

**UNIVERSITY OF ZIMBABWE**  
**FACULTY OF COMMERCE**  
**GRADUATE SCHOOL OF MANAGEMENT**



**ENHANCING A SUCCESSFUL EXTENDED ERP SYSTEMS IMPLEMENTATION TO  
ACHIEVE SOEs PERFORMANCE IN ZIMBABWE**

**BY**

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## **Dedication**

This research is dedicated to State Owned Enterprises (SOEs) in Zimbabwe and the world at large so that the document can work as a reference guide for successful implementation of Extended ERP systems in an effort to improve efficiency in service provision to the general public.

## **Acknowledgements**

I would like to thank my dissertation supervisor Professor Sandada, without his intellectual support and guidance I would not have completed this study. Dr Madzikanda our dissertation facilitator, through his strategic approach to dissertation coaching, guided us through the research to make sure all research chapters were of high standards and submitted on time. The MBA Strategic Leadership Group 1 of 2015 with special mention to Isaac Isaki and Tinovonga Kahwa for their different critics in shaping the study. I would also like to acknowledge my parents and my family for their moral and financial support. Special mention also goes to my wife Cecilia Manyau as she really wanted me to make an impact and seed a reference point for my 3 children Henry Chingwaro, Joshua Chingwaro and Joseph Chingwaro that it's possible to add value to the nation and the world through research.

## **Abstract**

The use of computerized systems to improve business processes has been a major concern by companies that need to sharpen their competitive edge as market leaders in the industry in an effort to gain sustainable competitive advantage. The drive by the Government of Zimbabwe to privatize SOEs has forced companies to come up with initiatives that contributes to corporate performance. Use of extended ERP has not remained for advanced countries but a few SOEs in Zimbabwe from revenue authority, power utility and agro industrial have replaced their aging legacy systems in an effort to improve inter- and intra-operational efficiency. Companies have moved to the extended ERP systems also known as ERP II or ERP add-on applications. These systems provide communication between the business and its stakeholders with integration capabilities of providing self-service portals using electronic web based portals and mobile applications.

Extended ERP systems implementation is high risk and capital intensive with organisation realising little gains from the investment and SOEs needs to do due diligence by assessing the factors that contribute to successful implementation of extended ERP systems. Extended ERP systems have been blamed for not meeting the business requirements, taking long to implement and exceeding the set project budgets. It is from this SOEs we seek to gather the success factors that contribute to successful implementation of extended ERP systems so that from generalizing of the study other SOEs can see the quantum required to invest in business vision, leadership skills, module integration and information quality during implementation of extended ERP systems.

Stratified random sampling was used to collect the sample for study from three SOEs in Zimbabwe that had implemented Extended ERP systems. 200 questionnaires were randomly sent using self-administered and online survey questions and analysed using SPSS correlation analysis and multiple regression analysis to determine the significance of business vision, leadership skills, module integration and information quality on successful implementation of extended ERP systems and also in establishing the impact on SOE performance. The results provided a conclusive analysis, revealing that business vision has a partial positive and significant impact on successful implementation to extended ERP systems. Leadership skills has a positive and moderate significant impact to successful implementation of extended ERP systems. Module integration has a positive and greatest significant impact on successful implementation of extended ERP systems. Information quality also contribute positively to successful implementation of extended ERP systems. Successful implementation of extended ERP systems contributes to SOEs

performance. This study intended to give SOEs managers, executives, business owners and policy makers an understanding on the success factors to extended ERP implementations and the impact to SOE performance.

### **Keywords**

Extended ERP systems, Implementation, ERP II, ERP Add-on, State Owned Enterprises, Corporate Performance, Business Vision, Leadership Skills, Module Integration, Information Quality, Zimbabwe.

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## **Abbreviations and acronyms**

BV: Business Vision

ERP: Enterprise Resource Planning Software

EERP: Extended Enterprise Resource Planning Software

GSM: General School of Management

ICT: Information and Communication Technology

IT: Information Technology

IQ: Information Quality

LS: Leadership Skills

MI: Module Integration

SOE: State Owned Enterprises

SOEP: State Owned Enterprise Performance

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Intensifying globalization and the search for agility has promoted the growth of enterprise resource planning systems (Motwani and Sharma, 2015). Wood (2015) projects that the global enterprise resource planning (ERP) market will reach USD 41.04 billion by 2020 growing at a compounded annual growth rate of 6.9% for the forecast period 2015 - 2020. According to Motwani and Sharma (2015), an enterprise resource planning (ERP) system is a standardized off-the-shelf Information Technology (IT) software package that provided the first real opportunity for modern organizations to integrate their business processes and functions. The implementation of ERP is expected to provide key performance metrics and improve decision making in organizations through providing real time data analytics. This software is being disseminated worldwide among organizations that desire to replace aging legacy systems, improve inter- and intra-operational efficiency as well as gain sustainable competitive advantage (Al-Fawaz, 2008).

However, implementing ERP has not always yielded expected benefits due to number of factors. According to Amini and Sadat Safavi (2013), ERP requires considerable amounts of resources including time and money yet most companies fail to reap the full benefits associated with ERP system implementation. Support from top management, change management and leadership skills are crucial during the ERP implementation. The goals of the ERP system for example leveraging organizational objectives and goals need to be explicitly clear, without the proper articulation of these the outcome is failed projects. In the same vein, the complex nature of ERP systems makes it imperative for adopting organizations to depend on external mediating entities for examples vendors and consultants, to help them bridge the knowledge and technical gaps associated with implementing the software (Norton, 2015).

Despite this mixed results, very few studies have investigated the impact of contingency factors such as business vision, leadership skills, module integration, information quality and the associated organizational impact on Extended ERPs Implementation (Gable, Sedera and Chan,

2003). Perhaps in acknowledgment of the imbalance in the ERP literature, some researchers for example (Ifinedo, 1998) and (Ifinedo and Nahar, 2006) have called for more studies to be extended to other factors affecting successful ERP implementation.

ERP System or the Extended ERP Systems are quite different from other IT systems in that their implementation often includes constructed technological, operational, managerial, strategic and organizational components (Tambovcevs, 2012). As such, it has been noted that the approaches used in the implementation of traditional IT packages may not be adequate for ERP Systems let alone for Extended ERP systems.

The research sought to investigate the factors affecting the implementation of extended ERP systems and its impact on the performance for state owned enterprises in Zimbabwe. There is little evidence of empirical studies having been undertaken to investigate contingency factors like vision, leadership skills, module integration and information quality on successful implementation of Extended ERP systems in the context of Zimbabwean SOEs, and the present study is aimed to fill that gap.

## **1.2 Background of the Study**

### **1.2.1 Global Enterprise Resource Planning Market**

ERP is a standardized software package designed to integrate the internal value chain of an enterprise. An ERP system is based on an integrated database and consists of several modules aimed at specific different business functions (Møller, 2005). The birth of Extended ERP systems arose in the 21<sup>st</sup> Century with the introduction of many ERPs add-ons like Supply Chain Management (SCM), Customer Relationship Management (CRM) and Business Intelligence (BI). This involved applications running on mobile devices and web applications bringing strong integration between the enterprise and outside systems.

Companies with extended ERP systems are believed to benefit from improved business coordination, maximization of revenue collection, high interdepartmental communication and control, lowering of production costs and ultimately improved profitability.

### **1.2.2 The implementation of ERP in state owned enterprises in Zimbabwe**

In the wake of the hyper competitiveness in business it has almost become mandatory for organizations to adopt ERP systems. In 2013, National Social Security Authority (NSSA) implemented SAP Extended ERP system at a cost of US\$10 million according to (Kabweza, L, S, 2016). The project implementation delayed to the extent of firing the Head IT in 2015. The SAP extended ERP system was used for only two years after complete implementation and in 2017, the software was dropped for another bespoke system that was developed in-house. Thus, it appears NSSA did not enjoy the benefits associated with implementing Extended ERP systems. The question begs, what were the reasons behind this failed costly project, was it failure of a shared organizational vision, leadership skill gap on management, system user's incompetence or the lack of capability of the regional consulting company Twenty Third Centuries Systems (TTCS).

In Zimbabwe, over 50 % of State Owned Parastatals are using ERP systems. This involve Zimbabwe Revenue Authority (ZIMRA), Zimbabwe Electricity Supply Authority ZESA, National Social Security Authority (NSSA), Zimbabwe Manpower Development Fund (ZIMDEF) and National Railways of Zimbabwe (NRZ) among others. Three SOEs in Zimbabwe ZIMRA, ZESA and GMB have advanced their systems to the latest extended ERP systems with advanced capabilities of integrating with other stakeholders through web based and mobile applications. However, SOEs have been associated with inefficiency and poor service delivery. ZIMRA has been blamed for inefficiency on the E-Service platform that generates tax clearance certificates (ITF 263s) that was down for over six months according to Gambanga (2017). The envisaged benefits of extended ERP systems do not seem to be evident in Zimbabwean SOEs when compared to other organizations operating in private sector for example Econet Wireless that have benefited from unified customer experience, easy integration, convergent billing and data analytics through installation of ZSMART CVBS v8.0 ERP systems (Ryan, 2015).

### **1.2.3 Implementation of ERP and corporate performance: The Nexus**

This research provided a detailed analysis on the factors affecting successful implementation of Extended ERP systems and its impact on SOEs performance in Zimbabwe.

### **1.3 Statement of the problem**

SOEs have not been able to reap the full benefits of improved business coordination and interdepartmental communication after implementing extended ERPs. ERP requires significant commitment of financial resources and human capital and thus it is important that organizations are able to get a return on this investment. NSSA in 2013 implemented SAP at a cost of US 10 million. In 2017, the company stopped using the software for a bespoke software as the software failed to meet the organization business functional requirements. ZIMRA a revenue authority implemented SAP TRM in 2002. The software had been blamed for failure to comply with the country legislation, more costs and time in trying to customize the software to suite the revenue authority. This lead to frustrations by key stakeholders over the high capital investments associated with implementing and maintaining the software. In other cases, frustrated system users would develop their own bespoke solutions and refuse posting their business transactions in high capital-intensive implemented ERP system. There is no evidence that empirical studies have been done to exhaust the impact of business vision, leadership skills, module integration and information quality on the successful implementation of ERP systems and this study targeted to fill the gap.

### **1.4 Research Objectives**

#### **1.4.1 Main Objective**

The main objective of this study was to investigate factors affecting the successful implementation of Extended ERP system and the impact of Extended ERP implementation on the performance of selected SOEs that have adopted the system

#### **1.4.2 Specific Objective**

To achieve the main objective, the following specific objectives will be researched on:

- a) To ascertain if a clear and shared organizational vision has an impact on the successful implementation of Extended ERP systems.
- b) To assess the impact of Leadership Skills (Human, Technical and Conceptual) on successful implementation of Extended ERP systems.
- c) To establish the effect of Module Integration on implementation of Extended ERP system
- d) To understand the impact of Information Quality on successful Implementation of Extended ERP systems
- e) To determine the effect of Extended ERP systems Implementation on SOEs performance.

## **1.5 Research Questions**

### **1.5.1 Main research question**

The main research question that we seek to answer is;

To what extent do Leadership skills, vision, module integration and information quality influence extended ERP implementation and the effect of Extended ERP implementation on SOE performance?

### **1.5.2 Specific questions**

The main research question will be addressed through the following sub questions;

- a) What is the effect of a shared organizational vision on the successful implementation of Extended ERP systems?
- b) What is the impact of Leadership Skills (Human, Technical and Conceptual) on successful implementation of Extended ERP systems?
- c) Does Module Integration have a positive impact on the successful Implementation of Extended ERP systems?
- d) Can Information Quality be a factor in the successful Implementation of Extended ERP Systems?
- e) To what extent does the implementation of Extended ERP positively influence SOEs performance?

## **1.6 Research hypothesis**

The main hypothesis of the study is that Leadership skills, vision, module integration and information quality positively influence Extended ERP implementation and Extended ERP implementation has a positive influence of SOE performance The following specific hypothesis were developed:

### **Hypothesis 1**

There is a positive relationship between a well-understood vision and implementation of Extended ERP systems.

### **Hypothesis 2**

Leadership Skills (Human, Technical and Conceptual) positively influence implementation of Extended ERP systems.

### **Hypothesis 3**

Module Integration affects positively the Implementation of Extended ERP systems

### **Hypothesis 4**

The Information Quality positively trigger successful Implementation of Extended ERP systems

### **Hypothesis 5**

Implementation of Extended ERP positively impact SOEs performance.

## **1.7 Significance of the study**

This study was based on pure research with the intention to increase the body of knowledge in the Information and Communication Technology (ICT) industry. The study makes a contribution to the existing body of knowledge of ERP literature adding new factors that influence successful implementation of extended ERP systems. The development and validation of a new conceptual framework for ERP implementation will benefit other academics in ICT sector.

State Owned Enterprises are key in improving the economy of a country. The study provided practical and policy contribution to SOEs authorities to come up with policies that will also contribute towards improvement of the economy. This study assisted in enhancing the validity of the success factors to ERP implementation and the impact of SOEs performance.

