 million
Number of staff	4597

Recently, the Bank has owned total assets valued Birr 24.8 billion; having registered remarkable increment on the reported balance on June 30, 2013.

4.2.1 Overview of the existing systems in DB

Currently DB has implemented core banking solution named Flexcube version 10 with oracle database 11g. This core banking system is interfaced with other separate and independent systems like Card Banking System and National Payment System.

Though these technologies are providing an integrated banking solution for the core banking system, the support organs have limitation in using an automated system to maintain sustainable support for the core process. Due to these short comings of using the present manual and semi-automated systems, this led the bank to need to implement an **Enterprise Resource Planning** system that address the current support organ setbacks.

4.2.2 Infrastructure

DB currently is using the IBM, Dell and HP servers for the Core Banking System. , Database and storage systems are both at main Datacenter (IBM-power 7, 6 and 5).

4.2.3 Statement of need for ERP

The existing IT system and infrastructure could not be able to support the growth of the Bank and the company justifies that the need for implementation of business applications is driven by the following:

- Functionality gap – to automate the current manual process;
- Automate and adopt best practice business processes. Phase out the aging and unsupported technology
- Improve on the controls environment
- Consolidate business applications and eliminate or minimize the manual interfaces in the current environment
- Improve on reporting and performance measurement

4.2.4 Statement of Scope

The mandatory requirements to be included in production environment:

- ERP with the following modules
  - Finance
  - Human Resource Management
  - Logistics & Procurement Management

4.2.5 Estimated Cost for the software

The project is believed to cost approximately USD 1.5 Million-USD 2.0 Million for software license and services. USD 70-150 thousands for maintenance, license fees and support fees after implementation. Other services such as quality assurance, change management and data cleansing will cost approximately USD 450,000. Please refer the detail cost breakdown in cost summary section.

4.3 Quantitative Data Presentation, Analysis and Discussion

4.3.1 Identifying and understanding CSFs.

The CSFs adopted are twenty two in number. This section presents the results of the validation by the EG and the ITG. Participants were asked to rate the criticality of each CSFs within a dimension on 5-point likert scale. The table in this section present the average rating for each CSF for each of the two groups (EG and ITG).

No.	CSFs	Average rating	
		EG	ITG
1	Top Management Support	5	5
2	Project Team Competence	5	5
3	Interdepartmental Co-operation	5	4
4	Clear Goals is and Objectives	5	5
5	Project Management	5	5
6	Inter-departmental Communication	5	5
7	Management of Expectations	5	5

8	Project Champion	5	5
9	Vendor Support	4	5
10	Careful Package Selection	5	5
11	Data Analysis and Conversion	5	5
12	Dedicated Resources	5	5
13	Steering Committee	5	5
14	User Training	5	5
15	Education on New Business Processes	5	5
16	Business Process Reengineering	5	4.25
17	Minimal Customization	5	5
18	Architecture Choices	5	5
19	Change Management	5	5
20	Vendor Partnership	5	5
21	Vendor Tools	5	5
22	Use of Consultants	5	5
	Average total	4.954545	4.920455

Table 9: SURVEY RESULT FOR CRITICALITY OF CSFs.

4.3.2 Results for the criticality of CSFs.

As shown in the above table, most of the respondents agreed that the majority of the critical success factors nominated are critical, recording the maximum average rating of 5.00.

There was a slight difference in opinion between the EG and the ITG on **CSF**3, 9, 13, 19 and 21.

Responses to the *open-ended questions* provide a clearer explanation about why the factors were critical and why the difference in opinions between those two groups occurred. For example, both groups of respondents strongly agreed that 'top management support' (CSF1) is critical. One comment from the EG was "without the involvement and participation of the top management, the project might disrupt from its initiation. Another comment from the EG on CSF1 was "the concept of ERP needs to be defined clearly to the top management and they must also monitor and coordinate the implementation so that the organization be able to get the right service benefits. Similarly, both groups agreed that 'clear goals and objectives' (CSF4) before project implementation. For example, the EG commented that "understanding of the goals and objectives of the implementation is important to achieve common benefits that is intended to be harvested". Other comments from the ITG were that "it is important to know

ERP goals and objectives before the project starts and it is critical for IT to have a clear idea on the expected goals, objectives and outcomes".

There were also slight differences in opinion between the groups on CSF 3. The EG group felt that 'Interdepartmental Co-operation' is critical commenting that "since there will be an exchange of information between departments using the software, it is a must the organization to have an Interdepartmental Co-operation among departments". Although the majority of the ITG agreed that CSF 3 is critical, one respondent commented that "we are performing our daily operations in the current departmental settings even if there are a lot of gaps among departments like logistics, finance and human resource". Nevertheless, the 4.00 average rating of this factor is still sufficiently high for the CSF to be considered critical.

Another difference in opinion between the groups is on CSF 9, which is 'vendor support'. The EG believe that 'vendor support' must not exceed the limits of involvement and the IT professionals must take over the support and customization of the software at it leads us to further costs." Another participant also commented on the 'vendors support' sighting his experience gained as "the support of the vendors must be clearly defined in the project charters and the committee must check the involvement level thoroughly. The training of users and taking over procedures must also be included in the project charter". However, the 4.00 rating of this critical factor is still sufficiently high for the CSF to be represented as critical.

Another observed difference between the two groups is on CSF19, which is 'Business process reengineering'. One member of the ITG group believe that process reengineering is inevitable and the management must orient all stakeholders to be prepared for any business process change. It is not as such the task of IT to monitor and evaluate the process change". However, the 4.25 rating of this critical factor is still sufficiently high for the CSF to be included as critical.

Conclusion

Section 4.2.1 has presented the validation of the CSFs by expert groups. All of the CSFs recorded average scores above 4.25 and the vast majority recorded average scores of 5.0, with the maximum score of 5.0. It can reasonably be concluded that all the CSFs are critical our context.

In addition, respondents were asked to provide any other CSFs that they thought were important. No additional CSFs were identified by participants. It therefore appears that the current set of CSFs is reasonably complete.

4.3.3 Results for the appropriateness of CSFs.

As indicated in the research process map, the next step is to validate the appropriateness of the CSFs on the framework. The validation is done whether those CSFs are suitable on which phase of the implementation. The process model validation respondents were the same eight people who were earlier involved in the validation of the CSF framework. Respondents were asked to which of the three stages of the process model each CSFs apply. Respondents were able to select one, two or all of the three process model stages for each CSF. Therefore, the total number of responses for the three stage may add-up to more that the number of respondents, because some or all respondents may have indicated that a CSF could be situated in more than one process model stage. In order to validate the appropriateness of CSFs in pre-implantation phase, we adopted motawani's framework (Motwani et al., 2005). They propose the framework (See Figure 14) be considered for successful implementation of ERP. This framework illustrates the critical factors/issues that need to be addressed at all three phases: pre-implementation or setting-up phase, implementation, and post-implementation or evaluation phase.

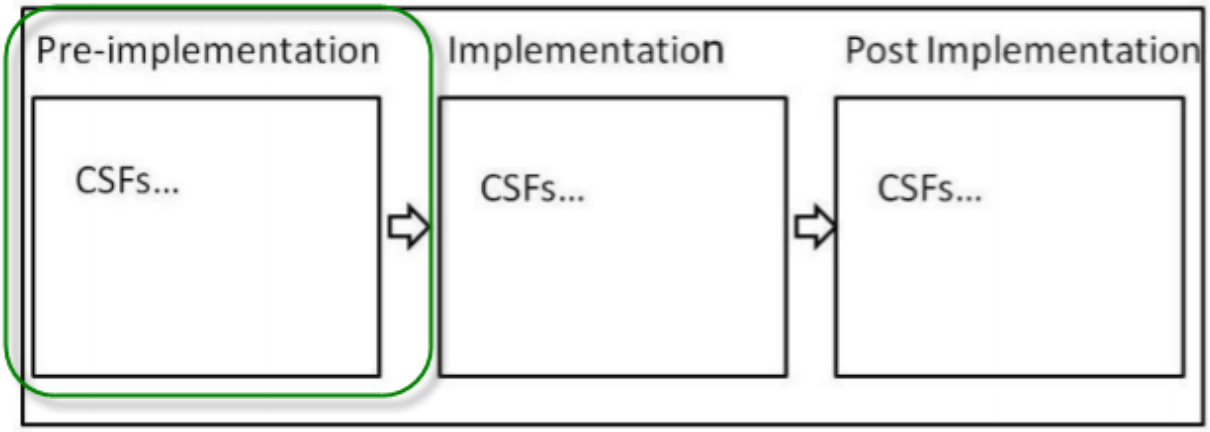


Figure 14: APPROPRAITENESS OF CSFs IN PRE-IMPLEMEENTATION PHASE.

No.	CSFs	**PRE-IMPLEMENTATION**	IMPLEMENTATION	POST-IMPLEMENTATION
1	Top Management Support	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
2	Project Team Competence	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
3	Interdepartmental Co-operation	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
4	Clear Goals and Objectives	**EG1,2.3.4,ITG1,2,3,4**	EG1,4,ITG1,2,	
5	Project Management	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
6	Inter-departmental Communication	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
7	Management of Expectations	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
8	Project Champion	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
9	Vendor Support	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
10	Careful Package Selection	**EG1,2.3.4,ITG1,2,3,4**	EG1,ITG1	
11	Data Analysis and Conversion	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,3.4,ITG1,2
12	Dedicated Resources	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.4,ITG1,2,3
13	Steering Committee	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	
14	User Training	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
15	Education on New Business Processes	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	
16	Business Process Reengineering	**EG1,2.3.4,ITG1,2,3,4**		
17	Minimal Customization	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	
18	Architecture Choices	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4	EG1,2.3.4,ITG1,2,3,4
19	Change Management	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
20	Vendor Partnership	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4	EG1,2.3.4,ITG1,2,3,4
21	Vendor Tools	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
22	Use of Consultants	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4

Table 10 : SURVEY RESULT FOR APPROPRIATENESS OF CSFs.

As can be seen from the above table, both groups unanimously agreed that all the critical success factors are appropriate on the pre-implementation phase. This has significant implications for ERP implementation because it indicates that all of the critical aspects of ERP implementation should be in place before implementation commences. Generally, the table shows that the CSFs are strongly associated with the pre-implementation stage but are also strongly associated, although to a lesser extent, with the implementation and post-implementation stages.

Conclusion

The above validation procedure has indicated that the majority of the CSFs are appropriate at the pre-implementation stage.

Survey data results

4.3.4 Results for organizational readiness on the IT resource management dimension

Resource management is a process of managing and using an organization's IT resources optimally so that no resource is underutilized or over utilized. An organization's growth is directly proportional to utilization of its time and resources and this is especially true for the organization that provide services to others. IT leaders and their teams carry out critical operational tasks such as incidents, problem, and change management daily. They also respond constantly to demands for planned projects, such as development of new applications. In order to be successful, they must be able to assess and allocate the resources necessary to complete these tasks on time and within budget. However, numerous challenges, many of which stem from limitations of current tools and processes, make success elusive.

Fortunately, it is possible to improve the success rate of IT by expanding the information gathered about resource capacities, availabilities, and utilizations. Once IT achieves consistent success with resource management, improved tools and processes can then extend similar benefits across the enterprise.

The ability of IT departments to execute projects successfully and to deliver services effectively is constrained by the availability of resources such as people, materials, and physical or non-physical capital assets. Among these, people are usually the most expensive of all the resources necessary for IT success.

Most IT teams have limited or inconsistent visibility into the capacity, allocations, and availability of the people they need. This results in poor resource allocation, distribution, and project delays and budget overruns. Clearly, IT needs tools and processes that give them a clear, complete, and accurate view of their most critical resources, and enable them to always have the right people working on the right activities at the right times. To achieve these goals, IT needs comprehensive, real-time insight into all relevant resource information – across all IT work, both day-to-day operations and specific project activities.

IT staff are rarely dedicated to specific resource requesters such as project or change managers. Instead, most staff members have day-to-day, operational responsibilities that need to be performed, along with project work. Resource managers must take these operational responsibilities into account when allocating resources in response to each request.in line with the above, the following questions were prepared and distributed to respondents to assess the company's readiness level on IT resource management aspect. The result of the finding will follow.

	Organization readiness in IT Resource Management	Yes	No	*I do not know*	*Improvement Needed*
Questions	**Total number of respondents 20**				
Q1	**Has the enterprise considered what new IT or business roles will be required to support the rollout and maintenance of an ERP system?**	0.40	0.30	0.30	
Q2	**Can the enterprise create a professional development plan to give existing employees ERP competencies?**	0.50	0.30	0.20	0.10
Q3	**Does the enterprise have a process in place for selecting and evaluating ERP vendors?**	**0.70**	0.15	0.15	0.05
Q4	**Has the enterprise considered what elements of the ERP project could be outsourced or implemented in-house (e.g. hosting, implementation, etc.)?**	0.40	0.35	0.25	0.05

Q5	**Can the enterprise capture IT knowledge gained during the ERP implementation cycle?**	**0.70**	0.05	0.25	0.07
Q6	**Does the enterprise have fully documented business processes?**	0.45	0.20	0.35	0.33
	Total Average (%)	**0.53**	**0.23**	**0.25**	0.12

Table 11: SURVEY RESULT FOR READINESS IN IT RESOURCE MANAGEMENT.

Table 11 shows that the organizational readiness in the IT resource management dimension. As can be seen from the above table, 53% of respondents agreed on the existence of IT resource management practices by voting "Yes" still acknowledging the need for improvement on this area (12%). 23% of the respondents replied "No" saying the company has still not started or practicing IT resource management activities in relation to the ERP project initiatives. Among the respondents, 25% of them replied with "I do not know" whether IT resource management processes discussed above are present or not. The number still will be higher if we add the "No" and "I do not know" answers together (48% assuming these respondents should have known the IT resource management practices in the company).of all respondents surveyed, 70% of them responded "Yes" on question 3 and question 5 acknowledging the enterprise has a process in place for selecting and evaluating ERP vendors and the ability of the enterprise to capture IT knowledge gained during the ERP implementation cycle respectively.

In response to question 4, which asked the respondents about whether the company considered elements of the ERP project that could be outsourced or implemented in-house, 35% of the respondents replied "No" compared to 40% "Yes" which implies the company is still undecided and in subsequent discussion on the issue.

Of all respondents, the average response for "I do not know" is 25% and is slightly higher than 23% for responses which was answered as "No". The respondents did not comment anything on the questions raised above. As discussed on section 3.2.3, most of the respondents were grouped under IT governance structure that was formed by the company for this project and on the researcher's belief the group should have known the current existing IT resource management practices and trends in their organization. As was described above, there was differences in opinions among the respondents on the questions. The company needs to bridge these gaps so that all stakeholders understand the existing working environment so as to

respond quickly to forthcoming requirements. Improvement areas that have been mentioned by the participants must also be addressed for successful completion of the coming project. As IT resource management needs both a human resource planning and an IT professional's involvement, both departments need to work closely together to facilitate the right recruitment for the project. I recommend the company needs a revision on the IT governance structure so that it encompasses relevant members in the group. The other approach is to give the members all the required information on the issues so that they are on the same page.