The research will help future researchers as well as managers in other industry sectors to use as a reference guide by listing the factors that affect successful Implementation of Extended ERP and steps to mitigate them so that the organization benefit from improved business coordination

## **1.8 Scope of the study**

This study covered SOEs that have implemented Extended ERPs in-order to understand the impact of leadership skills, business vision, module integration and information quality on successful implementation of extended ERP and the impact on SOEs performance. Only three SOE companies ZESA, GMB and ZIMRA were identified that have implemented Extended ERP systems integrating SCM, CRM and BI. The researcher completed the study within 6 months. The study unit of analysis used included senior executives, super users in procurement, finance,

production, sales, human resource who were using extended ERP systems. The researcher conducted a cross sectional data analysis to get a snapshot of a population on how Extended ERP systems implementation success factors influence SOEs performance.

### **1.9 Limitations of the study**

The researcher encountered challenges with most managers referring the researcher to their subordinates to complete the research instruments sighting that they were busy with other tasks. Other respondent were skeptical to provide full information as they feared that the responses would be used against them. However, the letter from General School of Management (GSM) assisted most respondents to answer the research instrument with all the confidents that the study was for educational purposes. The researcher also had to ask other respondent to complete the instrument after working hours as during the day they would be engaged with meetings and other commitments. The study was also limited to only three SOEs in Zimbabwe, which may not be a large enough sample to generalize on all SOEs. Shortage of literature of ERPs in SOEs was mitigated by seeking for information on online articles.

### **1.10 Dissertation outline**

The study is organized under the following chapters:

#### **Chapter One**

This chapter is an introduction where the researcher looks at the background of the chosen research, problem statement, the objectives and questions that the researcher intend to find answers to, research hypothesis that will be tested in the analysis chapter, scope of the study, rationale of the study, limitations and finally the outline of the study is presented.

#### **Chapter Two**

This chapter deals with literature review and it concentrates on ideas and concepts related to the area under study. The chapter gives an overview of existing studies by others researcher and scholars within the scope of this study. The researcher starts by giving definitions and then explain the factors in detail.

#### **Chapter Three**

This methodology chapter describes the basic study foundation in terms of research design, philosophy, approach, strategies, population, sampling, instrumentation and data collection.

## **Chapter Four**

This chapter is where the data collected in chapter three is presented, analyzed and interpreted using SPSS package. The researcher statistically analyzes the data using the Cronbach's Alpha test and regression analysis is used to test the research hypotheses. The hypotheses statements are then evaluated as either accepted or rejected and results are then related to theory.

## **Chapter Five**

This is the final chapter of the study that gives an overview of the whole study, present the findings and conclusions of the research as well as giving recommendations to SOEs, government and policy makers with regard to the topic under study and recommendations for further research.

### **1.11 Chapter summary**

This introductory chapter examined the background of factors that affect successful implementation of Extended ERP systems in Zimbabwe and the impact on SOEs performance. It also covered statement of the problem, research objectives, questions and rationale of the study. In this chapter scope and the limitations of the study were presented and the dissertation layout was presented. The next chapter will cover the literature review of related literature on Extended ERP Implementation success factors and its impact on SOEs performance in Zimbabwe.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter presents related literature on the success factors to extended ERP systems implementation and their impact on corporate performance. The literature starts with an explanation on the search strategies for the literature. Major theories on ERP and corporate performance are discussed followed by critical review of prior studies on the subject. The chapter also challenge the extent of existing knowledge within critical bounding assumptions justifying the need for the research. The conceptual framework is used to guide the discussion of the study and provide an empirical view on the impact of business vision, leadership skills, module integration and information quality on the successful implementation of ERP systems and the relationship between Extended ERP implementation and corporate performance.

#### 2.2 Literature Search Strategy

The researcher surveyed scholarly articles, books, dissertations and conference papers relevant to the area of research. Two techniques were considered in gathering the information that is chronological approach and thematic approach. The research title reads, “An analysis of the Factors Affecting Successful Implementation of Extended ERP systems and its impact on SOEs performance in Zimbabwe.” The following keywords were created from the topic, ERP systems, Extended ERP systems, and success factors to Extended ERP systems, State Owned Enterprises and Corporate Performance. Using the chronological approach, the researcher grouped literature in their key order of publication highlighting the changes in the different findings of other researchers. Chronological approach is ideal for historical studies in which the researcher is interested on how ideas developed over time (Nordquist, 2018). The researcher used multiple Bibliographic databases for example EBSCO Host Research Databases, Taylor and Francis Online, Wiley Online Library and Emerald Group Publishing journal sites. Hand search of key journals was also done to understand how ideas developed over time. The chronological approach is biased towards other researcher’s findings and yield little new material synthesis.

The researcher also used a thematic approach to conduct an exhaustive research. Thematic review is when the researchers group and discuss literature sources in terms of theoretical concepts, themes and topics that the researcher regard as either important to understanding the topic under study or that the researcher identified after reviewing the important studies on the study topic. The identified literature was filtered according to the credentials of the authors (Dudovskiy, 2015). The contribution of the literature to the research question was also considered. The most recent publications were selected giving more emphasis on the recent developments in the research area. This approach is stronger than chronological approach because the researcher defines the themes, theories, categories or constructs that are important to the research. The thematic structure is also called a funnel approach (Cronin, Ryan and Coughlan, 2008) because discrete pieces of information are being funneled from the higher-level concepts to specific studies on which the researcher's study is based. For this study, the researcher adopted the thematic approach where the literature is discussed according to the themes and topics that are regarded as important to understand the success factors to extended ERP Implementation and the effect on SOEs performance.

## **2.3 Enterprise Resource Planning (ERP) systems**

### **2.3.1 Defining ERP**

ERPs are business software tools that allow organisations to automate business process, share data and practice across the enterprise and provide access to real time information (Kotiranta, 2012). ERPs allow an organisation to automate and integrate the majority of the business functions sharing business processes and common data across the enterprise (Kambarami, Mhlanga and Chikowore, 2012). The potential benefits associated with implementing ERPs are two significant to disregard. Mahdavian and Mostajeran (2013) states that ERP systems benefits include reduced order cycle time, real-time access to information for decision making, improved interdepartmental coordination, reduced stock holding and improved customer service. To be competitive, global companies have implemented ERP solutions. ERP systems are high capital intensive systems that assist sharing of data real time across the enterprise different business functions using a single data repository.

With the speed of internet increasing in Africa most companies have implemented industry specific ERP system to address their business needs. In Zimbabwe, most companies have implemented ERP systems and enhanced their security by installing the application within a Virtual Private Network (VPN). The government of Zimbabwe promotes accountability and transparency to assist SOEs in providing service to the general public. The implementation of ERPs have been done to improve business coordination and assist in reporting organisational performance to the shareholder.

### **2.3.2 History of ERPs**

In the 1960s with the firm primary source of competitiveness being costs reduction, software programmers designed inventory control programs to monitor inventory and reconcile balances (Hwang, 2011). Firms focused on high production, cost reduction and efficient management of large inventory. In 1970s the programs evolved into complex sub modules for scheduling production processes and they were renamed Material Requirements Planning (MRP) I programs. In the 1980s, MRP I programs grew to cover different manufacturing processes which led many referring to the systems as MRP II programs. As technology continued to change drastically by the 1990s the systems had expanded beyond inventory control covering the whole enterprise solutions giving birth to a new name Enterprise Resource Planning Software by the Gartner Group (Rashid, Hossain and Patrick, 2002). In 2000s, ERP systems evolved to **Extended ERP** to represent new 21<sup>st</sup> century systems that integrated the main business function with its external stakeholders through mobile and web based applications.

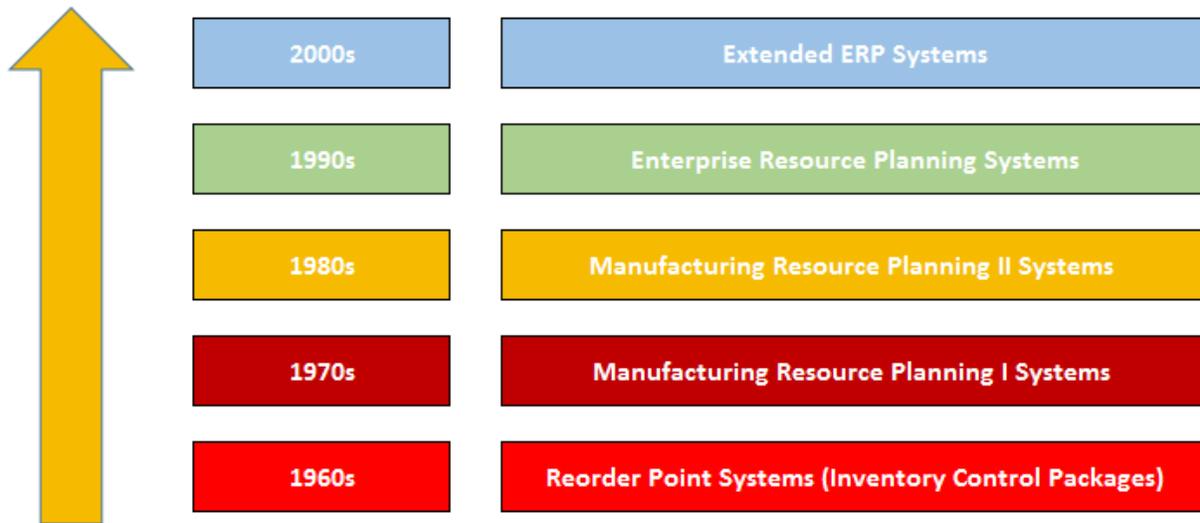


Figure 2. 1 Evolution of ERP : Source (Rashid et al., 2002)

### 2.3.3 Extended ERPs Systems

As technology continued to change in the 21<sup>st</sup> century, the extended ERP system was born. This system integrated with cloud web based services, providing mobile access and deeper integration with other software on the frontend of today ERP systems. Extended ERP systems can be available as desktop applications that run within an organization’s Virtual Private Network (VPN) and configured to update the cloud based server. Companies that are geospatially spread can also use Web based applications to access the system in different locations globally updating a single system. Extended ERP systems include add-ons of supply chain management, customer relationship and business intelligence to assist in communication between the business and its stakeholders (Turek, 2017). Many efforts have been done to improve extended ERP performance due to advancement in technology for example the fast in-memory computing using SAP HANA technology. In-memory technology allow organization to quickly and easily customize application of high performance allowing real time data management and complex data analytics (Gualtieri, 2015).

### 2.3.4 Extended ERP Implementation

Extended ERP implementation involves the period a business reaches a consensus to have an enterprise system to support its business vision both strategic and operational goals and resources

are identified and allocated up to the stage the enterprise system is used to support routine, operational and strategic decision making (Shao, Feng and Hu, (2016), p. 136). According to Norton (2015), successful implementation involves implementing the project on time and within budget with most planned modules and functions implemented with no disruption to business operations. The results produced from the customisation, configuration and integration of the solution tends to create a lot of regrets in most companies hence this study would like to provide a prescription to most SOEs in Zimbabwe that intends to implement extended ERP solutions.

## **2.4 Components of Extended ERP systems**

### **2.4.1 Supply Chain Management (SCM)**

SCM is a module made up of different sub systems essential in running a smooth supply chain. SCM control production planning, forecasting, vendor evaluation and demand planning (Yang and Su, 2009). A complete suite of SCM is made up of Supply Chain Planning, Purchasing, vendor evaluation Measurement and Assessment sub module. Supply chain planning provide tactical operational planning using relevant real time data (Stefanou, 2012). It includes selection of marketing channels, determining quantities of stock and inventory required to ensure replenishment of goods. SCM offer easy ways to alter the supply chain parameters to suite the changing environment. Purchasing provides an effective and efficient procurement process that offer supply chain cross platform visibility.

Vendor Evaluation helps companies monitor, review and manage supply chain efforts real time ensuring cost effective operations maintaining flexibility needed to stay competitive. Measurement and Assessment provides detailed reports for decision makers. SCM allows coordination of data between departments from records seating in a single relational database.

SCM is essential for real time access to operational information across multiple departments and business. Management lack clear knowledge of the various activities and processes that help to design procedures that increases the business sustainable competitive advantage. Availability of a SCM helps SOEs to conduct supply chain planning, vendor evaluation and a more effective procurement of goods and services in the organization (Yang and Su, 2009). In a dynamic

environment like Zimbabwe, SCM helps to manage the supply chain risks. SCM provide an integrated connection between the business and its suppliers.

#### **2.4.2 Customer Relationship Management (CRM)**

CRM refers to strategies, practices and technologies that a firm use to analyze customer interactions and data throughout the customer lifecycle, with the intention of improving customer retention through effective customer service and driving sales growth as purported by (Rouse, 2013). The process involves automating and integrating softwares that face your customer activities like marketing, sales, and customer services providing additional tools for customer data analytics, ecommerce and social media providing omni-channel customer engagement (Stefanou, 2012). The module assist firms to differentiate business with improved customer personalized experience. CRM provide an opportunity to engage customers in their buying experience. In a bid to remain relevant and act faster to customer needs, CRM has been designed in the form of desktop, web based and mobile applications. Through the use of a single relational database, firms can break down information silos through data analytic tools and have a deep understanding of customer needs.

A complete suite of CRM is made up sales, market and automation and customer services sub modules. Sales sub module assist a firm in engaging customers in a meaningful way throughout the buying process. Sales persons require real time access to information anywhere and anytime to conclude sales transactions. Marketing and Automation provide a process of automating marketing tasks for example sending emails and tracking customers who visited our e-commerce website. Firms can also track the marketing budget, sending target marketing campaigns through social media and emails and use past and demographic data to segment customer so that they can do concentrated marketing. Customer service provided a platform for customer care. The firms business is to provide a crystal clear relationship with its customers. According to (Goodman , 2014) customer service involves contact handling and executing basic customer transactions. Firms use a case management platform that allow tracking of customer contact information, documents and billing information. The use of websites and mobile application have provided real time communication with customers through the use of services like live chats.

Customer interactions can be difficult to track in an organization. According to (Kitt , 2013) CRM assist in customer social engagement, customer retention and knowledge management. CRM provide a centralized repository to store large volumes of data for current and prospect customers. Information is available real for all customer master data and social media activities. CRM provides 360 degrees feedback on customer experience and tastes assisting firms in designing customized goods and services based on customer interests and purchase history.

### 2.4.3 **Business Intelligence (BI)**

According to (Burns, 2012) business systems have been criticised of being rich in raw data but poor in information. Business Intelligence is a software used to give meaning to an organisation raw data. The raw data is stored, cleansed and processed using business logic to provide information for informed business decision. Informed decision making require firms to use business intelligence software that have capabilities of monitoring key business metrics. Companies must eliminate guess work in decision making and have valuable insights to customer behaviour (Goewey, 2015). Business Intelligence module provides solutions to business by answering challenging questions with just a few clicks according to (McHugh, 2017). The software provide an intuitive customer experience, connection to diversity of data sources and on premise deployment of real time data analytics.

BI involves the following sub modules that is Data Sources, Information Design and Knowledge Management. Data Sources sub module is used to extract data from different sources like database system, flat files, spreadsheets, xml files and unstructured content. Information Design is key for Extraction Loading and Transformation (ETL) of data. Raw data is extracted, transformed and loaded in Business Intelligence warehouse. The use of data modelling helps to identify relationship between multiple tables providing easy access to information from a single universe. A universe can be connection to a relational database or Online Transaction Analytic Protocol. Knowledge Management transform business information into knowledge in form of executive dashboards, managed reporting and analysis. Visual panels with key performance indicators and configured alerts helps in monitoring corporate performance.

Business intelligence provide single point access to the organization information. Data from different legacy systems can be accessed in a single Business Intelligence application (Robb, 2010). Business Intelligence provide the ability to analyze multi-dimensional data providing flexible query platforms, dashboards and easy integration with other platforms (Goewey, 2015). Business Intelligence allows business users to slice and dice information with the ability to perform ad hoc analysis from multi-dimensional data.

## **2.5 State owned Enterprise (SOE)**

This is a legal entity that is created by the government to engage in commercial activities on behalf of the government (Sturesson, McIntyre and Jones, 2015). According to Muzapu *et al.* (2016) SOEs play an important role in promoting socio-economic development through provisioning of goods and services in a nation. The government might have full, majority or minority control to the business. SOEs are assets managed by the government on behalf of the public (Rughoobur, 2018). In Zimbabwe example of SOEs, include Zimbabwe Electricity Supply Authority (ZESA), Zimbabwe Revenue Authority (ZIMRA), Grain Marketing Board (GMB) and many others. In a document written by the Office of the President Cabinet (OPC), Ministry of Finance and Economic Development (MFED) and State Enterprise Restructuring Agency (SERA), SOEs plays a major role in the provision of basic services such as education, water, electricity, health, transportation and telecommunication (OPC, MFED and SERA, 2014).

Only three companies in Zimbabwe have implemented Extended ERPs system. This study will look at these companies as the study population in conducting the research. The totality of the population will be used to generalize the study for SOEs in Zimbabwe.

Table 2. 1 SOEs in Zimbabwe that Implemented Extended ERP Systems

No.	SOEs	Size	Status	ERP Type
1.	Zimbabwe Revenue Authority (ZIMRA)	Large Size Company	Implemented	SAP Extended ERP ECC 6.0 (EHP5)
2.	Zimbabwe Electricity Supply Authority (ZESA)	Large Size Company	Implemented	SAP Extended ERP ECC 6.0 (EHP8)
3.	Grain Marketing Board (GMB)	Large Size Company	Implemented	SAP Extended ERP ECC 6.0 (EHP6)

*Source: Author's compilation (2018)*

## 2.6 Corporate Performance (CP)

According to Sturesson, McIntyre and Jones (2015), corporate performance provides a detailed assessment on the health of an organization financially, its market share and shareholder value. Corporate performance analysis provide feedback inline to the organization set goals providing a chance of attaining the goals efficiently and effectively.

Struggling SOEs have become a feeding trough for greedy government officials. This has negatively affected performance for SOEs in Zimbabwe. Political campaigns have also been funded by SOEs with board members failing to enforce good corporate governance practices. The Agency theory clearly explains the challenges faced by SOEs as managers pursue their own interest at the expense of shareholder wealth maximization. The government of Zimbabwe use the SOE performance management system (Muzapu *et al.*, 2016). To monitor financial and non-financial performance the government set clear mandates, strategies and objectives. The government establish performance indicators and the set targets. Lastly, structured performance agreement is made between government and SOE and recorded in a document for review on the agreed periods. The following are measures for corporate performance.

### 2.6.1 Financial Performance Measures

Financial performance provides a traditional measure on an organisation performance. Reference is based on information in financial statements. Financial performance include analysis on activity indicators for example number of outputs produced. Profitability analysis through remittance of

profits to main shareholder through dividends. Efficiency indicators analysis on how the firm utilise its resources, solvency ability to payback its debtors and liquidity ability to pay back its short-term obligations.

### **2.6.2 Managerial Performances**

The use of ERP systems enhance managerial decision making and interdepartmental communication in organisation (Stefanou, 2012). Managers through use of other sub modules like Materials Requirements Planning (MRP) are believed to benefit from improved resource management (Hwang, 2011).

### **2.6.3 Operational Performances**

The main goal of measuring operating performance is to ensure companies operates efficiently, providing consistent high quality goods and services and continuously improved customer experience (Stefanou, 2012) . Operational measures provide key metrics to measure operational performance of SOEs. This include customer satisfaction index, employee satisfaction, revenue generation and improved quality and reduced cycle times. If the metric is high, then the SOEs have a good operational performance.

### **2.6.4 Strategic Performances**

Execution of a strategy consistently better than other companies gives an organisation sustainable competitive advantage. Strategic performance measures makes strategic goals clear to executives and provides measures to monitor the deliverables using simple and intuitive performance metrics (Jackson, 2015). SOEs align their day-to-day task into operational metrics, develop a working balanced score card for reporting, focus on metrics that matter to the business success and test and validate strategic decisions.

## **2.7 Underpinning Theories**

According to Pfeiffer (2017) a theory is a coherent group of tested propositions or hypothesis commonly regarded as correct that can be used as principles of prediction and explanation for class of phenomena. In order to understand the impact of Extended ERP systems on corporate performance, different theories have offered insights into identifying the success factors to

extended ERP implementation and impact on organisation. This section discusses a selected set of theories that explain extended ERP systems.

### **2.7.1 Social Exchange Theory (SE)**

Social Exchange Theory is method of analyzing interactions between people based on a series of rewards and punishment (Crossman, 2018). ERP systems involves an integration of different modules that share information to achieve the organizational objectives. The configuration of one module must be done in such a way not to affect the functionality of another module.

### **2.7.2 Resource-Based View theory (RBV)**

The Resource based view theory argues that a firm that possess unique resource have a competitive advantage and superior long-term performance than other firms in the same industry. Barney and Hesterly (2015) explains RBV as a model to measure a firm performance focusing on the resources and capabilities owned used to gain competitive advantage. Firm individual and specific resources contribute to corporate performance. Resources can refer to assets, information, knowledge, capabilities and organizational process managed by a firm that enable the firm to implement strategy to improve its efficiency and effectiveness (Madzikanda, 2015). In this study, resources are assets of the firm that are available and useful to respond to market opportunities or threats. Assets are tangible goods (software, computer hardware and network infrastructure) and intangible (software patents, reputation among customers) used by a firm to provide a service to the market. The ERP system is part of the organization technological resource that is used to enhance competitive advantage.

Capabilities, according to Barney and Hesterly (2015), are sub sets of resources that can tangible and intangible that enable a firm to take full advantage of the other resource the firm owns. Resources and Capabilities can be categorized into organizational resources, physical resources, individual resources and financial resource.

The ERP system is part of the firm physical resource. The VRIO framework is tool used to analyze the different resource or capability an organization may possess. VRIO measure the following information.

Table 2. 2 VRIO Framework Analysis

Item	VRIO	Description
1.	Value	Does existence of an ERP system assist the organization to exploit external opportunities or neutralize external threats (Barney and Hesterly, 2015). The resource and capabilities must be valuable to the firm of which failure may result in <b>competitive disadvantage</b> .
2.	Rarity	ERP systems are high capital intensive to implement. This reduce the number of firms who can implement the ERP software. The product must be rare for it to provide temporary competitive advantage. If a resource is <b>valuable</b> but not <b>rare</b> this result in competitive parity.
3.	Imitability	ERP implementation is a function of many factors. Success implementation of ERP can depend with how the firm control its implementation strategy. Copying one implementation strategy can be difficult as this is contingency with the situation (Tsikirayi, 2016). A resource can be valuable, rare and easy to implement resulting in temporary competitive advantage.
4.	Organization	A firm needs to be organized to be able to exploit the full competitive potential of its resources (Barney and Hesterly, 2015). Sustainable competitive advantage is achieved when a resource and capability is valuable, rare, costly to implement and exploited by the organization.

Source: Author's compilation (2018)

### 2.7.3 Contingency theory (CN)

Contingency theory discuss how environmental factors influence the behaviors of organizations. According to (Hwang, 2011) states that there is no best way to organize a company or make a decision. The decision and actions are contingent to the internal and external factors surrounding the firm (Tsikirayi, 2016). The organization strategy is developed from due diligence of the of the endogenous and exogenous business factors. Contingency factors include rapid market changes, technological changes and globalization, which has strong effect on management techniques and culture. High environmental turbulence results in greater effort to process information to assist in informed decision making. The business must be able to interpret the needs of customers and in

forecasting market trends. Environmental uncertainty and technological changes impact organizational structures according to (Hwang, 2011).

#### **2.7.4 Chaos Theory (CS)**

Chaos theory indicates a disaster or failure of acceptance of a product because its messed up. Something is chaotic if the situation is unpredictable, complex and disordered (McBride, 2005). Two parameters exist in a chaotic environment, which are unpredictability and hidden patterns. The NSSA SAP implementation resulted in a chaotic situation with the module being dropped two years after complete installation in 2015. With the technology changing and competition, intensifying a firm needs to be proactive. Competition intensity can lead to decline of companies and due diligence is required when considering implementing an ERP system in an effort to improve corporate performance.

In summary, the Social Exchange Theory as system modules require integration with other functional modules to provide the overall business objectives. All modules update a single database. Resource Based View identifies extended ERP systems as intellectual resources for an organisation that assist in gaining sustainable competitive advantage. Contingency theory view on how environmental impact the business operation. Lastly, Chaos theory is considered to check how failure to consider the critical factors to successful ERP implementation can lead to business failure to accept the product resulting in poor business performance.

## **2.8 Empirical Review**

### **2.8.1 Business Vision and Extended ERP Implementation**

Organizational theory states that legitimacy is obtained by becoming similar to others but reputations is achieved through differentiation (King and Whetten, 2008). A vision statement of a firm according to Madzikanda (2015) is a panoramic view of where the business is going indicating a description of top management aspirations. A vision provides foresight of the business were it wants to reach in subsequent times, charts a particular strategic path and moulds the identity of the organization. ERP implementation can come as strategic tool for a business to achieve its vision. Failure to have a clear defined organizational vision can influence the successful implementation of ERP systems. A vision must be communicated down to all employees so that it

is a rallying point that motivates employees (Madzikanda, 2015). According to Davenport (1998) companies with desire to adopt ERP systems must be clear with their strategic intent before embarking on the project.