4.3.5 Results for organizational readiness on the service management dimension

According to ITIL service framework, Service management is a set of specialized organizational capabilities for providing value to customers in the form of service. These specialized capabilities include the processes, activities, functions and roles that a service provider uses in delivering services to their customers, as well as the ability to establish suitable organization structures, manage knowledge, and understand how to facilitate outcomes that create value.

Service management is what enables a service provider to:

- Understand the services that they are providing from both a consumer and provider perspective.
- Ensure that the services really do facilitate the outcomes that their customers want to achieve.
- Understand the value of the value of those services to their customers and hence their relative importance.
- Understand and manage all of the costs and risks associated with providing those services.

IT service management is often related with the ITIL framework, which is a set of descriptive guidance documents that was originally developed in the 1980s by the UK government agency. Central computer and telecommunication agency (CCTA), to promote efficiency and cost-effective IT operations within organizations. Championed by the internationally active IT service management forum(itSMF), the ITIL phenomenon has spread from the UK government data centers to the IT departments of private and public organizations around the world. The ITIL best practice framework enables managers to document, audit, and improve their IT services management processes (Tan, Cater-steel, Mark Toleman, 2009).

	Organization readiness in Service Management	**Yes**	**No**	***I do not know***	***Improvement Needed***
	Total number of respondents 20				
Q1	Have the enterprise established ERP service expectations for the business units (e.g., uptime, data refresh rates, quality reporting, etc.)?	0.25	**0.55**	0.20	0.20
Q2	Does the enterprise have a means of making changes to existing service expectations?	**0.75**	0.10	0.15	0.13
Q3	Can the enterprise determine if the existing server environment will support the desired ERP functionality and service characteristics?	0.65	0.10	0.25	
Q4	Can the enterprise determine if the existing network connections will support the desired ERP functionality and service characteristics?	0.60	0.15	0.25	
Q5	Can the enterprise determine if the existing storage and recovery infrastructure will support the desired ERP functionality and service characteristics?	**0.75**	0.10	0.15	0.07
Q6	Can the enterprise determine if the existing database infrastructure will support the desired ERP functionality and service characteristics?	0.65	0.10	0.25	0.08
Q7	Can the enterprise determine if the enterprise will have help desk capacity to support the rollout and maintenance of an ERP system?	0.55	0.20	0.25	0.09
Q8	Can the enterprise determine if it will have the incident management capacity to support the rollout and maintenance of an ERP system?	0.65	0.15	0.20	0.15

Q9	Can the enterprise determine business user training concerns imposed by the ERP system?	0.65	0.20	0.15	0.07
	Total Average (%)	**0.61**	0.18	0.21	0.09

Table 12 : SURVEY RESULT FOR READINESS IN IT SERVICE MANAGEMENT.

Table 12 shows that the organizational readiness in the IT service management dimension.

As can be seen from the above table, an average 61% of respondents agreed on IT service management practices by voting “Yes” still acknowledging the need for improvement on this area (9%). 18% of the respondents replied “No” saying the company has still not started or practicing IT service management activities in relation to the ERP project initiatives. Meanwhile, 21% of the respondents replied “I do not know” about the company’s IT service management processes. The biggest “No” (55%) recorded on question 1 which was on whether the company has established ERP service expectations for the business units or not. The biggest “Yes” (75%) is obtained on question 2 which was tried to know the enterprise’s options of making changes to existing service expectations. It is interesting that the respondents replied “No” for question 1 as saying the company have not established an ERP service expectation for the business units. But they responded “Yes” for question 2 about options of making changes to existing service expectations. We can get a higher of respondents if we add the “No” and “I do not know” answers together (39%), assuming these respondents should have known the IT service management practices in the company. Four questions (3, 6, 8, and 9) all got a 65% “Yes” replies which comprises of such questions like whether the current server settings in the company can support ERP or not, whether the current database infrastructure can support ERP or not, whether it will have an incident management capacity to support the rollout and maintenance and concerning user training issues imposed by the ERP system. One comment among the respondents was on question 1 as saying “any company will have to institute such performance parameters since it has to account the changes after the implementation of any project (ERP)”. Another respondent commented on question 7 as saying “It requires knowing the new ERP system and documentation”. It can be concluded that the responses are inconclusive whether to verdict IT service management exists or not. Even if 75% of the

respondents claim that the company has put everything in place in relation to IT service management, a combined 39% of the surveyed staff who responded “No” and “I do not know” pose a question on its own and the management must start working to narrow the gap of knowledge observed as these negative responses will affect the implementation later.

4.3.6 Results for organizational readiness on the Application management dimension

ITIL defines Application Management as function that is responsible for managing applications throughout their lifecycle. This process plays an important role in the application-related aspects of designing, testing, operating and improving applications, as well as in developing the skills required to operate the company’s applications. Application Management is an ongoing activity, as opposed to Application Development which is typically a one-time set of activities to construct applications. The applications may be developed in-house or they may be bought in. bought in applications will need varying degrees of customization prior to release. Those teams responsible for bought-in applications, managing the ongoing relationship with the supplier is very important.

Application management teams manage and support applications on a day-to-day basis. For example, they will usually be the functional escalation route used by the helpdesk team when an incident or problem logged and categorized against their application.

Application management has two objectives:

- Taking care of technical knowledge and expertise relating to the managing of applications. Application management makes certain that the required technical knowledge to design, test, operate and continually improve application is available.
- Ensuring that staff are adequately trained and effective. It is often important for staff who are to be deployed in service operations to have been involved in the design and transition activities for a particular application.

Most of the time it is very difficult for operational staff to get involved in development projects as that takes them away from their ongoing operational responsibilities. That is one of the core issues raised by the respondents of the questionnaire.

	Organization readiness in Application Management	Yes	No	*I do not know*	*Improvement Needed*
Total number of respondents 20					
Q1	Does the enterprise have a process in place for soliciting requirements from business units and for analyzing those requirements?	0.55	0.35	0.10	0.00
Q2	Does the enterprise have a system in place for procuring enterprise-scale applications?	**0.40**	**0.40**	0.20	0.00
Q3	Does the enterprise have competencies in managing both enterprise software vendors and implementation consultants?	**0.65**	0.30	0.05	0.15
	Total Average (%)	**0.53**	0.35	0.12	0.05

Table 13 : SURVEY RESULT FOR READINESS IN APPLICATION MANAGEMENT.

Table 13 shows that the organizational readiness in the Application management dimension.

According to the data shown above, the majority of the respondents which accounts to half of the total respondents agreed on Application management practices by voting “Yes” still admitting the need for improvement on this front (5%). An average 35% of the respondents replied “No”, claiming the organization is still not in a position to declare it has got an application management processes. In addition, an average 12% answered “I do not know”. The biggest “Yes” (65%) was observed for question 3 which discusses about whether the company have competencies in managing both ERP software vendors and consultants. One respondents put a remark stating the company has already hired a consultancy firm (Ernst and Young) to study the organization processes and subsequent structural changes. For this specific question, 15% out of those 65% put a remark there is still a need for further improvement on this section. An average 55% of the respondents agreed by voting “Yes” confirming the company has put a process in place for soliciting requirements from business units. The interesting figure is the 40% mark gained on question 2. Both “Yes” and “No” answers were observed for this specific question. The question was all about whether the company has put a system in place for procuring enterprise-scale applications or not. The remaining 20% of the respondents replied “I do not know”. As was discussed above, there was differences in opinions among the respondents on the questions. The company needs to bridge these differences so that all parties understand the existing working environment so as to respond quickly to forthcoming requirements. Improvement areas that have been mentioned by the participants must also be

addressed for successful completion of the coming project. I recommend the company needs a revision on the IT governance structure so that it encompasses relevant members in the group. The other approach is to give the members all the required information on the issues so that they are on the same track.

4.3.7 Results for organizational readiness on the IT Governance dimension

IT Governance is the organizational capacity exercised by the Board, Executive Management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT (Van Grembergen, 2002). The international standard for IT governance, *ISO/IEC 38500:2008*, provides a framework for effective governance of IT to assist those at the highest level of organizations to understand and fulfil their legal, regulatory and ethical obligations in respect of their organization's use of IT. It covers the various policies, processes and structures established by senior management to ensure the smooth running and effective control of the organization.IT governance is the responsibility of the Board of Directors and Executive Management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure the organization's IT sustains and extends the organization's strategy and objectives" (ITGI, 2003).Although these definitions differ in some aspects, they focus on the same issues such as achieving the link between business and IT and the prime responsibility of the Board. In Van Grembergen's definition (Van Grembergen, 2002), it is indicated that also IT management is an important player in the IT governance process. However, there is a clear difference between IT governance and IT management. IT management is focused on the effective supply of IT services and products and the management of the IT operations.IT governance in turn is much broader and concentrates on performing and transforming IT to meet present and future demands of the business and the business' customers (Peterson, 2004).

The definition of the IT Governance Institute also states that IT governance is an integral part of enterprise or corporate governance. ITGI's "Board Briefing on IT Governance", (ITGI, 2003) argues that "IT governance responsibilities form part of a broad framework of enterprise

governance and should be addressed like any other strategic agenda item of the Board. In simple terms, for critically dependent IT systems, governance should be effective, transparent and accountable." The market research company (Duffy j, 2002) referring an IDC document concurs: "Just as the cyber world is intertwined with, not independent of, the traditional world, IT governance is not independent of enterprise or corporate governance." IT governance is a subset of enterprise governance and encompasses systems, infrastructure, and communication.

Gartner recommends that IT leaders follow three major phases in their IT governance projects. These phases may vary, depending on the level of organization and the extent of organization's planning initiative.

Strategize and plan: Establish the business goals and principles for IT governance. Determine what decisions need to be governed. ***Develop the strategies and approach for designing solutions. Scope the project, and establish the resources, budget and project governance systems.***

Architect solution: Define what decisions are to be made, at what level, by whom, with what accountabilities and with what decision-making styles. Recommend how to implement the project and communicate the plan.

Build: Create processes for demand governance. The processes should include those for decision making, committees, portfolio management, investment performance metrics***,*** ***funding and chargeback for IT development and delivery***, and risk monitoring and management. The ultimate aim of IT governance is ***to ensure that the investment in IT generate business value and mitigate the risks that are associated with IT.***

Organization readiness in IT Governance Total number of respondents 20		Yes	No	*I do not know*	*Improvement Needed*
Q1	**Has the enterprise documented its IT governance policies, ideally with a framework such as ITIL?**	**0.75**	0.20	0.05	0.13
Q2	**Does the enterprise have a process for assigning internal resources based on the priority or value of projects?**	0.65	0.35	0.00	0.15
Q3	**Can the enterprise institute a method for monitoring the ongoing value of ERP investments based on business unit metrics?**	0.60	0.40	0.00	0.08

Q4	**Can the enterprise institute a process for determining financial value to business unit efficiencies that can be gained through ERP investments?**	0.40	**0.60**	0.00	0.25
Q5	**Can the enterprise establish a method of monitoring the operational performance of ERP investments?**	0.45	0.40	0.15	0.00
Q6	**Has the enterprise identified a project sponsor for the ERP project?**	**0.60**	**0.35**	0.05	0.00
Q7	**Does the sponsor have sufficient influence at the board levelto secure sufficient capital investment for an ERP project?**	**0.50**	**0.45**	0.05	0.00
Q8	**Can the enterprise identify a project leader for the ERP project?**	**0.70**	0.10	0.20	0.00
Q9	**Will the leader have the influence within individual business units to secure requirements?**	**0.60**	**0.30**	0.10	0.00
Q10	**Will the leader have a sufficient relationship with IT to secure cooperation?**	0.60	0.25	0.15	0.00
Q11	**Does the enterprise follow an established process for project lifecycle management based on the recommendations of PMI (Project Management Institute), IEEE 12207(Systems and software engineering), or something similar?**	**0.25**	**0.55**	0.20	0.00
Q12	**Does the enterprise have established IT policies for the use and maintenance of systems like ERP?**	0.40	0.50	0.10	0.25
Q13	**Does the enterprise have a means of making changes to existing IT processes related to ERP systems?**	0.55	0.30	0.15	0.09
Q14	**Can the enterprise enforce changes to IT policies related to enterprise applications?**	**0.85**	0.15	0.00	0.05
	Total Average (%)	**0.56**	0.35	0.09	0.07

Table 14 : SURVEY RESULT FOR READINESS IN IT GOVERNANCE.

Table 14 shows that the organizational readiness in the IT governance dimension.

According to the data shown above, the majority of the respondents which accounts to more than half of the total respondents agreed on the established IT governance role by voting “Yes” still admitting the need for improvement (7%). An average 35% of the respondents replied “No” claiming that the IT governance structure does not exist or not prepared for such kinds of initiatives. Among the respondents, an average of 9% said “I do not know” about the issue of IT governance at all.

On question 14 which discusses about whether the company enforce changes to IT policies related to enterprise applications, 85% of the respondents agreed by voting “Yes”. Respondents were asked to evaluate whether the enterprise has already documented its IT governance policies, ideally with a framework such as ITIL or not (Q1). As can be seen in the table, 75% of the respondents replied “Yes” out of which 13% of them put a remark stating there is still a place for improvement in this respect. Respondents were asked to evaluate whether the company identified a project leader for the ERP project (Q8). As can be seen from the above table, the percentage distribution of “Yes” respondents for the survey question is 70% even if 10% of the responses are categorized under “No”.(Abu Hassan Abu Bakar et al., 2011),It has been recognized that an assignment of a project manager is very crucial to ensure the success of any design or construction project. In most cases, a single project manager is accountable for the success of a project and is responsible for its planning, allocating, directing and controlling functions. For question 9 stating about whether the leader will have the influence within individual business units to secure requirements, 60% of the respondents replied “Yes” while 30% of them responded with “No”. The highest “No” (60%) was recorded for Q4 which discusses about whether the company instituted a process for determining financial value to business unit efficiencies that can be gained through ERP investments. According to (IBM Global newsletter, 2010), it is possible to determine the ROI for ERP investments. It can be calculated by first summing the total costs of the solution by including components such as software, hardware, upgrades, support, maintenance, training, customization, implementation services and more. Compare those costs with the tangible benefits the investment will provide, the company can have its ROI. For this specific question, 40% of the respondents replied “Yes” stating the company can institute a process for determining financial value to business unit efficiencies that can be gained through ERP investments. On question 11 which discusses about whether the company has established a process for project lifecycle management based on the recommendations of PMI (Project Management Institute), IEEE 12207(Systems and software engineering), or something similar, 55% of the respondents replies “No” claiming there is no established procedure the company will follow for this project. One respondent commented “the new established project office will handle all project lifecycle management issues, no

defined framework". Somewhat undecided responses observed on question 6 and 7. Both questions were dealing with project sponsors. Question 6 which deals with whether the company identified a project sponsor for the ERP project or not.65% of the respondents replied "Yes" stating the company has got the right sponsors for this particular project while 35% of them replied "No". The same is true for question 7 which discusses about whether the sponsor have sufficient influence at the board level to secure sufficient capital investment for an ERP project, 50% of the respondents agreed by voting "Yes" while 45% of the respondents replied "No". As was discussed above, there are differences in opinions among the respondents on the questions. More than half of the respondents agreed that it is critical to have a formal IT governance structure that provides clear project goal settings and clearly defined roles and responsibilities. The company needs to have a clear metrics to measure the ROI before the implementation commences. The ROI can be tangible or intangible benefits the company can get from the ERP investment and that is also the biggest concern of the board of directors or top executives. The other thing the company must consider is the way the project is taken care of. I recommend the company establish a process for project lifecycle management based on the recommendations of PMI (Project Management Institute), IEEE 12207(Systems and software engineering. As the project is a huge investment and a new experience for our country, best practices for project management must be followed for better results. The other thing the company needs to clear out is about the project sponsor role. It becomes relevant where there is a need to identify a person responsible for the project on behalf of an organization and as Kerzner says: Project sponsorship has evolved into the best way that executives can provide support for a project regardless of whether internal or external (Kerzner, 1998).for this reason, the sponsor needs to have sufficient influence at the board level to secure sufficient capital investment for an ERP project. Furthermore, the company must establish IT policies for the use, upgrade and maintenance of systems like ERP as, according to (Glass R. and Vessey I., 1999), ERP user, maintenance and upgrade activities are attracting increasing attention in ERP-using organizations. Researches pointed out that annual maintenance costs approximate 25% of initial ERP implementation costs, and an upgrade costs as much as 25-33% of the initial ERP implementation (Carlino et al., 2000).