### **2.8.2 Leadership Skills and Extended ERP Implementation**

ERP Implementation involves people with different skill sets in the project life cycle. Project Stakeholders are expected to have human skills, technical skills and conceptual skills to influence successful implementation of ERP systems. Conflicts do arise when different people interact together. The use of project managers with good human skills can create a peaceful environment during ERP implementation phase. The ability also to be visionary is key in the implementation of the ERP system. ERP systems implementation is not a matter of changing the system but a strategic repositioning of the company and transformation of business process (Shahin, 2014). This can improve acceptance of the product, as it would have been developed from teamwork. The higher the leadership expertise the greater the chance of successful implementation of the ERP system (Ifineldo, 2008).

### **2.8.3 Module Integration and Extended ERP Implementation**

ERP system must provide interdepartmental communication between installed modules. The installed modules for example Materials Management must be able to communicate with Financial accounting module. If this configuration is done well the organization can do detailed analysis using the defined organizational structure in the ERP system. Ram, Corkindale and Wu (2014) purports that system quality and information quality contributes to subsequent use of an innovation and user satisfaction with the product. If users are failing to view transaction that are related to their modules, this can trigger dissatisfaction with the ERP system.

### **2.8.4 Information Quality and Extended ERP Implementation**

The quality of the information generated in the ERP system is important for informed decision making in the organization. If reports have to be done manually in excel when an ERP systems have been adopted this can reduce reliability, transparency and simplicity of the information being reported according to (Gartenstein, 2018). ERP system must provide all the required information by the business in system reducing the risk of decision errors Tsai, Lee, Liu, Lin and Chou, (2012).

### 2.8.5 Extended ERP Implementation and Corporate Performance

Supramaniam and Kuppusamy, (2011) postulated that ERP systems contribute to corporate performance by providing timely access to organizational information thereby contributing to increased operational efficiency. Buleje (2014) purported that successful ERP implementation contributes to increased business financial performance and operational productivity. Many factors needs to be considered to see if the implementation of ERP system is contributing to corporate performance. This study intends to provide a conclusive relationship between implementation of extended ERP systems and SOE performance.

## 2.9 Key Models and Concepts

### 2.9.1 Research Model by Ifineldo

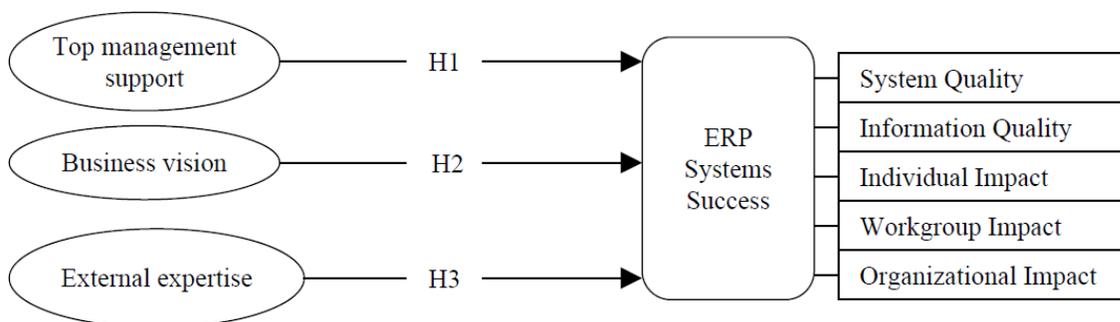


Figure 2. 2 Critical Factors to ERP Implementation: Source (Ifineldo, 2008)

ERP systems success is affected by top management support, business vision and external expertise according to (Ifineldo, 2008). For ERP systems to be beneficial in the organization they must be well configured, providing the required information to the business. Impact of the system can also be measured individual and workgroup in the way it lessen manual process and organizational impact in assisting the business to gain a sustainable competitive advantage.

## 2.9.2 Research Model according to Hwang

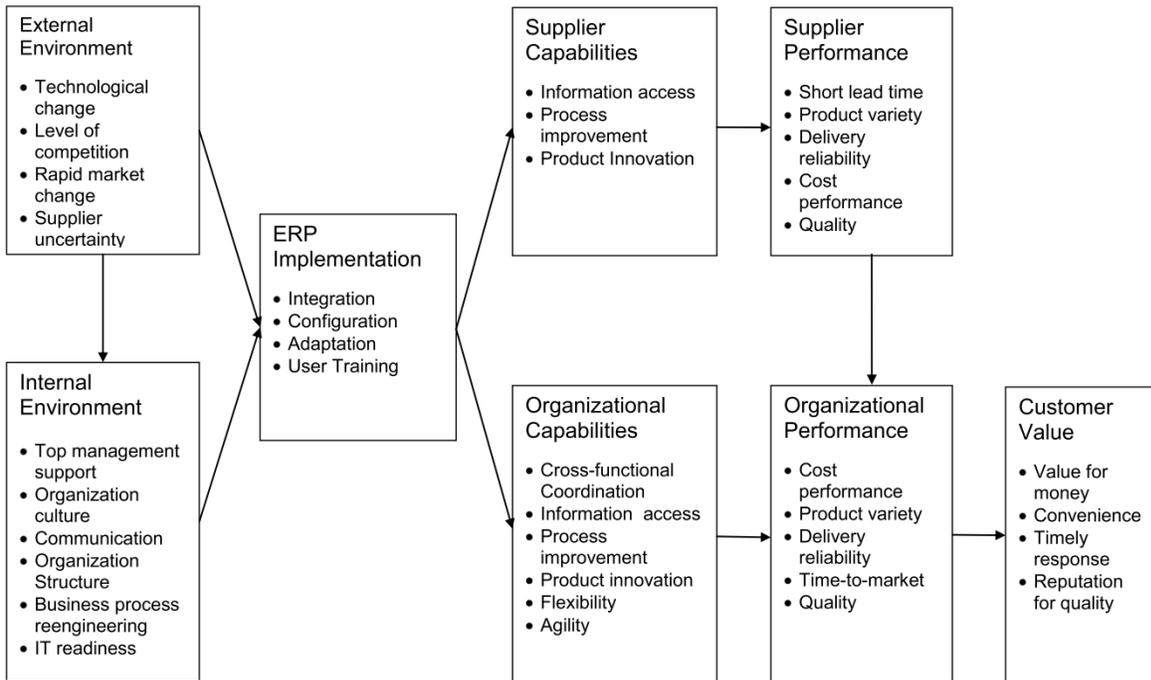


Figure 2. 3 Critical Factors to ERP implementation and its impact on Corporate Performance: Source (Hwang, 2011:29)

Hwang (2011) acknowledges that implementing ERP is costly to the business and many variables internal and external to the business must be considered critically before you implement an ERP system in the organization.

ERP integration, configuration, adaption and user training is a function of external and internal environmental factors. System adaption can be a result of poor top management support, poor communication strategy or incompatible organization structure. The choice of the system implementation partner can cause failure in system configuration and inadequate user training. All the factors impede successful implementation of ERP systems. Hwang (2011) went on to highlight that if the chosen supplier implement the project according to the agreed project plan with minimum costs without compromising on product quality this can contribute to corporate performance. Organizational capabilities lead to organizational performance if the system provides interdepartmental communication, easy information retrieval and flexibility to customize the product to suite the changing organizational needs (Tsai *et al.*, 2012). Organizational performance

must result in customer value were firms offer timely response to changing customer tastes and ability to produce products of high quality.

### 2.6.3 Research Model by Shahin

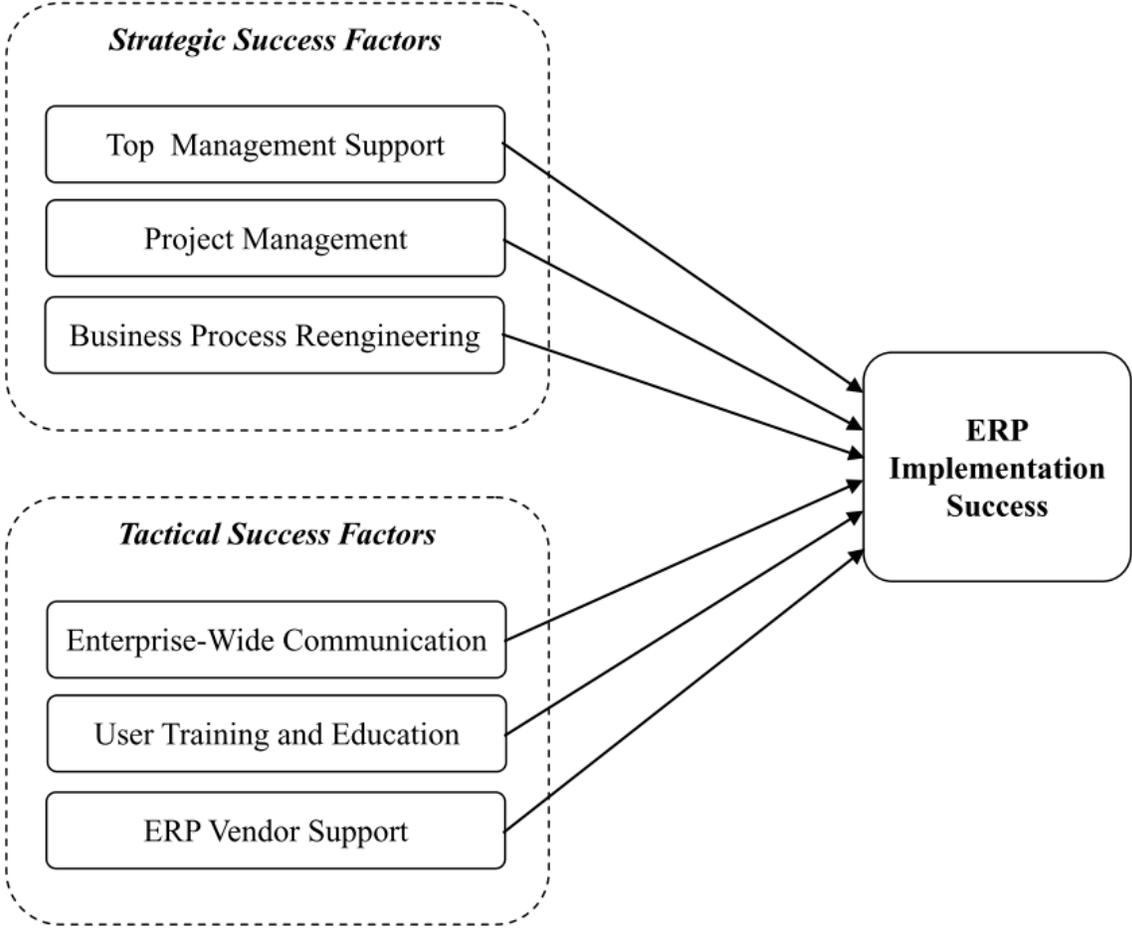


Figure 2. 4 Critical Factors to ERP Implementation Success: Source (Shahin, 2014:5)

Shahin (2014) indicates two categories of independent variables that is strategic success factors and tactical success factors. All the factors have direct impact to successful ERP implementation.

## 2.6.4 Research Model by Buleje

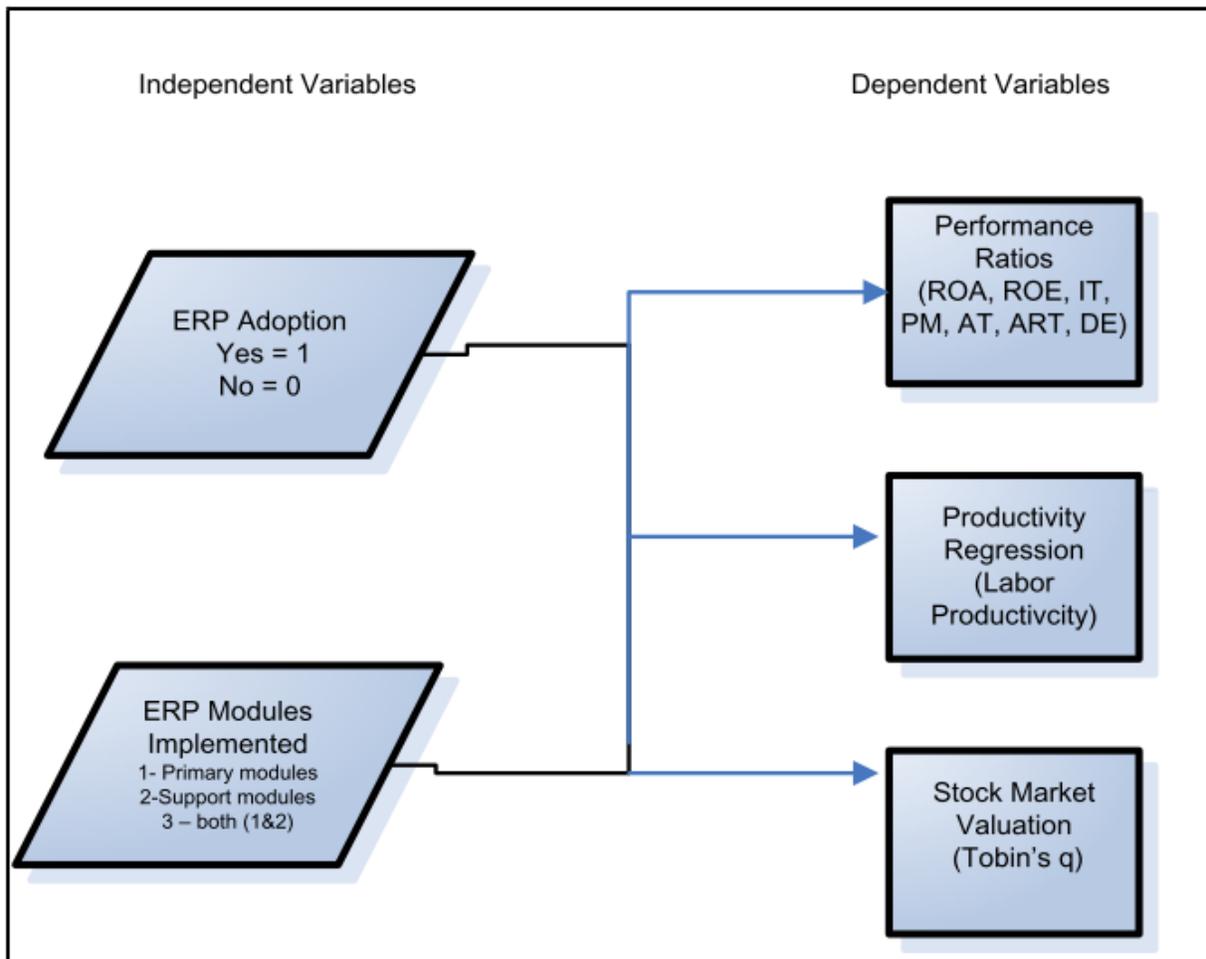


Figure 2. 5 ERP implementation and Impact to Corporate Performance: Source (Buleje, 2014:54)

Buleje (2014) looked at ERP implementation and the ERP Modules implemented as an independent variable with an effect on stock market valuation, productivity regression and performance ratios as dependent variables. The researcher ignored the critical factors to successful implementation of ERP system.

### 2.10 Critical success factors to extended ERP implementation

ERP projects fails normally because organizations fail to do due diligence on the critical factors that affect implementation of ERP systems (Kambarami, Mhlanga and Chikowore, 2012). The

project fails because the project implementation fail to align to the business vision, lack of skilled leaders to champion the implementation of the project. Change in project goals during the implementation results in project failures.

### **2.10.1 Business Vision**

Ifineldo (2008) view business vision as the general expression of the reason for existence of the organization that ideally reflect the values and expectation of major shareholders. The business vision according to Kambarami, Mhlanga and Chikowore (2012) should be clear steering the project direction. The firm must have the perceived benefits of implementing an extended ERP software. Due diligence on tangible benefits, risks, costs and timelines assist in measuring if the project adopted is meeting the perceived benefits of the firm. The strategic goals from management and mission in this study are used to denote business vision.

### **2.10.2 Leadership Skills**

According to Maxwell (2013) true leadership cannot be appointed, awarded or assigned but comes from influence. Leadership skills are the strength individuals demonstrate that guide employees to achieve their set objectives. Leaders are expected to delegate, motivate, inspire and communicate effectively with their subordinates in using extended ERP systems in a way that promotes corporate performance. A leader is expected to have problem solving skills that is the ability to provide solution and assist. According to Llopis (2013) a leader view a problem not as a distraction but an opportunity previously unseen and a strategic enabler for continuous improvement. Leaders must communicate and cooperate effectively across and within different cultural boundaries. Social skills help to build trust, team spirit, and respect and reduce conflict among team members. The knowledge of the day-to-day operations is also expected in leaders. Failure can negatively affect supervision of the human personnel at workplace. Tsikirayi, (2016) explains that a leader is expected to have technical, human and conceptual skills to lead effectively and efficiently.

Top management support in the implementation stage is crucial so that all members consider the project as a top priority (Kambarami, Mhlanga and Chikowore, 2012). Failure to get management support can result in negative implementation of the extended ERP system.

### **2.10.2.1 Technical Skills**

Leaders are expected to possess technical skills which is proficiency based in a specific knowledge area of work (Mahdavian and Mostajeran, 2013). The leader is competent and knowledgeable to specific organization's activities, rules and operating standard and procedure (Katz, 2009).

### **2.10.2.2 Human Skills**

Human skills is the ability by leaders to have proficiency in working with people based on knowledge of human behavior, how they operate in groups, their motives, feelings, attitudes and how to communicate effectively with them (Katz, 2009).

### **2.10.2.3 Conceptual Skills**

Leaders must have the ability to visualize the whole organization and see how the different departments work together to meet the organizational objectives. With the introduction of Extended ERPs in SOEs, each department has at least one module they use to post business transactions. Leaders must be able to visualize the effect of a single transaction and the impact it generates in other modules.

### **2.10.3 Module Integration**

ERP systems are building blocks of different modules supporting functional areas such as planning, manufacturing, marketing, sales, accounting, finance, distribution, human resources management, transportation, inventory management, e-business (Kambarami, Mhlanga and Chikowore, 2012). A well-defined interdepartmental integration between modules, resulting in a stable systems which encounter few problems can assist in successful implementation of the ERP system (Ram, Corkindale and Wu, 2014). ERP systems must be reliable, providing smooth integration of information with seamless connectivity of the software within the organization network.

### **2.10.4 Information Quality**

The quality of information generated from the ERP systems impact decision making of the organization (Tobie, Etoundi and Zoa, 2016). ERP systems stores different raw data from different modules transactions and the ability to generate informed reports to assist in decision making in

the organization. If erroneous or inaccurate data transactions are added on one module this can result in error being visible in other modules due to the integrated nature of ERPs (Motwani and Sharma, 2015). Erroneous transaction results in people losing credibility with the ERP system reverting in manual postings on the old system (Sharma, 2010).

## **2.11 Literature synthesis and conceptual framework**

### **2.11.1 Contradiction in the research area**

Rai, Patnayakuni and Patnayakuni, (1997) have looked at Information technology having an impact on firms output and not business performance. Tsai *et al.*, (2012) analyzed a linkage between performance measures of ERP systems and earnings management. (Tsai *et al.*, 2012) found that the relationship between earnings management and performance of ERP systems depends on systems quality. Lu and Jinghua, (2015) explains the productivity paradox, highlighting whether or not ERP implementation have a positive correlation with corporate performance.

Tobie, Etoundi and Zoa (2016) looked at risk assessment as an important technique to identify factors that can impede successful implementation of the extended ERP systems. The researchers highlighted that more research is to be done on the impact of risk in order to assist in successful implementation of Extended ERP systems.

### **2.11.2 Research hypothesis**

The main research hypothesis to be tested was that business vision, leadership skills, module integration and information quality positively influence ERP implementation and Extended ERP implementation has a positive influence on SOE performance. This main hypothesis was tested through using the following specific hypothesis:

#### **Hypothesis 1**

There is a positive relationship between a long term shared organizational vision and implementation of Extended ERP systems

#### **Hypothesis 2**

Leadership Skills positively influence implementation of Extended ERP systems.

#### **Hypothesis 3**

Module Integration affects positively the implementation of Extended ERP systems

### **Hypothesis 4**

The Information Quality positively trigger successful implementation of Extended ERP systems

### **Hypothesis 5**

Implementation of Extended ERP positively impact SOEs performance.

The hypothesis will test the impact of the independent variables, which are business vision, leadership skills, module integration and information quality on successful extended ERP implementation and its impact on SOEs performance.

### **2.11.3 Indications of research methodology**

The discussed theories and previous studies revealed that there are a number of factors that's affect successful extended ERP implementation and the following factors that is business vision, leadership skills, module integration and information quality have been selected to conduct a quantitative study to see how the factors impact successful implementation of extended ERPs. Overall, the researcher will also look at how successful implementation of extended ERP impact SOEs performance.

### **2.11.4 Conceptual Framework**

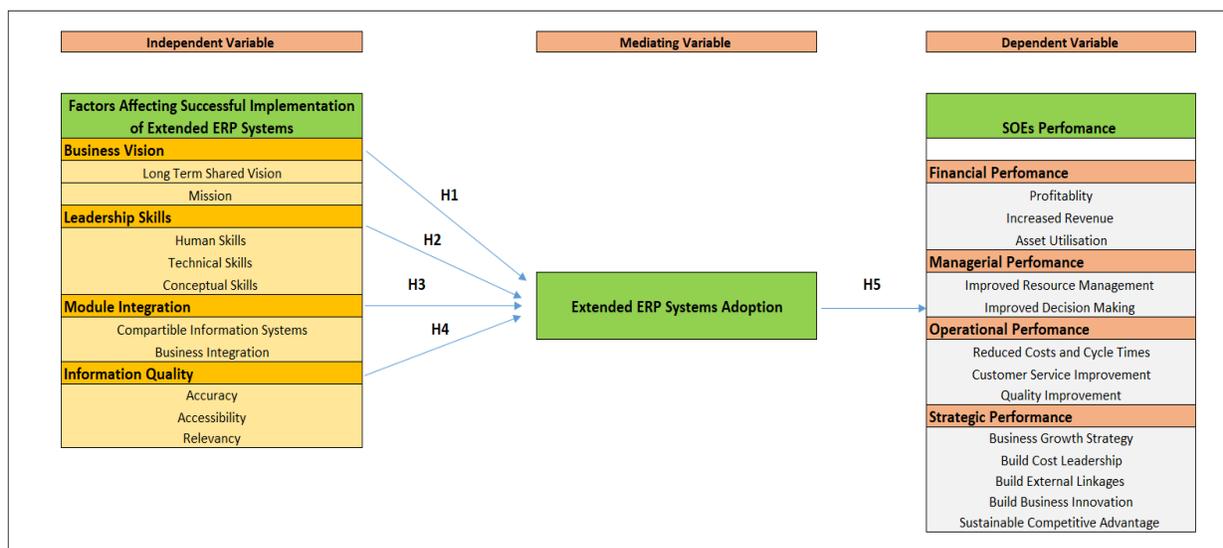


Figure 2. 6 The Empirical Conceptual Framework: Source: Author's compilation (2018)

## **2.12 Chapter conclusion**

This chapter discussed the theoretical and empirical contributions of literature to the research study. The chapter also discussed the relationship between ERP implementation and corporate performance. Lastly, the researcher looked at the contradictions in the research area, discussed the proposed research model and concluded the chapter with the conceptual framework showing the independent, mediating and dependent variables of the study.

The next chapter explain the research methodology that will be used in the study. The researcher will cover the research design, target population and data collection methods that will be used to gather the data for the research. A questionnaire will be adapted for the study based on other previous researchers. The researcher will conclude the chapter with data analysis based on the findings from data collection.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter focuses on the methodology and the design of the study. A recap of the study aim, research objectives, questions and hypotheses is discussed. The research philosophies, research design, sampling methods, procedures for data collection, data analysis and presentation as well as ethical considerations in the study are explained in detail. This research was conducted using quantitative research methods. The main objective of conducting a quantitative research was to gain an exhaustive in-depth understanding on the impact of business vision, leadership skills, module integration and information quality on the successful implementation of Extended ERP systems and its effect on SOEs performance.

#### **3.2 Objectives, Questions and Hypothesis**

##### **3.2.1 Objectives**

###### **3.2.1.1 Main Objective**

The main objective of this study was to investigate factors affecting the successful implementation of Extended ERP system and the impact of Extended ERP implementation on SOE performance

###### **3.2.1.2 Specific Objective**

To achieve the main objective, the following were the specific objectives:

- a) To ascertain if a clear and shared organizational vision has an impact on the successful implementation of Extended ERP systems.
- b) To assess the impact of Leadership Skills (Human, Technical and Conceptual) on successful implementation of Extended ERP systems.
- c) To establish the effect of Module Integration on implementation of Extended ERP system.
- d) To understand the impact of Information Quality on successful Implementation of Extended ERP Implementation.
- e) To determine the effect of Extended ERP systems Implementation on SOEs performance.

### **3.2.2 Research Questions**

#### **3.2.2.1 Main Questions**

The main research question was;

To what extent do Leadership skills, vision, module integration and information quality influence extended ERP implementation and the effect of Extended ERP implementation on SOE performance?

#### **3.2.2.2 Specific Questions**

The main research question were supported by the following sub questions;

- a) What is the effect of a shared organizational vision on the successful implementation of Extended ERP systems?
- b) What is the impact of Leadership Skills (Human, Technical and Conceptual) on successful implementation of Extended ERP systems?
- c) Does Module Integration have a positive impact on the successful Implementation of Extended ERP systems?
- d) Can Information Quality be a factor in the successful Implementation of Extended ERP Systems?
- e) To what extent does the implementation of Extended ERP positively influence SOEs performance?

### **3.2.3 Research Hypothesis**

#### **3.2.3.1 Main Hypothesis**

The main hypothesis of the study is that Leadership skills, vision, module integration and information quality positively influence ERP implementation and Extended ERP implementation has a positive influence of SOE performance.