4.3.8 Results for organizational readiness on the IT strategy and planning dimension

IT Strategic planning can help leaders and managers of organizations to think, learn and act strategically (Bryson, 2004). The idea of strategic planning emerged in corporations that wanted to have a strategy as to how to maximize their profits. Today, the motivation is manifold and differs according to the type of organization. The need for an organization to proactively respond to environmental challenges has now become imperative, as it offers the organization a competitive edge in today's business world. Thus, every organization regardless of its size must have some form of a strategic plan.

Unfortunately, in most organizations, especially in the private sector, strategic plans are not carried out and implemented properly (Abu Ahmed A., 2012). Some public organizations do not attach any importance to strategic planning and therefore do not have strategic plans for their organizations. This could be borne out of lack of appreciation and knowledge of the relevance of strategic planning to organizational growth.

Developing a comprehensive IT Strategic Plan for an agency that manages a collection of varied and discrete services is challenging enough. Organizations must respond to these challenges by developing a comprehensive IT strategy for the next five years that incorporates the combined expertise and insight of its top executives and strategic thinkers. IT strategic plan focuses on using IT to improve company's mission business processes and to maximize customer satisfaction.

According to (Sean W., 2007) An IT strategic planning for ERP includes assigning a project team, Examining current business processes and information flow and Set objectives and developing a project plan.

Project team: Assign a project team with employees from all concerned departments.

Examine current business processes: Having the team perform an analysis on which business processes should be improved. Gather copies of key documents such as invoices and batch tickets for the analysis.

Set objectives: The objectives should be clearly defined prior to implementing the ERP solution. As ERP systems are massive, the company needs to define the scope of implementation.

Develop a project plan: The team should develop a project plan which includes previously defined goals and objectives, timelines, training procedures, as well as individual team responsibilities. The end result of the project plan should be a "to do" list for each project team member.

Organization readiness in IT Strategy and planning. Total number of respondents 20		Yes	No	*I do not know*	*Improvement Needed*
Q1	Does the enterprise have a process for budgeting initial ERP investments?	**0.65**	0.20	0.15	0.00
Q2	Does the enterprise have a process for budgeting investment in additional modules, upgrades, or additions?	0.70	0.20	0.10	0.00
Q3	Does the enterprise have fully documented business processes?	**0.75**	0.20	0.05	**0.20**
Q4	Does the enterprise have a process for prioritizing ERP investment decisions concerning additional modules, upgrades, or additions?	0.45	0.30	0.25	0.11
	Total Average (%)	**0.64**	0.23	0.14	0.08

Table 15: SURVEY RESULT FOR READINESS IN IT STRATEGY AND PLANNING.

According to the data shown above, the majority of the respondents (an average of 64%)agreed on the established IT strategy and planning role by voting "Yes" still admitting the need for improvement (8%). An average 23% of the respondents replied "No" claiming that the IT strategy and planning structure does not exist or not prepared for such kinds of initiatives. Among the respondents, an average of 14% said "I do not know" about the issue of IT strategy and planning at all. As stated above, (Sean W., 2007), one of the components of IT strategy and planning activity is Examining current business processes. In this respect, most of the respondents (75%) agreed the company has fully documented business processes already even if 20% of them claim the documentation of processes still needs improvement. On question 1 which discusses about whether the company has a process for budgeting initial ERP investments, 65% the respondents replies "Yes" saying the company has already allocated a budget. The same is true for question 2 which talks about whether the company has a process for budgeting investment in additional modules, upgrades or additions.70% of the responses were positive while 20% of them still have doubt about the budgeting process. In its simplest

terms, strategic planning is an attempt to answer four basic questions: where are we now? Where do we want to be? How big the gap is? And what will it take to get there in terms of time and resources? Answers require both awareness and understanding of the company's internal and external environments, and analysis of the IT organization itself. On this respect, the company seems to know where they want to advance in terms of ERP implementation. Majority of the participants believe the company has already started documenting business processes and approved the required budget for the project. Once again, the company needs to look into the improvement areas mentioned by the participants and to fulfil the gap that is reported by the respondents.

4.3.9 Results for organizational readiness on the communication dimension

Business communication can be inside the organization (internal communication) and outside the organization (external communication). Internal communication is a process where all employees take part unlike external communication where only some employees take part. Communication plays a fundamental role in all facets of business. It is therefore very important that both internal communication within organizations as well as the communication skills of employees are effective. For the purpose of this paper, organizational communication can be defined as the process by which individuals stimulate meaning in the minds of other individuals by means of verbal or nonverbal messages in the context of formal organization (Richmond et al, 2005).All processes in company are based on people's behavior and communication among them. The communication process is the representation of a company – from leadership style to team work among employees. Every top management has the task to develop consciousness about the effective communication and what is most important is to motivate employees to be devoted to sharing the values of the company. Communication is a complex process and in order to survive in a company, we must know all communication flows as well as how it works.

Organization readiness in Communication Total number of respondents 20		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean
Q1	**Awareness in purchasing a new integrated Financial and Human Resources system.**	0.20	0.20	0.35	0.20	0.05	3.3

Q2	**Communicating and informing employees about key projects/activities taking place within the company.**	0.00	0.30	0.15	0.40	0.15	2.6
Q3	**Departments within the company work well together.**	0.00	0.25	0.25	0.30	0.20	2.55
	Average Total	**0.07**	**0.25**	0.25	**0.30**	**0.13**	**2.81**

Table 16: SURVEY RESULT FOR READINESS IN COMMUNICATION.

The communication readiness aspect of the organization significantly impacts the output of the project. As can be seen from the above table, the aggregate mean (mean of the mean) result for the communication dimension is found to be 2.81, which is rated in the "**disagree**" category.A total average of 43% was recorded for both "Disagree" and "strongly disagree" sections which clearly shows how far the company is in terms of communication and cohesion among departments. Among communication related variables addressed in the questionnaire, Communicating and informing employees about key projects/activities taking place within the company and cohesion/unity of departments within the company have the lowest mean value. This means that majority of the respondents disagree to the company's communication trend in informing employees about key projects. In addition to that, majority of the responses indicate that departments within the company are currently not working well together. In line with this, several scholars considered communication among groups as an essential attribute in ERP systems implementations. It is essential for project groups implementing IS to have strong cohesion because the implementation of IS is a social construction procedure during which participants negotiate, accomplish, and develop a common understanding through interaction, sense making, and collective learning (Boland & Tenkasi, 1995; Newell et al., 2004; Sahay & Robay, 1996). A shared comprehension between end users and other team members is increased by a willingness to take part. As a result of this increased collective comprehension, there is a larger pool of possibly beneficial mutual adjustments. Common comprehension and adjustment enable the possibility to settle disagreements faster and preempt the accumulation of grievances and grudges (Nelson, 1989), and consequently, improve the tendency of a group to stay together and united when reaching common goals and objectives. According to (Thompson et al., 1998), teams with high cohesion in communication have a better chance to reach their goals and objectives. (Hunton&Gibson, 2001) observed that the cohesion of a group correlates positively with performance indicators. Typically, groups with high cohesion have a

better possibility to accomplish common goals and objectives than low cohesion teams (Carron, 1982). A group with good cohesion has a strengthened group identity and is better committed to the common task (Goodman et al., 1987; Thompson et al., 1998). In line with the above, the company needs to establish a smooth communication platform to inform and expose all staff members about project initiatives as they will be the one who ultimately use the system and furthermore the company must work harder to bring the cohesion among departments.

4.3.10 Results for organizational readiness on the culture dimension

The concept of culture is particularly important when attempting to manage organization-wide change and significant service quality improvements. Practitioners are coming to realize that despite the best laid plans, organizational change must include not only changing structures and processes, but also changing or modifying the corporate culture as well. Addressing culture issues involves changing basic values, norms and beliefs among stakeholders in order to improve organizational performance. Companies today understand that improved processes lead to better performance; however, they also need to realize that certain barriers may keep change from taking place.

Few concepts in organizational theory have as many different and competing definitions as "organizational culture." Smircich (1983), for example, has cited five classes of such definitions in her review of the literature on organizational cultures. Rather than attempt to resolve these numerous and subtle definitional conflicts, a definition that is consistent with most of the research about organizational culture and a firm's performance is used here. (Deal & Kennedy, 1982; Peters & Waterman, 1982), they define organizational culture as a complex set of values, beliefs, assumptions, and symbols that define the way in which a firm conducts its business. In this sense, culture has pervasive effects on a firm because a firm's culture not only defines who its relevant employees, customers, suppliers, and competitors are, but it also defines how a firm will interact with these key actors (Louis, 1983). This conception of organizational culture blurs classical distinctions be-tween an organization's culture and its structure and strategy (Tichy, 1983) because these attributes of a firm are direct manifestations of cultural

assumptions about what business a firm is in and how it conducts that business. Recent attempts to explain the sustained superior financial performance of firms like IBM, Hewlett-Packard, Proctor and Gamble, and McDonald's have focused on the managerial values and beliefs embodied in these firms' organizational cultures ("Corporate Culture," 1980; Deal & Kennedy, 1982; Peters & Waterman, 1982).

These explanations suggest that firms with sustained superior financial performance typically are characterized by a strong set of core managerial values that define the ways they conduct business. It is these core values (about how to treat employees, customers, suppliers, and others) that foster innovativeness and flexibility in firms; when they are linked with management control, they are thought to lead to sustained superior financial performance.

Understanding organizations through a cultural lens with a focus on values, attitudes and beliefs of members are crucial for effective organizational operation. (Hirshleifer, 1980) examines the relationship between organizational culture and sustained superior financial performance. The conditions under which a firm's culture can be a source of sustained competitive advantage, and thus by implication, a source of sustained superior financial performance are examined

Organization readiness in culture Total number of respondents 20	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean
Level of tolerance for change within your business community is high.	0.05	0.30	0.40	0.20	0.05	3.10
recognize people for helping lead or facilitate changes within your agency	0.05	0.15	0.45	0.25	0.10	2.80
Support to individuals going through a process or structural change within your company to include information, training, coaching, and time	0.05	0.40	0.30	0.25	0.00	3.25
Facilitate a professional development plan to give existing employees ERP competencies?	0.00	0.20	0.55	0.20	0.05	2.90
Inclination to stick with standard procedures throughout the project?	0.00	0.35	0.35	0.30	0.00	3.05

Ease tocapture IT knowledge that will be gained during the ERP implementation cycle?	0.05	0.50	0.15	0.25	0.05	3.25
Total Average	0.03	0.32	0.37	0.24	0.04	**3.05**

Table 17: SURVEY RESULT FOR READINESS IN CULTURE.

The implementation of ERP systems always mandate change in business process and organization culture. Organizational culture plays an important role during implementation of ERP systems and consequently its success (Shah et al., 2011). It enforces rules, values and practices at the organizational and individual levels (Rasmy et al., 2005). In view of the above, the aggregate mean (mean of the mean) result for the culture dimension is found to be 3.05, which is rated in the "**undecided/Neutral**" category.it means the majority of the respondents represented on the survey are indifferent in their opinions on the cultural dimension. A research conducted on nine organizations in Finland by (Antikainen & pekkola, 2009) concluded that one of the factors for successful IS implementation projects is an organization culture in which business people and IT people work together. According to the survey, capturing IT knowledge is one of the highest rated from all cultural dimensions (55%). recognizing people for helping lead or facilitate changes was not accepted by most of the respondents (35%). The environment in which an ERP system is developed, selected, implemented and used constitutes a "social context" (Light et al., 2013). This ecosystem includes several stakeholders, from the developers of the system, to vendors, the consultants, the project team, and the eventual users. Each one of these holds a certain cultural assumption towards the ERP implementation and use process (Rasmy et al., 2005). Particularly, the developers' and consultants' cultural assumptions are embedded in the very roots of the software itself. If cultures of producers and users are different it results in a cultural clash (Otieno, 2010).As discussed above, majority of responses were in the category of undecided and the management must work hard to bring about the desired culture in this respect. According to (Talet and Al-Wahaishi, 2011), understanding culture is a vital activity for top management executives because it affects strategic expansion, efficiency, and learning at all levels of management. Leadership culture is a key to the success of IS adoption and effective leadership is the means by which the culture is

created and managed. It is evident that cultural impact on IT adoption and use cannot be ignored.

4.3.11 Results for organizational readiness on the capacity dimension

Organizational capacity is a concept that has garnered increased attention from the public and in management literature in recent years. Capacity, broadly defined as the ability of an organization to fulfill its goals, has been of particular focus of scholars interested in understanding the variables that impact organizational performance, (Honadle 1981).
A number of scholars have sought to define organizational capacity. (Austin, 1994) refers to it as those abilities that enable actors to achieve specified objectives. (Gargan, 1980), defines it as the ability of an organization to do what it wants to do. (Eisinger, 2002) links organizational capacity with organizational effectiveness by defining capacity as a set of attributes that help or enable an organization to fulfill its missions. If organizational capacity is generally understood as the ability of an organization to fulfill its mission then the capacity of an organization to obtain resources is a significant component to their capacity. A number of scholars have stressed the importance of acquiring adequate resources from the environment to increase an organization's capacity to do their work. In particular, open system organizational theories point to the significance of being able to attract and obtain a variety of resources from the environment in order to survive as an organization. This 'capacity as resource' view is arguably the most accepted definition of capacity in the public literature because when an organization does not have the resources to meet the needs of the population, the organization is considered not only under resourced, but also lacking basic capacity to meet organizational goals. This perspective understands capacity as those organizational resources and capabilities that are related to organizational effectiveness. Essentially, it is output-based understanding of capacity; the assumption is that organizations can assess their capacity by looking at what organizational attributes positively impact organizational performance. According to ITIL framework, capacity management is all about gathering information about business plans, assessing the impact on services and underpinning resources and then buy or upgrading resources in time to avoid either insufficient capacity and missed service levels or excess

capacity and unnecessary cost. For this reason, capacity management is sometimes more memorable summarized as “having the right IT capacity in the right place at the right time at the right cost”.