#### **3.2.3.2 Specific Hypothesis**

The following specific hypothesis were developed:

##### **Hypothesis 1**

There is a positive relationship between a well-understood vision and implementation of Extended ERP systems

### **Hypothesis 2**

Leadership Skills (Human, Technical and Conceptual) positively influence implementation of Extended ERP systems.

### **Hypothesis 3**

Module Integration affects positively the Implementation of Extended ERP systems

### **Hypothesis 4**

The Information Quality positively trigger successful Implementation of Extended ERP systems

### **Hypothesis 5**

Implementation of Extended ERP positively impact SOEs performance.

## **3.3 Research Design**

Shahin, (2014) posits that a research design is the blueprint that enable the researcher to come up with solutions to problems and guide in various stages when conducting the research. It assists a researcher in testing a number of hypothesis and analyze the hypothetical relationship between the variables under study. To increase the rigor of the study the researcher shifted from an exploratory study done by other previous researcher to an explanatory study. The researcher conducted an explanatory study considering the variable under study are known to obtain an in-depth, conclusive understanding on the impact of business vision, leadership skills, module integration and information quality on the successful implementation of Extended ERPs and its effect on SOEs performance in Zimbabwe.

## **3.4 Research Philosophies**

Walliman, (2017) explains that the research philosophy influence how a researcher will sail throughout the research process. Three philosophical assumptions discussed in the research are ontological, epistemological and axiological assumptions.

### **3.4.1 Our ontological beliefs**

The researcher from an ontological belief states that it is reasonable to generalize our findings for all SOEs seeking to enhance corporate performance through implementation of Extended ERP systems. Summary measures and statistical analysis from the views of the surveyed companies were used to generalize results on how to increase corporate performance through implementing

Extended ERP systems considering the success factors influencing the Implementation of ERPs. This belief the researcher referred to as our “one truth”.

### **3.4.2 Our epistemological belief**

To establish “*one truth*” about SOEs performance looking at the impact of business vision, leadership skills, module integration, information quality on successful implementation of ERP systems. Our research was anchored on facts gathered through a disciplined scientific research approach that gathered data on SOEs companies that have implemented SCM, CRM and BI in Zimbabwe.

Epistemological refers to the ways to acquire the knowledge (Walliman, 2011). The research instrument contained structured questions that will not require any opinion or perception of the researcher and will be compatible to statistical manipulation to test the hypothesis. The results expected in the study should show whether these factors affect positive or negative successful implementation of Extended ERP implementation and the effects of Extended ERPs on SOEs performance.

### **3.4.3 Axiological belief**

The researcher believe that ethics in research are of paramount importance and therefore take seriously the following ethical issues:

- Obtaining informed consent from the respondents in SOEs.
- Keeping confidential all information availed as most of it would be centered on the company’s business strategies and competitive advantage.
- Free from harm of the respondents and researcher.
- Keep a distance from the responded to reduce biasness of the results.

## **3.5 Research Paradigms**

Research paradigms are defined as underlying assumptions and intellectual structure upon which research and development in a field of inquiry is based as purported by (Landiyanto, 2008). There are three recognised paradigms in research, these are positivism, interpretivism and pragmatism. Positivism is based on a belief in objectivism and use of facts while interpretivism is subjectivity based and focus is on ones opinions, attitudes, feelings of respondents with induction reasoning.

Pragmatism (realism) on the other hand is a mixed method that include positivism and interpretivism, which are viewed as complementary with both numbers and words accommodated. For this study, the positivism paradigm was adopted as researcher wanted to use facts and evidence to evaluate the impact of business vision, leadership skills, module integration and information quality on the successful implementation of ERP systems. A large sample was used to enhance the credibility of results and to enable generalization of the findings. The positivism paradigm also necessitated the used of statistical techniques including Statistical Package for the Social Sciences (SPSS) which enabled hypotheses sanctioning. A quantitative research was therefore chosen as it allowed the researcher to work with hypotheses.

### **3.6 Research Approach**

Research approach focuses on reasoning; the process of using existing knowledge to draw conclusions, make predictions, or construct explanations (Saunders, Lewis and Thornhill, 2009, p. 124). Three methods of reasoning are the deductive, inductive, and abductive approaches. Deductive reasoning moves from the general rule to the specific application and if the original assertions are true, then the conclusion must also be true. Inductive reasoning begins with observations that are specific and limited in scope, and proceeds to a generalized conclusion that is likely but not certain in light of accumulated evidence. Thus moves from the specific to the general. Abductive reasoning on the other hand typically begins with an incomplete set of observations and continues to the likeliest possible explanation for the set. Abductive reasoning yields the kind of daily decision-making that does its best with the information at hand, which often is incomplete

The researcher conducted a deductive approach to test the validity of the theories and hypothesis under study. This assisted to conduct a scientific study based on objective facts and explain the relationship between business vision, leadership skills, module integration and information quality on successful implementation of ERP system and the effect on SOEs performance. Findings from the research were used to make inferences and generalizations.

### **3.7 Research Strategy**

Research strategy is a methodology that assist the researcher to investigate the research issue according to (Walliman, 2017) and generate a research plan that answers the research question in

a systematic way. To reach a specific conclusion a researcher collects background information and analyze the data. Important quantitative research strategies include experiments, surveys and case studies. On the other hand, research strategies under qualitative studies include archival research, ethnography, grounded theory, surveys and phenomenology. To accomplish the research aims and objectives the researcher used a survey for all SOEs in Zimbabwe that have implemented Extended ERP systems. This assisted in collecting quantitative data that could be generalized to understand the success factors to Extended ERP implementation and its effect on SOEs performance in Zimbabwe.

### **3.8 Research Instrument**

Research instruments are the fact-finding means for data collection. They include structured and unstructured questionnaire, structured and unstructured interview, observation, focus group discussion and reading. Essentially the researcher must ensure that the instrument chosen is valid and reliable. The validity and reliability of any research project depends to a large extent on the appropriateness of the instruments (Walliman, 2011). A structured questionnaire was used to collect data from respondents.

#### **3.8.1 Structured questionnaires.**

The researcher collected data from respondents using structured Questionnaires. This method was effective for achieving research objectives because of its alignment with the positivist standpoint and one truth philosophy as well as the keeping a distance approach the researcher adopted. Furthermore, there was low level of involvement of the researcher and high number of respondents to enable generalization of the quantitative results. The researcher adapted questionnaires used in other previous research by (Ifineldo, 2008; Wachanga, 2009 & Weber *et al.*, 2014) as opposed to own formulated questionnaires to capitalize on reliability and validity. The questionnaires were self-administered since the targeted population constituted literate personnel with a deep understanding on the critical success factors to implementing extended ERP systems.

### 3.8 Data Collection Methods

#### 3.8.1 Primary Data Collection

To conduct a conclusive research it was of paramount importance to be objective in the study and carryout a quantitative study. The primary data was collected through a well-structured questionnaire for all the factors that is business vision, leadership skills, module integration and information quality on the successful implementation of Extended ERP systems. The researcher also looked at extended ERP systems and its impact on SOEs performance.

#### 3.9 Population and Sampling Techniques

Khalid, Hilman and Kumar, ( 2012) explains that the foremost objective of quantitative study is to generalize the findings. To draw inference about the population understudy, the researcher must use a sample, which is a subgroup of the population (Lind, Marchal and Wathen, 2015). The researcher used probability sampling to reduce unbiased selection of the sample. Three SOE companies in Zimbabwe were identified to have implemented extended ERP systems by end of 2018. The target population included three companies in Power Utility, Revenue Authority and Agro industrial. The researcher visited the companies to identify the number of extended ERP system active users.

**Table 3. 1 Population for the Study**

Company Sector	Revenue Authority	Power Utility	Agro Industrial
Current ERP Active System Users	2000	2500	500

Source: Author's compilation (2018)

The researcher treated each company as a stratum and proceeded to conduct a proportional stratified random sampling to select the sampling units from each company.

#### Sample Size Calculation

The sample size was calculated using the formula below.

*Minimum Sample size = 50 + 8N* where ( $N = 4$ ), the number of independent variables in the study (*Business Vision, Leadership skills, Module Integration and Information Quality*).

Therefore calculated minimum sample size  $n = 82$ . The researcher worked with a new sample size of 200 respondent greater than the minimum calculated sample size of 82 to increase the chances of generalizing our findings for all SOEs in Zimbabwe.

### Sample Distribution Calculation

$$\text{Revenue Authority} = (2000/5000) * 200 = 80$$

$$\text{Power Utility} = (2500/5000) * 200 = 100$$

$$\text{Agro Industrial} = (500/5000) * 200 = 20$$

**Table 3. 2 Sample representation by Company**

Company	Revenue Authority	Power Utility	Agro Industrial
Current ERP Active System Users	2000	2500	500
Proportion to be sampled	80	100	20

Source: Author's compilation (2018)

### 3.10 Methods of Data Analysis

The data obtained from the survey through questionnaires was edited, coded, tabulated, and captured into the Statistical Package for Social Sciences (SPSS) version 21. The quantitative data was analyzed through descriptive statistics and inferential analysis such as correlation analysis, multiple regression analysis, analysis of variance and hypothesis testing. Multiple regression analysis and correlation analysis will be used to quantify and test the relationship between the independent variable factors affecting implementation, Extended ERPs and the dependent variable SOEs Performance.

### 3.11 Research Credibility

In qualitative research, the methods used to establish trustworthiness include **transferability, dependability, and confirmability**. In the current quantitative study, the researcher used content validity, convergent validity and divergent validity to establish trustworthiness of the study.

#### 3.11.1 Reliability

The researcher conducted a survey on all SOEs in Zimbabwe that had implemented extended ERP systems. A research instrument was designed in form of a structured questionnaire. Saunders,

Lewis and Thornhill (2009) emphasized that one of the important steps in instrument development is to check for its validity and reliability.

Khalid *et al.* (2012) explains reliability as the degree to which a measure is free from error and obtained results are consistent even if the study is to be repeated. Reliability refers to the precision and accuracy of the instrument being used and its measured in terms of stability, equivalence and internal consistency according to (Walliman, 2017). Stability measured the extent of reproducing the same results.

Equivalence is when alternative forms of the same measure are used produce the same results (Cooper and Schindler, 2006). Internal consistency according to Cooper and Schindler (2006) is when items in a measurement or scale are homogenous showing the same construct. The instrument's reliability was tested and accepted because the Cronbach's alpha coefficients for the research variables were above the 0.7 threshold and the overall coefficient alpha for the whole scale was 0.952. This confirmed the reliability of the instrument.

### **3.11.2 Validity**

Validity as purported by Khalid *et al.*, (2012) is the extent to which an instrument truly represent its measurement. Neuman, (2014) indicated that when administering any measurement, researcher needs to ensure the instrument being used has face validity, content validity, criterion validity and construct validity. Subjective judgements were gathered through consultation with experts in the information technology and strategic leadership on the instrument to confirm if the instrument confirmed to face validity. Content validity was also obtained by having discussion with many experts in the information technology industry. Agreement on the provided list of questions assisted in making sure that a measure contained all the adequate and representative set of questions to cover the concept. Expert opinions and discussion with ICT team members assisted in confirming the instrument for content validity. Pretest pilot study with few respondents assisted in removing unnecessary question on the instrument. Criterion validity is the measure degree of relationship of a measure with other standard measures of the same construct (Zikmund , Babin, Carr and Griffin, 2012).

Construct Validity according to (Zikmund *et al.*, 2012) is the degree a measure confirms a network of correlated hypotheses generated from theory based on concepts. The researcher conducted both convergent and divergent validity. The research instrument's validity was accepted

because the Statistical Package for Social Sciences (SPSS) factor analysis gave a coefficient above the threshold of 0.5.

### **3.12 Ethical issues**

In line with axiological belief that ethics are of paramount importance, the researcher implemented the following ethical strategies. The respondents were allowed to make an informed consent on whether or not to participate in the study. Researcher's task was to ensure respondents are aware of the research purpose and the methods used in data collection. The informed consent contained three elements; capacity, information and voluntariness. Capacity involved the ability to acquire and retain knowledge. Information covered the effective communication of the research to the respondent. Voluntariness was the ability for each individual to exercise the free power of choice without force. The researcher had also a role of ensuring the safety of human participants in the study and the maintaining the integrity of the institutions in which the research occurred.

The research was based on objectivity not researcher opinion or feeling in the generalization of the findings. The researcher treated the gathered information as confidential as most of it was centered on the company's business strategies and competitive advantage. The researcher discussed with the respondents on the sensitivity of the information under study and potential inversion of privacy of the context the research was conducted. The researcher pledged to keep the information confidential. Inducement of respondents was minimum to assist the participants to enjoy being part of the study. The researcher also ensured that the research is of quality to assist in building a body of knowledge to be used for decision making by corporate leaders when making decision.

### **3.13 Chapter Conclusion**

In this chapter, a recap of the study's aim and objectives was highlighted before the research design was outlined and the explanatory approach was chosen for this study to enable researcher establish relationships of the study variables. The researcher's standpoint was positivist and a survey was employed to focus on one truth. The research instrument (structured questionnaires) helped explain the relationship success factors to Extended ERP implementation and the impact on SOEs performance. The target population was delineated and method for drawing a representative samples was illustrated. Proportional Stratified Random sampling was used to draw a portion of

the sample from each company. Data processing and analysis techniques used were expressed. The researcher went on to illustrate how he ensured credibility through validity and reliability testing. Ethical considerations were cornerstone of the research given high attention to conduct a meaningful and effective quantitative study.

The next chapter will provide data analysis based on the collected information from the research instruments. This will provide a deep analysis on the relations between the variables under study and help in generalizing our findings for the whole population.

## **CHAPTER 4**

### **DATA ANALYSIS AND INTERPRETATION**

#### **4.1 Introduction**

Chapter three of the study covered research methodology used in data collection and analysis of data. This chapter analyses the data and makes interpretation of the research findings. The results are linked to the research objectives. The researcher started by looking at the respondents that participated in the study by organization followed by descriptive statistics, looking at demographic characteristics such as gender, age, educational level and position in the company. Reliability tests is done to check how free the instrument is from random errors. Correlation analysis was used to see how the variables in the study relate to each other. Regression analysis was done to provide explanatory on the effect of success factors (business vision, leadership skills, module integration, and information quality) on successful implementation of Extended ERP systems and its impact on SOEs performance. Data analysis is essential so as to come up with the explanations on the meaning of statistical data collected during the research. Interpretation enables the researcher to draw inferred conclusions on the chosen area providing a conclusive in-depth understanding on the impact of business vision, leadership skills, module integration and information quality on the successful implementation of Extended ERP systems and its effect on SOEs performance.

#### **4.2 Response Rate**

The research instrument was administered through online and self-administered survey questionnaires. Table 4.1 below shows the number of responses collected in the research.

**Table 4. 1 Response Rate**

<b>SOE Sector</b>	<b>Questions Distributed</b>	<b>Returned Questionnaires</b>	<b>Unusable Questionnaire</b>	<b>% Response Rate</b>
Revenue Authority	105	85	5	76
Power Utility	125	102	2	80
Agro Industrial	20	20	0	100
<b>Total</b>	<b>250</b>	<b>207</b>	<b>7</b>	<b>80</b>

*Source: Author's compilation (2018)*

$$\therefore \text{Response Rate} = \frac{200}{250} = 80\%$$

A total of 250 survey questionnaires were self-administered by the researcher to SOEs in Revenue authority, Agro industrial and Power utility that had implemented extended ERPs in Zimbabwe. 200 questionnaires were found useful for the study giving a response rate of 80 % with only 15 % nonresponse bias. According to Lindemann (2018), response rate is determined on how the researcher creates , distributes and collects the survey and an acceptable response rate for self-administered questionnaires is above 57 %. The response rate of 80 % was considered relevant for the study.

Responses rate success was contributed by strategies used to gain access to SOEs. The researcher would contact the ICT department and explain the benefits of the research to their organization. To gain access, the ICT department would liaise on behalf of the researcher to the Human Capital department seeking authorization to conduct the research. The ongoing drive to restructure SOEs for improved performance triggered interest by respondents keen to understand the impact of successful implementation of extended ERPs on corporate performance.

The research topic was discussed in full with the respondents and the introductory letter from the University of Zimbabwe gave the assurance that the empirical study was for pedagogic purposes.

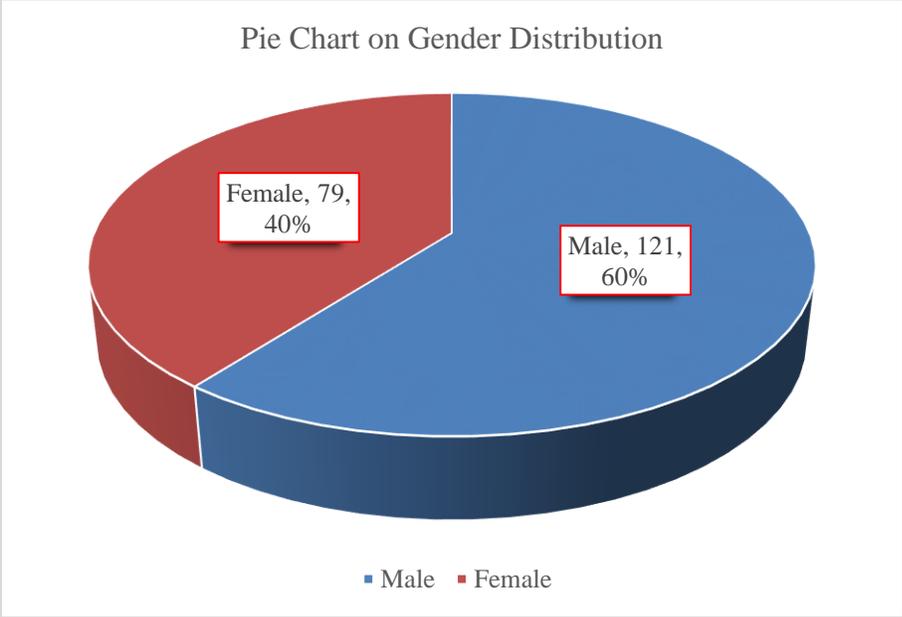
The researcher also promised to share the research findings and SOEs were very keen to also have a copy so that they would use the results for their strategic decision making.

### 4.3 Demographic Analysis

This section focused on the demographic characteristics of the respondents who participated in the study. Respondents were required to provide various demographic information on gender, age, education qualifications and position hold in the organization.

#### 4.3.1 Gender

By asking gender of respondents, the researcher was keen to determine gender distribution of participants. Gender was required to measure different tastes and perception towards the variables under study between females and males.



**Figure 4. 1 Gender Distribution**

*Source: Primary Data*

Figure 4.1 above show that from the survey 121 (60 %) of respondents were males and around 79 (40%) were females. This implies that SOE Extended ERP system users are mostly dominated by males as the researcher distributed the research instrument randomly. Effort is required by SOEs

companies and the government at large to continue to encourage females in Zimbabwe to continue to participate in areas that were previously dominated by males.

#### 4.3.2 Age of Respondent

Respondents were required to indicate their age range because the researcher wanted to find out their age group distribution in the use of technology to better improve their business processes.

**Table 4. 2 Age Distribution**

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 25 years	20	10.0	10.0	10.0
25 - 30 years	45	22.5	22.5	32.5
Valid 31 - 40 years	71	35.5	35.5	68.0
41 - 50 years	50	25.0	25.0	93.0
Above 50 years	14	7.0	7.0	100.0
Total	200	100.0	100.0	

*Source: Primary data*

Results of age group distribution in table 4.2 indicates that extended ERP system users in SOEs were predominately in group 25-30 years (22.5%), 31-40 years (35.5%) and 41-50 years (25 %) The groups constitute economically active members that performs most business process in SOEs. Lowest number of participants came from the age group above 50 years (7.0%). Perceived ease of use extended ERP systems is low at old age. The 10 % is for graduate trainees students who will be trained by companies on the expectations of the job and can be considered as permanent employees in the future upon completion of their graduate trainee program

### 4.3.3 Academic Qualifications

**Table 4. 3 Level of Education**

	Frequency	Percent	Valid Percent	Cumulative Percent
Certificate	11	5.5	5.5	5.5
Diploma	11	5.5	5.5	11.0
Higher National Diploma	12	6.0	6.0	17.0
Valid General Degree	25	12.5	12.5	29.5
Honours Degree	88	44.0	44.0	73.5
Master's Degree	53	26.5	26.5	100.0
Total	200	100.0	100.0	

*Source: Primary data*

The research targeted all levels of extended ERP system users in SOEs. At least 80 % of the respondents had attained at least a degree and this add credibility to the results findings as the respondent were knowledgeable on factors affecting successful implementation of extended ERP systems.

### 4.3.4 Level of Experience

The level of experience also assisted in measuring the degree of knowledge on business processes by respondents in SOE companies.

**Table 4. 4 Level of Experience**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less than 1 year	21	10.5	10.5	10.5
1 - 3 years	38	19.0	19.0	29.5
4 - 10 years	68	34.0	34.0	63.5
11 - 15 years	26	13.0	13.0	76.5
More than 15 years	47	23.5	23.5	100.0
Total	200	100.0	100.0	

*Source: Primary data*

The level of experience also contributed to the credibility of the study as the study had 23.5 % of the respondents with over 15 years of working in SOEs companies. These respondents possess strong institutional memory about the organisation and past experiences on previous system implementations. Those with less than 1 year covered 10.5% of the respondents which shows SOEs are always recruiting new staff. This can affect productivity as new employees require time to learn and adjust to the job requirements.

#### **4.2.5 Position in Organisation**

The researcher targeted all extended ERP users in SOE as it was believed every system user knows what needs to be done to improve successful implementation of extended ERP implementation and contribute to corporate performance

**Table 4. 5 Position in Organization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Non Managerial	119	59.5	59.5	59.5
Junior Management	43	21.5	21.5	81.0
Middle Management	33	16.5	16.5	97.5
Senior Management	5	2.5	2.5	100.0
Total	200	100.0	100.0	

*Source: Primary data*

119 (59.5 %) of the respondents were non managerial. This indicates that the greater number of extended ERP systems are non-managers who do the daily work of the organisation. Junior Managers and Middle managers constitute 38 % of the respondents as they do document authorisation in the system and generation of management reports. Senior management contributes 2.5 % because of a few positions available in the organisational structure.

#### 4.4 Descriptive Statistics

The independent variables of this study comprised of four determinants of successful implementation of extended ERP which are business vision, leadership skills, module integration and information quality.

**Table 4. 6 Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Business_Vision	200	2	5	4	0.67694	-0.712	0.17	0.299	0.34
Leadership_Skills	200	2	5	3	0.67577	-0.436	0.17	0.108	0.34
Module_Integration	200	2	5	4	0.5918	-0.458	0.17	0.386	0.34
Information_Quality	200	2	5	4	0.64557	-0.546	0.17	0.283	0.34
Extended_ERP	200	2	5	4	0.60108	-0.426	0.17	0.134	0.34
Valid N (listwise)	200								

*Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5*

*Source: Primary Data*

The table 4.6 above illustrates the summary of information received from the 200 respondents on the five factors under study.

From table 4.6 above, responses on aspects assessing business vision as a factor for successful implementation of extended ERP ranged from 2.00 to 5.00 on a Likert scale with a mean of 4 (*to the nearest whole number*) depicting that respondents agreed on most aspects used to measure business vision as a factor in successful implementation of extended ERP. A standard deviation of 0.67694 below the mean shows they was low variability on the respondents on the contribution to

successful ERP implementation. Skewness was also used to measure the spread of the data and a value of -0.712 indicated that the data was negatively skewed with mean value 4 and the long tail all to the left of the peak. Kurtosis value of 0.299 indicated that the distribution was leptokurtic with its tails longer and flatter and peak higher and sharper than the normal distribution.

Leadership skills had a minimum value 2, maximum of 5 with a mean of 3 showing the respondents were neutral on the contribution of leadership skills to successful implementation of ERP systems. However they was a low data variation because of the standard deviation 0.67577 which was below the mean. A skewness of -0.436 indicated that Leadership skills was negatively skewed with a Kurtosis value of 0.108 showing the distribution was leptokurtic with sharper peaks and heavier tails as compared to the normal distribution.

Module Integration had a minimum value 2.00, maximum of 5.00, mean 4 and standard deviation 0.59180. A skewness value of -0.458 indicates that module integration was negatively skewed with a leptokurtic distribution with a Kurtosis value of 0.386. Comparing to a normal distribution, module integration tails are longer and flatter with a higher and sharper central peak.

Information Quality had a range of 2 to 5 with a mean of 4 showing that the respondents agreed that information quality contributed to successful implementation of ERP systems with a low variability of respondents of 0.64557. The skewness value of -0.546 indicates information quality data was negatively skewed with a kurtosis of 0.283 indicating that the data was leptokurtic.

Extended ERP ranged from 2.0 to 5.00 with a mean of 4 showing that the respondents agreed that successful implementation of ERP systems contribute to SOE performance with a low variability of 0.60108. Extended ERP was negatively skewed with skewness value of -0.426 and leptokurtic indicated by a kurtosis of 0.134 with a tall pick than the normal distribution with flatter tails.