	Organization readiness in capacity. Total number of respondents 20	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean
Q1	**Can your company complete a systems related project within the coming six months that require your participation?**	0.00	0.30	0.35	0.30	0.05	2.90
Q2	**The functional experts in my department fully understand key financial processes within the department?**	0.00	0.45	0.20	0.25	0.10	3.00
Q3	**The functional experts in my department fully understand how departmental financial processes relate to enterprise-wide departmental processes?**	0.05	0.30	0.35	0.25	0.05	3.05
Q4	**The functional experts in your company understand departmental financial processes?**	0.00	0.25	0.55	0.20	0.00	3.05
Q5	**The company has got the right IT community to participate in this project.**	0.00	0.20	**0.70**	0.10	0.00	3.10
Q6	**Departments have got the proper staffing resources available to ensure a successful ERP implementation.**	0.00	0.25	0.40	0.25	0.10	2.75
Q7	**In relationship to the implementation of a new ERP system, subject matter experts within your department understand how to complete their business processes.**	0.00	0.30	0.50	0.20	0.00	3.10
Q8	**In relationship to the implementation of a new ERP system, subject matter experts within your department understand how their business process relates to other business functions within the company.**	0.00	0.40	0.40	0.20	0.00	3.20
Q9	**My department has the proper staffing resource available to ensure a successful implementation**	0.00	0.40	0.20	0.30	0.10	2.90
Q10	**Current systems and business processes are sufficient to handle the company's current and future business needs?**	0.00	0.00	0.15	**0.55**	**0.30**	1.85
Q11	**Implementation of a new ERP system, subject matter experts within your department understand how to complete their business processes.**	0.00	0.35	0.40	0.25	0.00	3.10
Q12	**There has been adequate coordination between technical and functional staff to prepare for the new system.**	0.00	0.10	0.25	**0.50**	**0.15**	2.30
	Total Average	0.0	0.28	0.37	0.28	0.07	**2.85**

Table 18: SURVEY RESULT FOR READINESS IN CAPACITY.

As can be seen from the above table, the aggregate mean (mean of the mean) result for the capacity dimension is found to be 2.85, which is rated in the “Disagree” category.it means the organization is still far behind in terms of capacity in handling such project initiatives. Majority

of respondents hold a moderate stand in their opinions. 70% of the respondents replied they are undecided or neutral whether the Company has got a right IT community to participate in this project (Q5) or not. According to (Princely I., 2011), External expertise and adequate levels of internal computer skills and knowledge are essential factors that can contribute to the success of complex information technology (IT) systems, including enterprise resource planning (ERP).Essentially, the research's results confirmed that external expertise and internal computer/IT knowledge are pertinent to success enhancement of ERP system success for adopting organizations. In addition to this, the participants were asked (Q6) whether Departments have got the proper staffing resources available to ensure a successful ERP implementation, 35% of the respondents disagree with the question claiming that they do not have a proper staffing resources. For this particular question, 40% of the respondents prefer not to take any position and hold a neutral stand. 85% of the respondents disagree to the question (Q10) whether Current systems and business processes are sufficient to handle the company's current and future business needs. This implies the company needs additional systems that support current and future needs. For question 12 which discusses about whether there has been adequate coordination between technical and functional staff to prepare for the new system, 65% of the respondents disagree with the current technical and functional staff preparedness. In relation to the implementation of a new ERP system, participants were asked (Q8) to rate understanding of subject matter experts within their department whether they know how their business process relates to other business functions within the company, only 40% of the respondents agree that subject matter experts within their department understand business processes related to other business functions within the company. As (Monk & Wagner, 2008) put it, the functional areas are in fact interdependent, as one requires information from the others for the enterprise to work. The better the integration between departments, the better the enterprise can serve its customers, outperforming its competitors. In addition to this, respondents were asked also to rate subject matter experts understanding to complete their business processes, only 30% of the respondents agree pertaining to the issue. Researches pointed out that Efficiency is achieved through efficient business processes, which are a series of routine activities for adding value to inputs (Dunn et al., 2004).As part of

the change management efforts, users should be involved in design and implementation of business processes and the ERP system, and formal education and training should be provided to help them do so (Bingi et al., 1999; Holland et al., 1999). Education should be a priority from the beginning of the project, and money and time should be spent on various forms of education and training (Roberts and Barrar, 1992). One participant put a remark on the issue as “the consulting firm has already started defining business processes for the relevant departments and no need to do it all over again”.

4.3.12 Results for organizational readiness on the commitment dimension

Organizational commitment has been defined as a psychological state that binds an employee to an organization, thereby reducing the incidence of turnover (Allen & Meyer, 1990), and as a mindset that takes different forms and binds an individual to a course of action that is of relevance to a particular target (Meyer & Herscovitch, 2001). Organizational commitment has attracted considerable attention over recent years and has become a central objective of human resource management (Helen Lydka, 1994).

(Grusky, 1966) relates commitment with “The nature of the relationship of the member to the system as a whole”. (Kanter, 1968) defines commitment as “The willingness of social actors to give their energy and loyalty to social systems, the attachment of personality systems to social relations, which are seen as self-expressive”. (Brown, 1969) categorize commitment as (1) includes something of the notion of membership; (2) it reflects the current position of the individual; (3) it has a special predictive potential, providing predictions concerning certain aspects of performance, motivation to work, spontaneous contribution, and other related outcomes; and (4) it suggests the differential relevance of motivational factors .

According to (Hall et al., 1970) “The process by which the goals of the organization and those of the individual become increasingly integrated or congruent” is commitment. (Salancik, 1977) said commitment is that “a state of being in which an individual become bound by his action and through these action to beliefs that sustain the activities of his own involvement”. (Mowday et al., 1979) defined commitment in such a way “The relative strength of an

individual's identification with and involvement in a particular organization". (Scholl, 1981) described "a stabilizing force that acts to maintain behavioral direction when expectancy/equity conditions are not met and do not function

	Organization readiness in commitment. Total number of respondents 20	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean
Q1	**Committed to the implementation of a new integrated business system [ERP].**	0.60	0.35	0.05	0.00	0.00	4.55
Q2	**The implementation of a new integrated business system will be successfully completed.**	0.10	0.50	0.30	0.10	0.00	3.60
Q3	**The project will result in an improvement in the performance of business processes.**	0.55	0.35	0.05	0.05	0.00	4.40
Q4	**I will have ample time and attention available to devote to implementing this project.**	0.05	0.45	0.45	0.05	0.00	3.50
Q5	**I will have enough time to attend and facilitate regular status meetings?**	0.00	0.40	0.45	0.15	0.00	3.25
Q6	**I will be a role model in displaying the proper behaviors required to make this change successful?**	0.30	0.45	0.25	0.00	0.00	4.05
Q7	**The Organization's technical team preparedness for this ERP implementation is considered as enough?**	0.00	0.10	0.55	0.25	0.10	2.65
Q8	**The enterprise-wide technical staff is prepared to address the technical specifications/requirements that will be required for the new ERP system.**	0.05	0.15	0.55	0.15	0.10	2.90
Q9	**Departments have written policies and procedures that clearly explain the processes for completing all business functions within the department.**	0.10	0.20	0.35	0.25	0.10	2.95
Q10	**Do you agree with the need to procure and implement a new integrated business system, ERP?**	0.30	0.45	0.10	0.15	0.00	3.90
Q11	**The company has standard and followed security policies for safeguarding enterprise-wide data and information sharing.**	0.05	0.40	0.35	0.20	0.00	3.30
Q12	**The company has standard and followed security policies for computer log on and passwords?**	0.20	0.65	0.10	0.05	0.00	4.00
Q13	**The company established ERP service expectations for the business units (e.g., uptime, data refresh rates, etc.)?**	0.00	0.00	0.70	0.30	0.00	4.0
	Total Average	0.18	0.34	0.33	0.13	0.02	**3.51**

Table 19: SURVEY RESULT FOR READINESS IN COMMITMENT.

As can be seen from the above table, the aggregate mean (mean of the mean) result for the commitment dimension is found to be 3.51, which is rated in the "Undecided/Neutral" category. Majority of respondents hold a moderate stand in their opinions. According to

(Veger,2008), commitment from stakeholders are important for successful adoption of IS. For example, the roles of top management in IT implementations include developing an understanding of the capabilities and limitations of IT, establishing reasonable goals for IT systems, exhibiting strong commitment to the successful introduction of IT, and communicating the corporate IT strategy to all employees (R. B. McKersie and R.E. Walton, 1991). An organization's failure to commit the required financial, human and other resources has been found to be a problem in reengineering implementations (V. Grover et al., 1995). Dedicated resources are critical to realize the benefits associated with an ERP package (A. G. Robinson, and D. M. Dilts, 1999). Resource requirements need to be determined early in the project and often exceed initial estimates and the inability to secure resource commitments up front may doom project efforts (J .S. Reel, 1999*)*. In line with the above, 95% of respondents agreed to question1 which discusses about whether they are Committed to the implementation of a new integrated business system [ERP] or not and recorded the highest mean of 4.55.The lowest mean value (2.65) was recorded for question 7 which talks about The Organization's technical team preparedness for this ERP implementation. It seems that the majority of the survey participants have doubts in here too about technical staff members or IT teams in their company. The same doubt was observed while we were discussing about the capacity dimension. 70% of the respondents prefer not to take stands for the question "The Company has got the right IT community to participate in this project". Another issue discussed with the participants was regarding user's participation in the project (Q4&5). They were asked whether the participants have got ample time and attention available to devote to implementing this project and enough time to attend and facilitate regular status meetings. A mean value of 3.50 and 3.25 was recorded respectively which can be concluded as moderate. Literatures suggest that the importance of user participation during ERP implementation should not be ignored, because it plays a vital role in successful implementation of ERP in the organization (Amoako-Gyampah, 2007).The user's knowledge and skills about existing processes and their suggestions to streamline the "To Be" processes may help to reduce potential problems of ERP implementation. Lack of user participation can be one of the causes of lack of commitment that ultimately end up with non-cooperation with ERP team. (Kawalek & Wood-Harper, 2002) have

stressed the importance of user participation during ERP to get the benefits of their “local intelligence” in designing business processes. The existing knowledge of users may be useful for ERP implementation team in understanding the existing business practices. The user support needed in requirement analysis and implementation phase of ERP is well advocated in the literature (Bhatti, 2005). The suitable and relevant staff members may participate must get the benefit of user participation in ERP implementation (Bingi et al., 1999). (Amoako-Gyampah, 2007) has mentioned the importance of intrinsic involvement of user in order to increase the perceived usefulness of the system. This will help in increasing motivation, user commitment and user acceptance of ERP in the organization.

4.3.13 Results for organizational readiness on the capability dimension

According to ITIL, Capability is the ability of an organization, person, process, application, configuration item or IT service to carry out an activity. Capabilities are intangible assets of an organization. Knowledge capability is the systematic process of understanding, assimilating and applying of knowledge on an organization, to make the best use of knowledge to achieve sustainable competitive advantage and high performance. Knowledge capability provides an opportunity for achieving substantial savings, significant improvements in human performance, and enhanced competitiveness. Knowledge capability is multidisciplinary by nature and integrates concepts used in strategic management, organization theory, and information systems management. It stresses a formalized, integrated approach to managing an enterprise intangible information assets (Albers & Trinidad, 2006). Knowledge capability that company have can influence the success of ERP implementations (Sevenpri, 2012). The concept of organizational capabilities is rather ambiguous. A basic assumption of the ‘capability view’ is that companies have ways of doing things and dealing with organizational problems that show strong elements of continuity (Dosi et al 2000). But firms are heterogeneous, they develop different organizational routines even if they belong to the same industry and produce similar outputs. Firm-specific ways of acting are based on organizational capabilities that have been gradually accumulated and shaped within firms. Organizational capabilities, we can conclude, enable firms to deal effectively in a firm-specific way with key organizational problems (Dosi et

al., 2000). The capability approach is closely linked with the knowledge-based view of the firm. Organizational capabilities are identified with the know-how of a firm of performing particular problem-specific activities (Dosi et al., 2000).Organizational capabilities are rather stable; they do not change rapidly. Organizational capabilities give a firm its distinctive competitive edge, because they have been applied and further developed over a longer period of time.

	Organization readiness in capability Total number of respondents : 20	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean
Q1	**The company has got experience leading other system implementation projects.**	0.00	0.40	0.40	0.15	0.05	3.15
Q2	**Company's ability to take on training responsibilities to include trainers and training space, during this project.**	0.05	0.30	0.35	0.25	0.05	3.05
Q3	**Often receive training opportunities (not limited to your department).**	0.00	0.10	0.40	0.35	0.15	2.45
Q4	**The trainings were provided in an informative, well-organized and useful manner?**	0.00	0.25	0.60	0.10	0.05	3.05
Q5	**Training documentations are available and accessible for users and trainers to use for business processing.**	0.00	0.15	0.45	0.35	0.05	2.7
Q6	**The company has the staffing resources to provide adequate training on a new business system.**	0.00	0.15	0.45	0.40	0.00	2.75
Q7	**Company's ability to take on communication responsibilities is high.**	0.00	0.30	0.45	0.20	0.05	3.0
Q8	**Has the enterprise considered what new IT or business roles will be required to support the rollout and maintenance of an ERP system?**	0.05	0.25	0.55	0.10	0.05	3.15
	Total Average	0.01	0.24	**0.46**	0.24	0.06	**2.91**

Table 20: SURVEY RESULT FOR READINESS IN CAPABILITY.

As can be seen from the above table, the aggregate mean (mean of the mean) result for the capability dimension is found to be **2.91**, which is rated in the "Disagree" category. Majority of the respondents disagreed with the points raised on the survey. 46% of the respondents prefer not to take any positions and selected "undecided". 30% of the respondents disagreed with the capability dimension while 25% of replies were found to be "Agreed". Researches pointed out that to cope with a rapidly-changing environment, firm need to have capabilities to integrate, build, and reconfigure internal competencies. Firms develop their capabilities to create

competitive advantage by leveraging organizational resources such as information system to develop unique and change-oriented capabilities that enable them to meet customer needs and respond to challenges from competitors (Teece et al, 1997). (Barney, 1991) suggested that organizational resources and capabilities are key factors for competitive advantage and its sustainability. (Teece et al, 1997), in his study, one of the four capabilities that were examined was information access. These capabilities contribute to performance outcomes because they embody dynamic routines that can be manipulated into unique configurations to drive product and service differences. For question 7 which discussed about Company's ability to take on communication responsibilities, only 30% of respondents agreed claiming the company is ready take on communication responsibilities to all stakeholders so that relevant information can be access to all members while 45% of the respondents stay undecided. In the uncertain and turbulent business environment, acquiring useful information for product development with a minimum expenditure of energy, time, or resources improves organizational efficiency. In considering efficiencies, effective information access will have a great impact on business performance. The formulation of digital business strategy includes the design of products and services and their interoperability with other complementary platforms, and their deployment as products and services by taking advantage of digital resources. Many firms are beginning to see the power of digital resources to create new IT capabilities and craft new strategies around new products and services (Rai et al. 2012; Ray et al. 2005; Sambamurthy et al. 2003). Scaling with business strategy will require understanding how to develop the organizational capabilities to harness the huge quantities of heterogeneous data, information, and knowledge that is generated on a continuous basis. Question 2 to 6 was dealing with the company's training opportunities and programs. Participants were asked whether Training documentations are available and accessible for users and trainers, The Company has the staffing resources to provide adequate training on a new business system, Company's ability to take on training responsibilities and whether users receive training opportunities or not. The mean score for all was below 3.06 which is moderate and inconclusive. The skills and knowledge of a company's workforce allow the organization to direct those skills to achieve the business's goals. Training programs, education assistance and effective recruiting and hiring programs are organizational

capabilities that ensure a knowledgeable workforce. To maintain the capability, companies should ensure the workforce has the resources available to improve continuously. Managing a talented workforce is an organizational capability that provides a competitive advantage in the marketplace. The company needs to strengthen the workforce's skills and knowledge through training programs.

4.3.14 Results for organizational readiness on the Risk Management.

Companies must take risk both to launch new products or services and to innovate themselves. However risk processes do not require a strategy of risk avoidance but an early diagnosis and management.IT projects are often mistakenly thought only to include processes including hardware, networking systems, software, and applications, which end up introducing new technological changes. As a matter of fact they actually include considerable amount of human activity, and the projects should be linked to the bigger goals of the organization. IT projects are similar to normal typical projects in many ways, for example they both have clearly defined deliverables which are obtained through a set of coordinated activities within the limits of time and scope. (Macapagal, 2010). According to Susan (Snedaker, 2005) Software development projects have a rather low success rate of 28% and it is causing the industry losses of billions dollars annually. It is essential for organizations to reduce the number of failed projects. Dealing with risk management in ERP introduction projects is an ambitious task. ERP projects are highly interdisciplinary; as they affect interdependencies between business processes, software and process reengineering (Xu et al.,2002).All projects involve risk. This is not purely intuitive but also a recognition that acceptance of some risks is likely to yield a more desirable and appropriate level of benefit in return for the resources committed to the venture. In general, unexpected events occur in projects and may result in either positive or negative outcomes that are a deviation from the project plan. Hence, risk involves both threat and opportunity. Organizations that better understand the nature of the risks and can manage them more effectively cannot only avoid unforeseen disasters but can work with tighter margins and less contingency, freeing resources for other endeavors, and seizing opportunities for advantageous investment that might otherwise be rejected as too risky.

Organization readiness in Risk Management. Total Number of respondents : 20		Yes	No	*I do not know*	*Improvement Needed*
Q1	**Has the enterprise determined the potential business impact of the ERP system?**	0.85	0.15	0.00	0.11
Q2	**Has the potential business impact of the ERP system been quantified?**	0.40	0.60	0.00	0.25
Q3	**The enterprise have a method for identifying potential risks that will be introduced by the ERP system.**	0.50	0.40	0.10	0.10
Q4	**Can the enterprise create a continuity plan that covers the period of ERP introduction?**	0.50	0.40	0.10	0.10
Q5	**The company assess requirements for network and perimeter security that may be introduced by the ERP system?**	0.55	0.35	0.10	0.18
Q6	**The company assess requirements for identity and access control introduced by the ERP system?**	0.80	0.10	0.10	0.125
Q7	**Can the enterprise ascertain if the ERP system will support its need to create the necessary workflows, internal controls, and reports?**	0.85	0.05	0.10	0.17
	Total Average	**0.64**	0.29	0.07	**0.148**

Table 21: SURVEY RESULT FOR READINESS IN RISK MANAGEMENT.

As can be seen from the above table, 64% of respondents agreed on the existence of Risk management practices by voting “Yes” still acknowledging the need for improvement on this area (14%). 29% of the respondents replied “No” saying the company has still not completed or practicing IT Risk management activities in relation to the ERP project initiatives. Among the respondents, 7% of them replied with “I do not know” whether IT Risk management processes discussed above are present or not. The number still will be higher if we add the “No” and “I do not know” answers together (36% assuming these respondents should have known the IT Risk management practices in the company). of all respondents surveyed, 85% of them responded “Yes” for question 1 and question 7 acknowledging the enterprise has a process in place for determining a potential business impact of the ERP system on the company and the ERP system will support the company’s need to create the necessary workflows, internal controls, and reports respectively.

In response to question 3, which asked the respondents about whether the company has a method for identifying potential risks that will be introduced by the ERP system?, 40% of the respondents replied “No” compared to 50% “Yes” which implies the company is still undecided or in a process on the issue. In their paper, (Barki et al., 1993) proposed a variety of risk factors associated with the organizational environment, including task complexity, the extent of changes, resource insufficiency and the magnitude of potential loss. In his text on the factors contributing to project failure, (Block, 1983) pointed to resource failures (conflicts of people, time and project scope) and requirement failures (poor specification of requirements).Of all respondents, the average response for “I do not know” is 7%. For questions 5 and 6 which both talks about security, 55% and 80% of the respondents replied “Yes” respectively. According to KPMG group, there are three types of security risks that organizations face in terms of their ERP system. The first is unauthorized access. ERP systems typically come with a set of standard roles that are assigned to users based on what functional task they are responsible for within the organization, but there’s always the risk that users could make unauthorized updates, create fraudulent transactions, or submit an entry with preventable transaction errors. The second is noncompliance with regulatory or security requirements. The third is reporting—too often, the inherent reporting capabilities of ERP systems don’t meet users’ specific needs, and then they resort to other tools such as Microsoft Excel or Microsoft Access, which of course have their security challenges. Obviously, the stakes are enormous when it comes to vulnerable ERP solutions. Weak ERP security can ultimately lead to not just operational bottlenecks, but fraud, loss of assets, misstatement of financial results, and data privacy compromises. The respondents did not comment anything on the questions raised above. As discussed on section 3.2.3, most of the respondents were grouped under IT governance structure that was formed by the company for this project and on the researcher’s belief the group should have known the current existing IT Risk management practices and trends in their organization. As was described above, there was differences in opinions among the respondents on the questions. The company needs to bridge these gaps so that all stakeholders understand the existing working environment so as to respond quickly to forthcoming requirements. Improvement

areas that have been mentioned by the participants must also be addressed for successful completion of the coming project.

Chapter five

Proposed ERP Pre-Implementation process model

In this chapter, the proposed ERP pre-implementation process framework will be discussed. Moreover, the evaluation of the proposed framework in order to ensure its applicability, efficacy and usefulness will be tested using focus group of discussion with a selected group of professionals who participated in the ERP bid document preparation, who worked with Ernst and Young (EY) consultant group for organizational structure change and subsequent ERP proposal. The framework is designed based on the findings of the study and related literatures in order to provide an answer to the gap observed within the case study company. In the first section, the proposed framework is presented and the evaluation of the proposed framework is discussed in the second part of the chapter.

Phase 1

Objectives	Method
1. To formulate CSFs framework	Review of the literature
2. Validation of CSFs about criticality	Survey questionnaires for Expert groups
3. Validation of CSFs for appropriateness and usefulness	Survey questionnaires for Expert groups

Phase 2

Objectives	Method
To evaluate the readiness in a real test study company	Survey questionnaire

Phase 3

Objectives	Method
Readiness check	Analysis of data

Phase 4

Objectives	Method
Readiness evaluation Framework	Proposal of the framework
Validation of the framework	Interview Expert groups or consultants/ Interview peer companies

Figure 15: PHASE FOUR OF THE STUDY OBJECTIVES – PROPOSED FRAMEWORK.

5.1 Proposed Framework

In this study, the designed framework can be named 'ERP Pre-Implementation readiness evaluation framework'. As can be seen in figure below, the high level representation of the framework indicates the core dimensions that are proposed to be executed before trying to implement ERP so as to ensure ERP implementation success in organizations.

The gaps observed during data analysis laid the foundation for the conceptual framework which is intended to fill some of the identified research gaps. Before the implementation of ERP, the framework intents to help with the identification and classification of possible CSFs that have got direct impact on the implementation. I believe, the framework can serve as a first step in making ready the pre-requisites of ERP before implementation commences. Proper guidelines and frameworks are needed that successfully guide managers through their projects. This paper made an attempt to provide a conceptual framework that can be used for pre-implementation readiness evaluation to help whether the company is ready for the implementation of ERP or not. The framework divided the pillars into three categories as organizational, technological and cultural dimension that I believe an organization should fulfill before starting implementation.

The pillars were incorporated as part of the questionnaire and were distributed to the participants. The responses from the participants for each of the pillars then evaluated and discussed in chapter four. The need to further classify the pillars into three aspects of an organization was made due to literary support. Technology is dramatically changing the business landscape. Although organization cultures and business strategies shape the use of IT in organizations, more often the influence is stronger the other way round. IT significantly affects strategic options and creates opportunities and issues that managers need to address in many aspects of their business (David J. 1995). In addition, understanding culture can be useful as cultural insight provides awareness of the extent to which organization members are willing to accept change and a cultural assessment is likely to determine the root cause of the problems that impede stronger performance (Celeste W et al., 2000). The technological and cultural aspects exist within the organization which have its own hierarchies, politics, strategies, capabilities, capacity and risk management. For this reason, the framework further classified

into organizational, technological and cultural dimension. These three aspects of an organization were chosen for classification due to literary support by various researches arguing that those dimensions are critical and can show holistic view of the organization and I believe business value is enhanced through the alignment of complementary factors occurring along these three dimensions, Technological, Organizational and cultural. The basic reason for arriving at this classification is what we have discussed at statement of the problem at chapter one.

Literatures suggest that misalignment of ERP and business model of the organization can create a problem. (Soh et al., 2000) for instance, observed misalignments between ERP packages and organizational structures expressed in formal rules, procedures, and cultural norms in their study which was conducted in Singapore. They stated that:

Some findings suggest the "misfit" issue (gaps between the functionality offered by the package and that required by the adopting organization) may be worse in Asia because the business models underlying most ERP packages reflect European or U.S. industry practices. Procedures in Asian organizations are likely to be different having evolved in a different cultural, economic and regulatory context.

Furthermore, ERP being capital intensive, it is likely to be faced with constrained IT budgets (Heeks & Kenny, 2002) due to poor economic performance in this region. Cultural conflicts escalate implementation cost, and can lead to long implementation period as organizations spend more time and resources in resolving cultural conflicts.

So we try to evaluate a given organization from these three perspectives.

5.2 Organizational, Technological and Cultural aspects of the organization.

The description of the three aspects of the framework with the corresponding literary support can be found in the following table. The table consists of three columns. The first column discusses the readiness aspect of the framework. The second deals with the description of the

aspect and corresponding pillars under the category. Literary support for each aspect of the readiness can be found under the heading of “literary support”.

Readiness aspect	Description	literary support
Organizational: **IT strategy and planning,** **IT governance,** **Risk Management,** **Capacity,** **Capability.**	• The organization should have a clear, communicated business strategy and an aligned IS/IT strategy. • The organization should have a strong and committed leadership that has the ability to motivate the employees to change. • The organization should have a top management and steering committee of the ERP Implementation project that is highly committed to the implementation and is comprised of individuals with differentiated views of the implementation. • The organization should have individuals with a broad competence of ERP, BPR or other IT-related projects involved in both the steering committee and the entire project. • The organization should have an implementation project team that is comprised of individuals representing different views and	Aladwani, 2001;Al-Mashari et al, 2003 Al-Mashari, 2001; Cooke & Peterson, 1998; Davenport, 1998; Donovan, 1999 ; Holland & Light, 1999; Pinto & Slevin, 1987; Schneider, 1999 ; Stevens, 1998; Umble et al, 2003; Whyte & Fortune, 2002; Al-Mashari & Zairi, 2000; Mandal & Gunasekaran, 2003; Sarker & Lee, 2003; Skog & Legge, 2002 ; Kerzner, 1987; Mabert et al, 2001; Parr & Shanks, 2000; Procaccino et al, 2002; Sevenpri, 2012; Cooke & Davis, 2002; Kerzner, 1987 ;Kirby, 1996;

Table 22: ORGANIZATIONAL, TECHNOLOGICAL AND CULTURAL ASPECTS OF THE ORGANIZATION WITH THIER LITERARY SUPPORT

	perceptions of the enterprise and the enterprise system. • The organization should have an excellent project management for the implementation project and ensure that the management does not present only a business- or technical perspective of the implementation.	
Technology: **Application management,** **Service management,** **IT resource management.**	• The organization should have a clear understanding of the existing legacy environment and the technological aspects involved in the implementation of the ERP system. • The organization should have a clear IT resource strategy concerning the ERP implementation that involves routines for early hands on training for the employees.	Aladwani, 2001; Al-Mashari et al, 2003 ; Mabert et al, 2001; Mandal & Gunasekaran, 2003; Skog & Legge, 2002; Umble et al, 2003; Whyte & Fortune, 2002; Al-Mashari, 2001; Bancroft et al, 1998; Barnes, 1999; Bingi, 1999; Harrell et al, 2001; Holland & Light, 1999; Hong & Kim, 2002; Keller & Teufel, 1998; Koch et al, 1999 ; Parr & Shanks, 2000; Schneider, 1999; Soffer, Golany & Dori, 2003; Swan et al, 1999; Xu, Nord, Brown & Nord, 2002

Culture: **communication,** **commitment,** **Change culture**	• The organization should have a business culture that highlights the importance of earning, knowledge, past experience and change, as well as a strategy for knowledge management. • The organization should have a fundamental willingness and readiness for change as well as an explicit change management strategy. The organization should have a detailed communication plan and strategy that ensures the successful communication of project plan and progress to all relevant stakeholders. • The organization should have a high level of implementation process transparency and a staff policy that empowers team members, end-users and management.	Al-Mashari, 2001; Ash & Burn, 2003; Chan, 1999; Cooke-Davis, 2002 ; Davenport, 1998 ; Gable et al, 1998 ; Holland & Light, 1999; Krumbholz & Maiden, 2001; Schneider, 1999; Scott & Vessey, 2000; Soffer, Golany & Dori, 2003; Stevens, 1997; Sumner, 1999;Whyte & Fortune, 2002; Aladwani, 2001; Grifith et al, 1999 ; Hong & Kim, 2002 ; Mabert et al, 2001 ; Markus & Robey, 1988 ; McDonough III, 2000; Parr & Shanks, 2000; Sarker & Lee, 2003; Al-Mashari & Zairi, 2000; Al-Mashari et al, 2003; Hall, 2002; Hammer & Stanton, 1999; Jiang & Muhanna, 2000; Kerzner, 1987; Laughlin, 1999; Mandal & Gunasekaran, 2003; Markus & Tanis, 2000; Parr & Shanks, 2000; Skog & Legge, 2002 ; Umble et al, 2003 ; Ash & Burn, 2003;

As can be seen from the picture below, there are eleven core pillars inside that represents key readiness area any company should consider before commencing implementation of ERP. These pillars are categorized into three readiness areas which are Organizational, Technical and cultural readiness areas. Under organizational readiness section, we find IT strategy and planning, IT governance, Risk Management, Capacity and Capability. These five pillars constructed based on ten critical factors that was discussed in section 3.3.1. Under technical readiness section, Application management, Service management and IT resource management pillars are represented. These three pillars are again built on seven critical factors. Finally, under cultural readiness area, we can find communication, commitment and culture are included and these pillars are also constructed based on five critical factors.

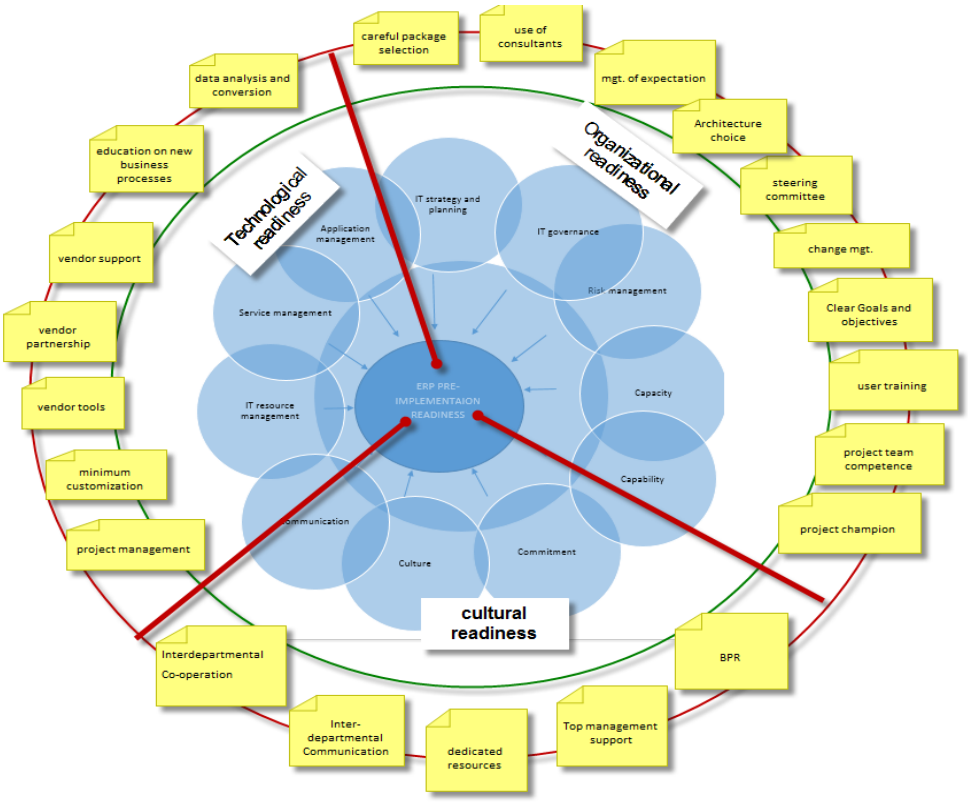


FIGURE 16: CONCEPTUAL ERP PRE-IMPLEMENTATION READINESS EVALUATION FRAMEWORK.

For further understanding and a detailed representation of the concepts, a matrix framework is designed to exhibit the two dimensional aspects of the framework. Accordingly,

the framework presents pillars from four perspectives (Relevance, efficiency, effectiveness and impact) that the framework should be justified in real application. Each of the pillars are evaluated with these four criteria to what extent they are suited to the framework, to what extent the pillars attains their objectives, to what extent the questions asked can produce quality outputs in ERP project implementations and to what extent the pillars impact the framework positively or negatively. As it will be discussed below, for each pillars in the framework, we ask questions denoted as "Q1…..n" (the questionnaire template can be taken as a starting point also) to check how relevant those questions are to the pillars, how effective and efficient those questions are to the pillars and the impact of the questions to the core pillars in the framework.

The first dimension of the matrix (vertical) represents the pillars on which the whole framework is built and the second dimension (horizontal) represents the Relevance, effectiveness, efficiency and impact perspectives of the proposed solutions for the identified pillars.

The criteria were first laid out in the DAC Principles for Evaluation of Development Assistance and later defined in the Glossary of Key Terms in Evaluation and Results Based Management. The following further explains the criteria and provides some sample questions to illustrate how they may be used in practice to evaluate or assess the pillars on which the whole framework is built.

The DAC Quality Standards for Development Evaluation identify the key pillars needed for a quality development evaluation process and product. They are intended for use by evaluation managers and practitioners. The Standards are not mandatory, but provide a guide to good practice. They were developed primarily for use by DAC members, but broader use by all other development partners is welcome. The Standards aim to improve quality and ultimately to strengthen the contribution of evaluation to improving development outcomes. Specifically, the Standards are intended to improve the quality of development evaluation processes and products and increase development partners' use of each other's' evaluation findings.

Even if the evaluation framework is designed for evaluating development policies in countries, it was described in the document that it is also possible to use for evaluating procedures, theories and techniques.

The DAC reference and guideline prescribes a project or technique to be evaluated by five criteria: Relevance, Effectiveness, Efficiency, Impact and Sustainability. For this study, I modified the criteria to four that includes Relevance, Effectiveness, Efficiency and Impact excluding sustainability as I cannot say the framework is all rounded and also cannot say at this point that it is sustainable and covers everything as it needs repetitive and iterative evaluations by practitioners, vendors and interest groups.

The following further explains the criteria and provides some sample questions to illustrate how they may be used in practice:

Relevance

The extent to which the designed framework, project or technique is suited to the context. In evaluating the relevance of a program or a project, it is useful to consider the following questions:

- To what extent are the objectives of the pillars still valid?
- Are the activities and outputs of the program consistent with the overall goal and the attainment of its objectives?
- Are the activities and outputs of the program consistent with the intended impacts and effects?

Effectiveness

A measure of the extent to which an activity attains its objectives. In evaluating the effectiveness of a program or a project, it is useful to consider the following questions:

- To what extent the objectives are likely to be achieved?

- What were the major factors influencing the achievement or non-achievement of the objectives?

Efficiency

Efficiency measures the outputs -- qualitative and quantitative -- in relation to the inputs. It is an economic term which signifies that the program uses the least costly resources possible in order to achieve the desired results. This generally requires comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted. When evaluating the efficiency of a program or a project, it is useful to consider the following questions:

- Were activities cost-efficient?
- Were objectives achieved on time?
- Was the program or project implemented in the most efficient way compared to alternatives?

Impact

The positive and negative changes that will be produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the environmental and other development indicators. When evaluating the impact of a program or a project, it is useful to consider the following questions:

- What will happen as a result of the program or project?
- What real difference will the activity make to the beneficiaries?

Summary of the DAC evaluation criteria.

Evaluation criteria

Relevance
The extent to which the objectives of a development objectives are consistent with beneficiaries' requirement, needs and policies.

Efficiency
A measure of how economically resources/inputs (expertise, time, etc.) are converted to results.

Effectiveness
The extent to which the development objectives were achieved, or are expected to be achieved, taking into account their relative importance.

Impacts
The positive and negative, primary and secondary long-term effects produced by a development intervention.

5.3 Description of the framework

The following section tries to describe each pillars of the framework in terms relevance, Effectiveness, Efficiency and impact.

Perspective	**Pillars**	**Relevance (**Relevance of the pillars**)** **Q1…..n**	**Effectiveness (**successful in using the pillars: Expected Outcome) **Q1…..n**	**Efficiency (**successful in using the pillars: Best Results) **Q1…..n**	**Impact (**impact of the pillars**)** **Q1…..n**
Organizational	IT strategy and planning,	A truly relevant planning and performance management system help companies to instill the discipline and accountability to make hard choices.	Continuously evaluating company's performance against strategic goals. The performance benchmarks tell where and how external changes are affecting company's progress.	Implementing enhanced information systems to support the business. Alignment of IT investments with business priorities, and tracking, monitoring and improvement of business-IT strategy.	The importance of strategic planning is that it is planning for the corporate whole, not for its parts. The handful of decisions they have to take in order to place their organization in a strong position to face the long-term future. The extent to which it influences organizational performance, which affects its survival rate.
	IT governance	Understanding of the governance of IT resources to ensure the sustainability of the organizational structures.	Help companies to make sure that the right people have responsibility for key decisions within the business. Align IT governance with corporate governance and business objectives.	Reform and innovate governance systems in time according to different firm's cases, and try hard to build up institutional reforms fit for firm's existence.	Enhancement in overall value from IT through better management of IT investments. Reduction in overall infrastructure costs and data/information security costs through improved controls.

	Risk Management,	Identifying, assessing and managing future risk. Knowledge of what changes are going to be made so as to minimize risk.	Design risk transfer instruments and analyze the net benefits of the risk mitigation strategies	To prioritize risks to establish a most-to-least-critical importance ranking during implementation.	Comprehend the impact of ERP implementation on the company. Addressing business continuity plans
	Capacity	Enables the company to plan ahead, to respond to business requirements speedily and to manage resources efficiently. To know that the company's IT infrastructure is being utilized in the way it intended it to.	Manage demand according to business priorities, so you can make sure that certain critical processes always have enough capacity to run effectively.	As part of a wider IT strategy, it makes possible to impose order on an increasingly complex IT landscape.	Develop a long-term IT strategy for the business by documenting both the levels of current utilization and forecasted requirements.
	Capability	Help the company in identifying stock of knowledge, skills and expertise (resources) and generates human resource competencies whose strategic value is realizable.	Informed decision making, improved capability and, ultimately, increased systems output. Determining which capabilities are strategic, which are core to competitive performance, and which are foundational abilities that a company must have to be a viable competitor.	Enables us to have an in depth understanding of the domain and implement the simplest and least intrusive approach to capture crucial knowledge, skills and expertise to improve project implementations.	Fulfillment of the company's operations strategy by enabling distinctive organizational capabilities, in improving the effectiveness of their customer-oriented functions,

Perspective	Pillars	**Relevance (**Relevance of the pillars**)** **Q1…..n**	**Effectiveness (**successful in using the pillars: Expected Outcome) **Q1…..n**	**Efficiency (**successful in using the pillars: Best Results) **Q1…..n**	**Impact (**impact of the pillars**)** **Q1…..n**
Technological	IT service management	Enables a service provider to ensure that the services or deployed systems really do facilitate the outcomes that their customers want to achieve.	Service management being recognized as essential to delivering the value of IT to the Businesses. Manage service requests better to resolve customer issues more quickly.	Enables enterprise service domains to define services, provide an intuitive service experience, deliver service, assure service availability and analyze critical service metrics. Increase efficiency by providing necessary information on the go.	An improvement in the quality of IT services experienced by users. Greater process automation and optimized scheduling to make the best use of resources
	IT Resource management	Ensure companies in providing planning flexibility needed to keep the right people on the right projects in its effort in learning how to optimize resource utilizations across all of IT. What resources should be allocated to what kind of work — shorter-term collaborations vs. broader-scoped initiatives — when, and for how long.	Allows organizations to analyze, monitor and anticipate the utilization and performance of the IT infrastructure by providing an enterprise-wide view of IT services and resources.	Gather and consolidate IT resource data available throughout the IT infrastructure. The technology stages, standardizes, transforms, aggregates and delivers IT resource performance data for analysis and reporting from virtually any data source	Empowers organization to self-organize for maximum effectiveness while the integration with enterprise that ensures complete visibility into people and financial resources being used.
	Application management,	Managing the on-going relationship with the supplier as bought in applications will need varying degrees of customization prior to launch.	Involve in designing, testing and continual improvement of applications and the services that the applications support.	Ensure manageability aspects of the application, how to ensure stability and performance of the application**.**	Ensuring that staff are adequately trained and effective. Staff members must be involved in the

		Activities to oversee and manage applications throughout their entire lifecycle.	Ensure high availability, high performance and high service levels by putting in place application management services.		design and testing to make the application most usable. End to end accountability for applications from beginning to operation.

Perspective	**Pillars**	**Relevance (**Relevance of the pillars**)** **Q1…..n**	**Effectiveness (**successful in using the pillars: Expected Outcome) **Q1…..n**	**Efficiency (**successful in using the pillars: Best Results) **Q1…..n**	**Impact (**impact of the pillars**)** **Q1…..n**
Culture	Communication	Ensure that there is no lack of two-way communication throughout the entire ERP project that could result in resistance to the new system. Help employees embrace the new ERP system by communicating it in a variety of ways.	Launching communication initiatives about the project's development, expectations, and training plans and address concerns about role changes.	Establishing a strong communication that allows the organization's stakeholders to understand the goal and the expected benefits of the project as well as to share the progress of the project.	Build a change-management strategy that include an extensive communication plan to support performance-based training.
	Commitment	Employees engagement on projects who share the same vision and a collective feeling of trust within and between groups	Collaboration on projects and work usually leads to better ideas and more effective performance.	Ensure that everyone takes an active role in leading the change, bring everybody to the same thinking and to build cooperation among the diverse groups in the organization	Ensuing the existence of an overall organizational commitment that is very visible, well defined, and felt on all levels of the stakeholders.
	Change	Bringing employees onboard with the vision and helping them make a smooth transition to new ways of working and interacting while implementing.	Help them to embrace a new system by first give them appropriate skills and support to use the system.	Adopting a comprehensive approach toward the large-scale process and system changes associated with ERP implementations	Communicating a project's purpose and goals as well the impact that it will have on the organization and its employees to minimize resistance

Chapter Six

Conclusion and Recommendations

The previous chapters presented the results of the phases of this study and demonstrated that the CSF framework is valid and can be used to evaluate an organization's readiness for ERP. Chapter four also presented the results obtained from the survey questionnaires. This chapter deals with whether research questions were answered or not. In addition to that we discuss the limitations of the research, implications for further research and further improvement to the proposed framework.

In this study, Dashen Bank Share Company was considered as a case organization to evaluate the organizational, technological and cultural readiness to implement ERP. In order to answer the research questions and achieve the objective of the study, a critical success factors framework was adopted from Somers and Nelson and incorporated into eleven pillars to overall assess every dimension of organizational setup. These eleven pillars ultimately were categorized under organizational, technological and cultural readiness aspects.

The organizational aspect of the framework comprises five pillars namely: IT strategy and planning, IT governance, Risk Management, Capacity and Capability. The technological aspect of the organization was erected by three pillars namely: Application management, Service management and IT resource management. In relation to cultural aspect of the organization, communication, commitment and Change culture were identified as pillars.

The data collection instruments were prepared based on the research model. The questionnaire was prepared based on the eleven pillars we discusses earlier. Some of the questionnaire items were partially adapted from reviewed literatures and the rest were newly designed to meet the objective of the research. The questionnaires were distributed to twenty two participants and twenty of them successfully returned.

Based on the responses, the following concluding remarks can be put from the study:

- Pertaining to criticality of CSFs, most of the respondents agreed that the majority of the critical success factors nominated are critical, recording the maximum average rating of 5.00.
- Respondents were asked to which of the three stages of the process model each CSFs apply while we validate the appropriateness of the CSFs. All respondents unanimously agreed all CSFs selected are appropriate on Pre-Implementation stage.
- Users were asked to assess the IT Resource management dimension of the company and 53% of respondents agreed on the existence of IT resource management practices by voting "Yes" still acknowledging the need for improvement on this area (12%). 23% of the respondents replied "No" saying the company has still not started or practicing IT resource management activities in relation to the ERP project initiatives. Among the respondents, 25% of them replied with "I do not know" whether IT resource management processes discussed above are present or not.
- IT service management was one of the pillars used to evaluate the readiness level of the company in which average 61% of respondents agreed on IT service management practices by voting "Yes" still acknowledging the need for improvement on this area (9%). 18% of the respondents replied "No" saying the company has still not started or practicing IT service management activities in relation to the ERP project initiatives. Meanwhile, 21% of the respondents replied "I do not know" about the company's IT service management processes.
- The majority of the respondents which accounts to half of the total respondents agreed on Application management practices by voting "Yes" still admitting the need for improvement on this front (5%). An average 35% of the respondents replied "No", claiming the organization is still not in a position to declare it has got an application management processes. In addition, an average 12% answered "I do not know".
- As function that is responsible for managing applications throughout their lifecycle, application management practices were evaluated in which the majority of the respondents which accounts to half of the total respondents agreed on Application

management practices by voting “Yes” still admitting the need for improvement on this front (5%). An average 35% of the respondents replied “No”, claiming the organization is still not in a position to declare it has got an application management processes. In addition, an average 12% answered “I do not know”.

- IT Governance is the organizational capacity exercised by the Board, Executive Management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT. By acknowledging this participants were asked to evaluate the existing environment and hence, the majority of the respondents which accounts to more than half of the total respondents agreed on the established IT governance role by voting “Yes” still admitting the need for improvement (7%). An average 35% of the respondents replied “No” claiming that the IT governance structure does not exist or not prepared for such kinds of initiatives. Among the respondents, an average of 9% said “I do not know” about the issue of IT governance at all.
- IT strategic planning for ERP includes assigning a project team, Examining current business processes and information flow and Set objectives and developing a project plan. In line with this, users were asked to evaluate the current working environment of the company and majority of the respondents (an average of 64%) agreed on the established IT strategy and planning role by voting “Yes” still admitting the need for improvement (8%). An average 23% of the respondents replied “No” claiming that the IT strategy and planning structure does not exist or not prepared for such kinds of initiatives. Among the respondents, an average of 14% said “I do not know” about the issue of IT strategy and planning at all.
- The communication readiness aspect of the organization was evaluated as it significantly impacts the output of the project. The aggregate mean result for this dimension is found to be 2.81, which is rated as low which clearly shows the deviation from the desired outcome in terms of communication and cohesion among departments.

- It is believed that understanding organizations through a cultural lens with a focus on values, attitudes and beliefs of members are crucial for effective organizational operation. In addition, Organizational culture plays an important role during implementation of ERP systems and consequently its success. In view of this, participants were asked to evaluate the cultural dimension of the organization and aggregate mean result was found to be 3.05, which is rated in the undecided/Neutral category.it means the majority of the respondents represented on the survey are indifferent in their opinions on the cultural dimension.
- Capacity management was one of the organizational issues that was discussed as it has been of particular focus of scholars interested in understanding the variables that impact organizational performance. The mean result for the capacity dimension is found to be 2.85, which is rated as low. It means the organization is still far behind in terms of capacity in handling such project initiatives. Majority of respondents hold a moderate stand in their opinions. Most of the respondents were neutral whether the Company has got a right IT community to participate in this project which needs management's attention in in-house capacity management.
- As commitment from stakeholders are important for successful adoption of IS, the commitment of the company for ERP implementation was evaluated and this will help in increasing motivation, user commitment and user acceptance of ERP in the organization. Most of the respondents were moderate in their opinions.
- The skills and knowledge of a company's workforce allow the organization to direct those skills to achieve the business's goals and accomplish project initiatives. However, the result was found to be very low, which is rated in the Disagree category. The company should invest in capacity building to cope with the rapidly-changing environment and the company needs to integrate, build and reconfigure internal competencies.
- As it is essential for organizations to reduce the number of failed projects. Dealing with risk management in ERP introduction projects area very critical activity. In line of this, 64% of respondents agreed the need and the existence of Risk management practices in the company still acknowledging the need for improvement on this area. Unexpected events can occur in projects and may result in either positive or negative outcomes that

are a deviation from the project plan. The company must further plan to manage potential risks before embarking on such project initiatives.

6.1 Research Questions Addressed?

This section attempts to answer the research questions raised in chapter 3.

- What are the critical success factors for evaluating ERP Pre-Implementation?

Method: Literature review

Based upon an extensive literature review, I decided to adopt Somers& Nelson's 22 CSF and I incorporated them into 11 pillars to evaluate the current environment of the case study company. They carefully reviewed the literature on IT implementation, business process reengineering, project implementations and descriptions, and case studies of ERP implementations of over 110 companies in the popular literature to arrive at their CSFs of which ten of them was financial institutions. Each of the CSFs identified to have an impact on ERP implementations are described in brief in chapter three along with relevant literature that supports their influence in project implementations in general.

- **How do we validate usefulness of those CSF taken from literatures?**

Method: Questionnaire survey

Having produced the CSFs, the design science approach requires us to evaluate or validate the usefulness of these CSFs for our context. This was done by having two group of experts representing the IT and the operations and evaluated the usefulness and completeness of the set of CSFs. Both groups evaluated the CSFs with an average rate of 4.92 and 4.95 respectively.

- **How do we validate appropriateness of these CSF in the test company?**

Method: Questionnaire survey

The next step was to validate the appropriateness of the CSFs on the framework. The evaluation is done whether those CSFs are suitable on which phase of the implementation. The process model validation respondents were the same eight people who were involved in the validation of the CSFs usefulness. Respondents were asked to which of the three stages (Pre-Implementation, Implementation, Post-Implementation) of the process model each CSFs apply. All respondents unanimously agreed all CSFs selected are appropriate on Pre-Implementation stage.

- How we are going to match CSF that are going to be identified to the existing banking environment?

Method: Questionnaire survey

After validating the usefulness and appropriateness of the CSFs, the next step was to incorporate those CSFs into eleven pillars to assess the existing banking environment readiness using a questionnaire survey. For this purpose, twenty two staff members who were selected and grouped by the company to be part of the IT governance structure for ERP implementation. 90% of the participants returned the survey. All the responses were encoded and analyzed to assess the existing environment and discussed.

- **How those identified factors contribute on overall ERP pre-implementation readiness evaluation framework?**

Output: Propose a readiness evaluation framework

As ERP implementations represent high-risk projects that need to be managed properly, organizations must learn how to identify the critical issues that affect the implementation process and know when in the process to address them effectively to ensure that the promised benefits can be realized and potential failures can be avoided. In the whole process, I take those CSFs and incorporated them into eleven corner stones (pillars) on top of which I built the readiness evaluation framework. The readiness evaluation aspect was discussed taking the

three dimensions of the organization: organizational, technological and cultural readiness. The framework advises organizations to take into consideration first critical factors extracted from literatures and incorporate them surveys to assess the existing working environment of the company. With the framework being theoretical and the possible usage of it presented in this paper being hypothetical, the framework and approach advocated must be tested. As a step towards empirically based research within the field of ERP implementation, I believe that the proposed framework with its high level of usability and pragmatic value can be of assistance to organizations who wish to implement ERP in their respective organizations.

This chapter presents the research contributions and how this research contributes to the current body of knowledge on ERP. Each research question is revisited and discussed. Key findings of the study, along with limitations of the study are also presented. Then, we describe the implications for practitioners and for ERP/IS research.

Although most organizations are still in the early stage of ERP implementation, there is also a growing tendency for companies to adopt ERP to improve their business operations. Before potential benefits can be realized, an organization needs to transform itself into an ERP-ready organization. However, there are no adequate models or frameworks to assist organizations on how to be an ERP-ready.

To fill the research gap in the literature, this study proposed a CSF framework and a questionnaire survey which could be used to evaluate ERP readiness of an organization.it was validated in practice in the case study company and ultimately tried to develop a framework that looks into the three dimensions of an organization. I hope the framework will be useful in an organization’s attempt to be ready for ERP. Therefore, the study is, I believe, significant to researchers and IT practitioners.

Researchers

This research contributes knowledge about the implementation readiness of ERP from the case study company's perspective. This knowledge is relevant to organizational implementation readiness of ERP and also for an organization that wished to implement ERP.

IT Practitioners

This research has also addressed practical aspect of IS research. The research problem was concerned with which critical success factors can be taken from literatures to evaluate whether the organization is ready for ERP or not. A critical analysis of the literature led to the adoption of the CSF framework developed by Somers and Nelson and incorporating them into eleven pillars the strengths and weaknesses of the current organizational environment. The method have proven to be useful in practice in evaluating an organization's readiness for ERP. Analysis of results also showed clearly the existing environment of the case study company.

6.2 Limitations of this research study

First, the validation of both usability and appropriateness of the CSF framework were only tested in the case study company and it is not possible to generalize the findings or the overall environmental assessment to other organizations as there are differences in organizational factor, cultural setting and technological maturity.

Second, this thesis do not establish a pass/fail grade, but rather serve to methodically assess the state of the organization for ERP readiness prior to ERP deployment. As mentioned in the future research section, developing metrics to determine the readiness level can be one of the research areas in the future.

Third, validation of the framework could not be performed due the time constraints I have encountered. For further researches, I recommend researchers to validate the workability of

the framework as a continuation or extension of the framework and add their own methods to improve the framework.

Forth, the research was only based on survey questionnaires due to the respondents' lack of time for focus group discussion and interview. The research would have been better if it had been supported with interview and discussions to triangulate the data for better result.

6.3 Implications for Further Research

This research provides a basis of research into ERP systems, especially in Pre-Implementation stage of ERP implementations. As we mentioned above, one of the limitations of this study is the study of the determinants of the CSF identified. Nowadays, research on CSF identification does not provide the reason why some CSF are more relevant in some organizations than others. Future studies should also attempt to understand the impact of some decisions taken in the ERP CSFs selection also in the future it should be extended by defining the relationships among the CSF identified.

I think the CSF usefulness and appropriateness survey will be valuable documents for the selection of CSFs because managers will know the variety of factors affecting an ERP implementation project success and their relative importance across ERP implementation phases. These framework have implications in the way organizations should consider while they attempt to implement ERP projects. Organizations should consider organizational, technological and cultural factors early in the project lifecycle, during project preparation and business blueprint to assess individual readiness of the existing environment.

Along with these, I propose areas of future research including CSF relationships establishment, creating a weight for CSFs and developing decision metrics whether a company is ready for implementation or not. This is certainly not the end of the story in the solution of Pre-Implementation readiness evaluation of ERP projects. Hopefully this thesis will encourage more

works on this area. In addition, future researches are encouraged to validate the framework that I have not done due to time constraints.

6.4 Further improvement of the proposed framework

In this study, ERP Pre-implementation readiness evaluation issues were discussed using critical success factors as a starting point and ultimately develop a framework that companies should follow. This was one-time survey conducted using questionnaires. I believe, the framework could be improved if the study can include consultants, clients and vendors so that we can assess the internal reliability, validity and perceived value. Validation of the framework which was supposed to be completed in this study could not be performed due to time constraints and I recommend the validation to be conducted or covered in future researches.

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APPENDICES

Appendix A: Questionnaire Survey

Addis Ababa University

School of Graduate Studies College of Natural Science

Department of Information Science

Dear Sir or Madam:

In partial fulfillment of the requirements for the Degree of Master of Science in Information Science, I am undertaking a research on "Developing a framework for ERP Pre-Implementation Readiness evaluation: The case of Dashen Bank Share Company" at Addis Ababa University. I have accordingly prepared this survey questionnaire. The objective of the survey is to investigate technical capacity, organizational commitment, operational capability and cultural readiness issues that will affect the implementation of ERP at Dashen Bank Share Company. The survey questionnaire are categorized into IT Resource Management, Service Management, IT Governance, Strategy and Planning, Risk Management, Applications Management and IT Strategy and Planning section to capture the readiness level of the company on those fronts.

This research is believed to produce results that can improve the implementation of any ERP system in Dashen Bank Share Company, other sectors and organizations.

Your honest responses to each question and statement are extremely valuable to the outcome of this research. The questionnaire *survey* will take approximately 45 minutes to complete and the results of the survey will be used for the purpose of academic research only. Hence, all responses will be kept in strict confidentiality and hence would not affect any one in any case.

Your dedication is most valued and appreciated and I would like to take this opportunity to thank you in advance for your kind participation, genuine and on time response to the questionnaire.

Thank you again!

Zewdu Ayenew.

Part 1: Personal Profile

Please indicate your response to each question by putting "X" or "√" in the appropriate column.

1. Position or Role on your company				
☐CEO ☐CIO☐ Dep't Mgr ☐Project Mgr ☐Operational Mgr ☐Technical staff ☐Other If other, please specify_____				
2. Your gender?				
☐Male	☐Female			
3. Your age group?				
☐Less than 23 years	☐23-30 years	☐31-40 years	☐41-50 years	☐Above 50

Part 2: Readiness measurement.

Please indicate your response to each question by putting "X" or "√" in the appropriate column.

Please rank each factor (Strongly agree, Agree, Neutral, Disagree, and Strongly disagree) or (Very aware, Fairly aware, Aware, Somewhat aware, Not aware) based on how much you agree with the following statements.	
Commitment Strongly agree, Agree, Neutral, Disagree, and Strongly disagree	
Do you agree with the following statement: I am committed to the implementation of a new integrated business system [ERP].	☐☐☐☐☐
Do you agree with the following statement: The implementation of a new integrated business system will be successfully completed.	☐☐☐☐☐
Do you agree with the following statement: The project will result in an improvement in the performance of business processes within the company.	☐☐☐☐☐
I will have ample time and attention available to devote to implementing this project.	☐☐☐☐☐
I will have enough time to attend and facilitate regular status meetings?	☐☐☐☐☐
Are you comfortable being a role model in displaying the proper behaviors required to make this change successful?	☐☐☐☐☐
The Organization's technical team preparedness for this ERP implementation is considered as enough?	☐☐☐☐☐

Do you agree with the following statement: The enterprise-wide technical staff is prepared to address the technical specifications/requirements that will be required for the new ERP system.	☐☐☐☐☐
Do you agree with the following statement: My department has written policies and procedures that clearly explain the processes for completing all business functions within the department.	☐☐☐☐☐
Do you agree with the need to procure and implement a new integrated business system, ERP?	☐☐☐☐☐
Do you agree with the following statement: The company has standard and followed security policies for safeguarding enterprise-wide data and information sharing.	☐☐☐☐☐
Do you agree with the following statement: Your company has standard and followed security policies for computer log on and passwords?	☐☐☐☐☐
Have the enterprise established ERP service expectations for the business units (e.g., uptime, data refresh rates, etc.)?	☐☐☐☐☐
Capacity	
Can your company complete a systems related project within the coming six months that require your participation?	☐☐☐☐☐
Do you agree with the following statement: The functional experts in my department fully understand key financial processes within the department?	☐☐☐☐☐

The functional experts in my department fully understand how departmental financial processes relate to enterprise-wide departmental processes?	☐☐☐☐☐
Do you agree with the following statement: The functional experts in your company understand departmental financial processes?	☐☐☐☐☐
The company has got the right IT community to participate in this project.	☐☐☐☐☐
Do you agree with the following statement: Departments have got the proper staffing resources available to ensure a successful ERP implementation.	☐☐☐☐☐
Do you agree with the following statement: In relationship to the implementation of a new ERP system, subject matter experts within your department understand how to complete their business processes.	☐☐☐☐☐
Do you agree with the following statement: In relationship to the implementation of a new ERP system, subject matter experts within your department understand how their business process relates to other business functions within the company.	☐☐☐☐☐
Do you agree with the following statement: My department has the proper staffing resource available to ensure a successful implementation	☐☐☐☐☐
Do you agree that the current systems and business processes are sufficient to handle the company's current and future business needs?	☐☐☐☐☐
Implementation of a new ERP system, subject matter experts within your department understand how to complete their business processes.	☐☐☐☐☐
Do you agree with the following statement: There has been adequate coordination between technical and functional staff to prepare for the new system.	☐☐☐☐☐
capability	
Rate your level of experience leading other system implementation projects.	☐☐☐☐☐

Rate your company's ability to take on training responsibilities to include trainers and training space, during this project.	☐☐☐☐☐
How often have you received (not limited to your department) training within the last two years?	Very often ☐ Often ☐ Occasionally ☐ Seldom ☐ Never ☐
If you have been to enterprise- wide (not departmental) training within the last two years, the training was provided in an informative, well-organized and useful manner?	☐☐☐☐☐
Do you agree with the following statement: Your company has training documentation available and accessible for users and trainers to use for business processing.	☐☐☐☐☐
Do you agree with the following statement: Your company has the staffing resources to provide adequate training on a new business system.	☐☐☐☐☐
Rate your company's ability to take on communication responsibilities to include drafting and delivery, during this project.	☐☐☐☐☐
Has the enterprise considered what new IT or business roles will be required to support the rollout and maintenance of an ERP system?	☐☐☐☐☐
Culture	
Rate the level of tolerance for change within your business community.	☐☐☐☐☐
Do you reward or recognize people for helping lead or facilitate changes within your agency?	☐☐☐☐☐

Do you provide support to individuals going through a process or structural change within your company to include information, training, coaching, and time?	☐☐☐☐☐
Can the enterprise create a professional development plan to give existing employees ERP competencies?	☐☐☐☐☐
Does your company tend to stick with standard procedures throughout the project?	☐☐☐☐☐
Can the enterprise capture IT knowledge gained during the ERP implementation cycle?	☐☐☐☐☐
communication	
Please rate your awareness of your company's interest in purchasing a new integrated Financial and Human Resources system.	☐☐☐☐☐
Do you agree with the following statement: Your company does a good job of communicating and informing employees about key projects/activities taking place within the company.	☐☐☐☐☐
If you are aware of your company's interest in purchasing a new integrated business system, how did you hear about it?	Involvement in selection process ☐ County-wide presentation ☐ Department/staff meetings ☐ Interoffice memo/ written notification ☐ Word of mouth ☐ Other (please specify)_____
Please indicate the type of company-wide communications (not limited to your department) that you have received last year. (Check all that apply).	Website information (portal) ☐ Email message ☐ Enterprise-wide memo ☐ Enterprise-wide voicemail ☐ Message on postal envelope ☐ Messenger ☐ Other ☐
Do you agree with the following statement: Departments within your company work well together?	☐☐☐☐☐

Part 3: Yes or No questions.

The following Yes or No questions are categorized into IT Resource Management, Service Management, IT Governance, Strategy and Planning, Risk Management, Applications Management and IT Strategy and Planning section to capture the readiness level of the company on those fronts. Please select your choice as Yes or No that you believe represent the current working environment in your company that has got a direct connection to the ERP implementation. You can also indicate improvements needed in each areas if you feel there is one. Additionally, you can include notes and remarks on points listed underneath.

IT G

Risk Management	Answer (Yes = 1, No = 0)	Improvement Needed	Notes
Has the enterprise determined the potential business impact of the ERP system?			
Has the potential business impact of the ERP system been quantified?			
Does the enterprise have a method for identifying potential risks introduced by the ERP system?			
Can the enterprise create a continuity plan that covers the period of ERP introduction?			
Can the enterprise assess requirements for network and perimeter security that may be introduced by the ERP system?			
Can the enterprise assess requirements for identity and access control introduced by the ERP system?			
Can the enterprise ascertain if the ERP system will support its need to create the necessary workflows, internal controls, and reports?			
IT Governance			
Has the enterprise documented its IT governance policies, ideally with a framework such as ITIL?			
Does the enterprise have a process for assigning internal resources based on the priority or value of projects?			

Can the enterprise institute a method for monitoring the ongoing value of ERP investments based on business unit metrics?			
Can the enterprise institute a process for determining financial value to business unit efficiencies gained through ERP investments?			
Can the enterprise establish a method of monitoring the operational performance of ERP investments (e.g. % of seats utilized, downtime, etc?)			
Has the enterprise identified a project sponsor for the ERP project?			
Does the sponsor have sufficient influence within the enterprise and at the board level to secure sufficient capital investment for an ERP project?			
Can the enterprise identify a project leader for the ERP project?			
Will the leader have the influence within individual business units to secure requirements?			
Will the leader have a sufficient relationship with IT to secure cooperation?			
Does the enterprise follow an established process for project lifecycle management based on the recommendations of PMI (Project Management Institute), IEEE 12207(Systems and software engineering), or something similar?			
Does the enterprise have established IT policies for the use and maintenance of systems like ERP?			
Does the enterprise have a means of making changes to existing IT processes related to ERP systems?			
Can the enterprise enforce changes to IT policies related to enterprise applications?			
IT Strategy and Planning			
Does the enterprise have a process for budgeting initial ERP investments?			
Does the enterprise have a process for budgeting investment in additional modules, upgrades, or additions?			
Does the enterprise have fully documented business processes?			

Does the enterprise have a process for prioritizing ERP investment decisions concerning additional modules, upgrades, or additions?			
Applications Management			
Does the enterprise have a process in place for soliciting requirements from business units and for analyzing those requirements?			
Does the enterprise have a system in place for procuring enterprise-scale applications?			
Does the enterprise have competencies in managing both enterprise software vendors and implementation consultants?			
Service Management			
Have the enterprise established ERP service expectations for the business units (e.g., uptime, data refresh rates, quality reporting, etc.)?			
Does the enterprise have a means of making changes to existing service expectations?			
Can the enterprise determine if the existing server environment will support the desired ERP functionality and service characteristics?			
Can the enterprise determine if the existing network connections will support the desired ERP functionality and service characteristics?			
Can the enterprise determine if the existing storage and recovery infrastructure will support the desired ERP functionality and service characteristics?			
Can the enterprise determine if the existing database infrastructure will support the desired ERP functionality and service characteristics?			
Can the enterprise determine if the enterprise will have help desk capacity to support the rollout and maintenance of an ERP system?			
Can the enterprise determine if it will have the incident management capacity to support the rollout and maintenance of an ERP system?			
Can the enterprise determine business user training concerns imposed by the ERP system?			
IT Resource Management			

Has the enterprise considered what new IT or business roles will be required to support the rollout and maintenance of an ERP system?			
Can the enterprise create a professional development plan to give existing employees ERP competencies?			
Does the enterprise have a process in place for selecting and evaluating ERP vendors?			
Has the enterprise considered what elements of the ERP project could be outsourced or implemented in-house (e.g. hosting, implementation, etc.)?			
Can the enterprise capture IT knowledge gained during the ERP implementation cycle?			
Does the enterprise have fully documented business processes?			

Other comments

Appendix B: Questionnaire Survey: CSFs validation.

Addis Ababa University

School of Graduate Studies College of Natural Science

Department of Information Science

Dear Sir or Madam:

In partial fulfillment of the requirements for the Degree of Master of Science in Information Science, I am undertaking a research on "Developing a framework for ERP Pre-Implementation Readiness evaluation: The case of Dashen Bank Share Company" at Addis Ababa University. I have accordingly prepared this survey questionnaire. The objective of the survey is to knowthe level of criticality of the adopted CSFs and in which phase are those CSFs important in ERP implementation?

This research is believed to produce results that can improve the adoption or development of CSFs for ERP implementation.

Your honest responses are extremely valuable to the outcome of this research. The questionnaire *survey* will take approximately 10 minutes to complete and the results of the survey will be used for the purpose of academic research only. Hence, all responses will be kept in strict confidentiality and hence would not affect any one in any case.

Your dedication is most valued and appreciated and I would like to take this opportunity to thank you in advance for your kind participation, genuine and

Thank you again!

Zewdu Ayenew.

Part one

Please rate each CSFs based on in which phase are these CSFs important in ERP implementation.

CSFs	In which phase are these CSFs important in ERP implementation?		
	pre implementation	implementation	post implementation
1. Top Management Support			
2. Project Team Competence			
3. Interdepartmental Co-operation			
4. Clear Goals and Objectives			
5. Project Management			
6. Inter-departmental Communication			
7. Management of Expectations			
8. Project Champion			
9. Vendor Support			
10. Careful Package Selection			
11. Data Analysis and Conversion			
12. Dedicated Resources			
13. Steering Committee			
14. User Training			
15. Education on New Business Processes			
16. Business Process Reengineering			
17. Minimal Customization			
18. Architecture Choices			
19. Change Management			
20. Vendor Partnership			
21. Vendor Tools			
22. Use of Consultants			

Other comments

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Part two.

Please rate each CSFs based on how much you agree with the level of criticality of the listed CSFs.

CSFs	***Please rate the level of criticality of the following CSFs?***				
	Very critical	*Critical*	Neutral	Not Critical	Not Very Critical
1. Top Management Support					
2. Project Team Competence					
3. Interdepartmental Co-operation					
4. Clear Goals and Objectives					
5. Project Management					
6. Inter-departmental Communication					
7. Management of Expectations					
8. Project Champion					
9. Vendor Support					
10. Careful Package Selection					
11. Data Analysis and Conversion					
12. Dedicated Resources					
13. Steering Committee					
14. User Training					
15. Education on New Business Processes					
16. Business Process Reengineering					
17. Minimal Customization					
18. Architecture Choices					
19. Change Management					
20. Vendor Partnership					
21. Vendor Tools					
22. Use of Consultants					

Other comments

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Appendix C: Mean Result of the survey about criticality of CSFs.

No.	CSFs	EG1	EG2	EG3	EG4	Average		ITG1	ITG2	ITG3	ITG4	Average
		5	5	5	5	5		5	5	5	5	5
1	Top Management Support	5	5	5	5	5		5	5	5	5	5
2	Project Team Competence	5	5	5	5	5		5	5	5	5	5
3	Interdepartmental Co-operation	5	5	5	5	5		4	4	4	4	4
4	Clear Goal is and Objectives	5	5	5	5	5		5	5	5	5	5
5	Project Management	5	5	5	5	5		5	5	5	5	5
6	Inter-departmental Communication	5	5	5	5	5		5	5	5	5	5
7	Management of Expectations	5	5	5	5	5		5	5	5	5	5
8	Project Champion	5	5	5	5	5		5	5	5	5	5
9	Vendor Support	4	4	4	4	4		5	5	5	5	5
10	Careful Package Selection	5	5	5	5	5		5	5	5	5	5
11	Data Analysis and Conversion	5	5	5	5	5		5	5	5	5	5
12	Dedicated Resources	5	5	5	5	5		5	5	5	5	5
13	Steering Committee	5	5	5	5	5		5	5	5	5	5
14	User Training	5	5	5	5	5		5	5	5	5	5
15	Education on New Business Processes	5	5	5	5	5		5	5	5	5	5
16	Business Process Reengineering	5	5	5	5	5		5	5	4	3	4.25
17	Minimal Customization	5	5	5	5	5		5	5	5	5	5
18	Architecture Choices	5	5	5	5	5		5	5	5	5	5
19	Change Management	5	5	5	5	5		5	5	5	3	5
20	Vendor Partnership	5	5	5	5	5		5	5	5	5	5
21	Vendor Tools	5	5	5	5	5		5	5	5	5	5
22	Use of Consultants	5	5	5	5	5		5	5	5	5	5
	Total Average					4.954545						4.920455

Appendix D: Appendix D: Mean Result: In which phase of the implementation do these CSFs apply?

No.	CSFs	**PRE-IMPLEMENTATION**	IMPLEMENTATION	POST-IMPLEMENTATION
1	Top Management Support	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
2	Project Team Competence	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
3	Interdepartmental Co-operation	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
4	Clear Goals and Objectives	**EG1,2.3.4,ITG1,2,3,4**	EG1,4,ITG1,2,	
5	Project Management	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
6	Inter-departmental Communication	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
7	Management of Expectations	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
8	Project Champion	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
9	Vendor Support	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
10	Careful Package Selection	**EG1,2.3.4,ITG1,2,3,4**	EG1,ITG1	
11	Data Analysis and Conversion	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,3.4,ITG1,2
12	Dedicated Resources	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.4,ITG1,2,3
13	Steering Committee	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	
14	User Training	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
15	Education on New Business Processes	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	
16	Business Process Reengineering	**EG1,2.3.4,ITG1,2,3,4**		
17	Minimal Customization	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	
18	Architecture Choices	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4	EG1,2.3.4,ITG1,2,3,4
19	Change Management	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
20	Vendor Partnership	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4	EG1,2.3.4,ITG1,2,3,4
21	Vendor Tools	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4
22	Use of Consultants	**EG1,2.3.4,ITG1,2,3,4**	EG1,2.3.4,ITG1,2,3,4	EG1,2.3.4,ITG1,2,3,4

Declaration

I hereby declare that this submission is my own work towards the Masters of Information science and that, to the best to my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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Date

This thesis has been submitted for examination with my approval as university advisor.

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Advisor