## **4.5 Reliability and Validity Test**

### **4.5.1 Reliability test**

Al-Jabri and Roztockki, (2015) explained that to ensure measurement used is reliable and also minimize research errors, the researcher needs to validate the research instrument to see if its measuring what is supposed to measure. This helps to see the internal consistency of the research instrument. Cronbach's Alpha ( $\alpha$ ) is the reliability coefficient which indicates how good the study items are positively correlated to each other and the closer Cronbach's alpha is to 1. The higher the

Cronbach alpha the better the internal consistency. The Reliability Statistics table below shows the actual Cronbach's Alpha value computed for each variable in the study;

**Table 4. 7 Reliability Statistic**

Variable	Number of Questions	Cronbach's Alpha
Business Vision	5	0.769
Leadership Skills	6	0.841
Module Integration	8	0.854
Information Quality	8	0.885
Extended ERP	8	0.854
SOEs Performance	8	0.891
<b>Item</b>		<b>0.953</b>

*Source: Primary data*

Khalid *et al.*, ( 2012) explain that for the research instrument to be reliable or acceptable, the Cronbach's Alpha should meet a minimum threshold of 0.70. Business vision ( $\alpha=0.769>0.070$ ) implies that five questions on business vision were actually measuring information describing the variable business vision in the study. Leadership skills after removing two questions LS1 and LS2 had ( $\alpha=0.841>0.070$ ) showing the variable was reliable. The other variables, Module integration ( $\alpha=0.854>0.070$ ), Information quality ( $\alpha=0.885>0.070$ ), Extended ERP ( $\alpha=0.854>0.070$ ) and SOE performance ( $\alpha=0.891>0.070$ ) were also reliable as their Cronbach alpha values were above 0.70. Overall, the instrument had an overall Cronbach's alpha score of ( $\alpha=0.953>0.070$ ) which was excellent indicating a high internal consistency for the instrument used in this research. In formulating the research question, the researcher used adaption method with over 80 % of the question created by the researcher and 20% adopted from previous researchers. The instrument can be adopted for other future researchers because of the high Cronbach value of 0.953 as the instrument is measuring what it is supposed to measure.

#### **4.5.2 Validity test**

The researcher checked for face validity, content validity, criterion validity and construct validity to determine if the research instrument truly represented its measurement ( Khalid *et al.*, 2012).

Pretest pilot study with 20 respondents assisted in removing unnecessary questions on the instrument. Factor analysis was also used to confirm validity of the instrument by analyzing the factorability of the data using Bartlett’s test for Sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

**Table 4. 8 KMO and Bartlett’s Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	5005.031
	df	990
	Sig.	.000

*Source: Primary data*

Table 4.8 shows that our (KMO= 0.912>0.6) was exceptional good indicating the data was suitable for further analysis. The data using Bartlett’s Test of sphericity was statistical significant with (p=0.000<0.05).

The research instrument’s validity was accepted because the Statistical Package for Social Sciences (SPSS) dimension reduction under factor analysis gave a coefficient value above the threshold of 0.5 with only leadership skills question LS1 and LS2 dropped for the analysis using the rotated component matrix as they gave a threshold value of 0.332 and -0.033 respectively which were all below the threshold value of 0.5

**4.6 Normality Assumption**

Normality is used to test the shape of the distribution by checking if the data follows a symmetrical, bell shaped curve with a greatest frequency of scores at the centre while smaller frequency are at the extremes. Saunders, Lewis and Thornhill (2009) illustrated that for a large sample  $n \geq 200$  the data tend to follow a normal distribution. Saradakis (2017) also confirmed that for a larger sample  $n=200$  normality test should not be tested but the researcher must assume the data follows a normal distribution guided by the central limit theorem. In this study the researcher used a sample  $n=200$  and an assumption was made that the data followed a normal distribution. This authorized the

researcher to conduct test for relationships using Pearson correlation analysis and regression analysis to provide a conclusive analysis on the impact of business vision, leadership skills, module integration and information quality on successful implementation of extended ERP systems and its impact on SOE performance.

#### **4.7 Test of Relationships**

To test the relationships between the independent variables (business vision, leadership skills, module integration and information quality) variables and the dependent variable extended ERP implementation, the researcher used correlation analysis and regression analysis. Correlation analysis assisted in measuring the strength of the relationship between the variables. Regression analysis was used to determine the cause-and-effect relationship between the variable and provide answers to the research hypothesis formulated in the survey.

##### **4.7.1 Correlation Analysis**

Correlation analysis was conducted to explore the direction (positive or negative), statistical significance, magnitude of the relationship and multi collinearity issues on the relationship between business vision, leadership skills, module integration and information quality on extended ERP and its effect on SOEs performance. In this study the researcher used a sample of ( $n = 200$ ) and according to Saradakis, (2017) when  $n= 200$  then the data follows a normal distribution. The researcher used a sample size of 200 and used parametric tests that if a survey contain a sample size of ( $n \geq 200$ ) the data follows a normal distribution

**Table 4. 9 Pearson Correlations**

		Business_Vision	Leadership_Skills	Module_Integration	Information_Quality	Extended_ERP	SOE_Performance
Business_Vision	Pearson Correlation	1	.524**	.421**	.410**	.448**	.481**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	200	200	200	200	200	200
Leadership_Skills	Pearson Correlation	.524**	1	.514**	.573**	.532**	.493**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	200	200	200	200	200	200
Module_Integration	Pearson Correlation	.421**	.514**	1	.703**	.643**	.534**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	200	200	200	200	200	200
Information_Quality	Pearson Correlation	.410**	.573**	.703**	1	.644**	.551**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	200	200	200	200	200	200
Extended_ERP	Pearson Correlation	.448**	.532**	.643**	.644**	1	.690**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	200	200	200	200	200	200
SOE_Performance	Pearson Correlation	.481**	.493**	.534**	.551**	.690**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	200	200	200	200	200	200

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

*Source: Primary data*

The table 4.9 shows the parametric correlations results between the variables in the study. To test for relationship the researcher used Pearson correlation analysis after the central limit theory assumption that for large sample size  $n \geq 200$  data tend to follow a normal distribution. Table 4.9 displays the relationship between business vision, leadership skills, module integration and information quality on ERP implementation and effect also to SOE performance.

Business Vision ( $r = 0.448^{**}$ ,  $p = 0.00 < 0.01$ ) is statistically significant with a moderate positive relationship between a well understood business vision and successful implementation of Extended ERP system.

Leadership Skills ( $r = 0.532^{**}$ ,  $p = 0.000 < 0.01$ ) have a statistically significant strong positive influence on successful implementation of Extended ERP systems.

Module Integration ( $r = 0.643^{**}$ ,  $p = 0.000 < 0.01$ ) is statistically significant with strong positive relationship between module integration and Extended ERP Implementation

Information Quality ( $r = 0.644^{**}$ ,  $p = 0.000 \leq 0.01$ ) is statistically significant with a strong positive relationship on successful implementation of Extended ERP systems.

Extended ERP Implementation ( $r = 0.690^{**}$ ,  $p = 0.000 \leq 0.01$ ). The study proves that there is statically significant high positive correlation between successful implementation of ERP systems and SOEs performance.

#### 4.7.2 Multi collinearity Test

The test for multi collinearity was done to check on the relationship between the independent variables business vision, leadership skills, module integration and information quality if they are not highly correlated.

In Table 4.10 there is no multi collinearity since all values of  $r$  the correlation are below 0.9 where ( $0.410 \leq r \leq 0.644$ ). To verify the correlation result above another test was also done to check for multi collinearity using the Variance Inflation Factor (VIF) which is a reciprocal of tolerance value.

**Table 4. 10 Coefficients**

Model	Collinearity Statistics		
	Tolerance	VIF	
1	Business_Vision	.693	1.444
	Leadership_Skills	.562	1.778
	Module_Integration	.477	2.097
	Information_Quality	.444	2.253

a. Dependent Variable: Extended\_ERP

Source: Primary data

According to Olusegun, Dikko and Agboola, (2015) the following table 4.11 is used to make a decision using the VIF computed values.

**Table 4. 11 VIF Decision Table**

Item	Condition	Decision
1.	VIF= 1	No multi collinearity problem
2.	1<VIF<= 5	Insignificant to moderate multi collinearity problem
3.	5<VIF<=10	High correlation that is problematic (Multi collinearity problem )
4.	VIF>10	Poor construct of regression coefficients (very problematic )

Source: (Olusegun, Dikko and Agboola, 2015)

All the calculated VIF values are close to 1 than they are to 5 indicating that the data had no multi collinearity issues on the variables used in the study.

### 4.7.3 Multiple Regression Analysis

This part of the chapter provides a predictive analysis or cause effect relationship between independent variables (business vision, leadership skills, module integration, information quality) on successful implementation of extended ERP systems and the impact on SOE performance. The test for regression was used to measure the impact of business vision, leadership skills, module integration and information quality on successful ERP implementation assisting to confirm the research hypothesis.

**Table 4. 12 Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.717 <sup>a</sup>	.514	.505	.42311

a. Predictors: (Constant), Information\_Quality, Business\_Vision, Leadership\_Skills, Module\_Integration

b. Dependent Variable: Extended\_ERP

Source: Primary data

In table 4.12 the model with business vision, leadership skills, module integration and information quality contributed 50.5 % to successful extended ERP implementation. The adjusted R squared

value was used because it take care of bias and sampling errors. This indicated that they are other factors not covered in the study that contributes also to extended ERP implementation.

Since the independent variables used in the study contributed over 50 % of the overall SOE successful extended ERP implementation, SOE companies needs to do due diligence by investing on the independent variables if they need to successful implement extended ERP systems.

#### 4.7.3.1 Model Fit test

**Table 4. 13 Anova**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	37.379	4	9.345	52.788	.000 <sup>b</sup>
Residual	34.519	195	.177		
Total	71.898	199			

a. Dependent Variable: Extended\_ERP

b. Predictors: (Constant), Information\_Quality, Business\_Vision, Leadership\_Skills, Module\_Integration

*Source: Primary data*

*If ( $p \leq 0.01$ ) and ( $F > 0$ ) the model is statistical significant in explaining the variable else the model is statistically insignificant*

Table 4.13 shows the model used is fit in explaining the relationship between business vision, leadership skills, module integration and information quality on extended ERP implementation with ( $p = 0.00 < 0.01$ ) and ( $F = 51.656 > 0$ ). However the researcher sought to understand the impact of each independent variable (business vision, leadership skills, and module integration and information quality) on the dependent variable (Extended ERP implementation). Lastly, the researcher would assess the impact of successful ERP implementation on SOE performance.

### 4.7.3.2 Impact of Specific Variables

The impact of business vision, leadership skills, module integration and information quality on successful implementation of extended ERP systems was analysed and table 4.14 below shows the findings.

**Table 4. 14 Regression Analysis**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.678	.217		3.122	.002		
	Business_Vision	.110	.053	.124	2.080	.039	.693	1.444
	Leadership_Skills	.121	.059	.136	2.060	.041	.562	1.778
	Module_Integration	.318	.073	.314	4.363	.000	.477	2.097
	Information_Quality	.275	.069	.295	3.961	.000	.444	2.253

a. Dependent Variable: Extended\_ERP

*Source: Primary data*

*Condition if ( $p \leq 0.05$ ) statistically significant else if  $p > 0.05$  the relationship is statistically insignificant*

Business Vision ( $\beta=0.124$ ,  $p= 0.039 < 0.05$ ) has a positive and statistically significant impact on the implementation of extended ERP. This implies that for every 1 unit change in business vision results in 0.124 units increase on successful extended ERP implementation.

Leadership skills ( $\beta=0.136$ ,  $p= 0.041 < 0.05$ ) has a positive and statistically significant impact on the implementation of extended ERP. This implies 1 unit increase in leadership skills results in 0.136 increase in extended ERP implementation success.

Module Integration ( $\beta=0.314$ ,  $p = 0.000 < 0.05$ ) has a positive statistically significant impact on the implementation of extended ERP systems. A change 1 unit in module integration results in a change by 0.314 on successful extended ERP implementation.

Information Quality ( $\beta=0.295$ ,  $p= 0.000 < 0.05$ ) has a positive statistically significant impact on the implementation of extended ERP systems. This means 1 unit change in information quality contribute 0.295 on successful extended ERP implementation.

### **Regression Equation**

The following regression equation was formulated from the findings:

$$\mathbf{0.678 + 0.124BV + 0.136LS + 0.314MI + 0.295IQ = EERP}$$

If SOE companies fail to invest on business vision, leadership skills, module integration and information quality the company will still experience successful extended ERP implementation at a rate of 0.678. An increase by 1 unit on business vision results in a change by 0.124 on successful extended ERP implementation. SOE needs to have a shared vision known by its employees. A change by 1 unit on module integration contribute the greatest value of 0.314 to extended ERP implementation. This implies SOE needs to invest much on module integration. This means the vendor involved in ERP modules integration must be of unquestionable skill set on consultancy services offered during system customization and configuration. The information quality also contribute to successful implementation of extended ERP systems. A change by 1 unit in leadership skills also contributed 0.136 to extended ERP implementation.

The researcher also sought to understand the impact of successful extended ERP implementation on SOE performance and generate a regression equation to show the relationship.

#### **4.7.3.3 Impact of Extended ERP implementation on SOE Performance**

A regression model was computed to determine the predictive relationship between extended ERP implementation and SOE performance.

**Table 4. 15 Anova Table**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	44.933	1	44.933	179.625	.000 <sup>b</sup>
Residual	49.529	198	.250		
Total	94.462	199			

a. Dependent Variable: SOE\_Performance

b. Predictors: (Constant), Extended\_ERP

Source: Primary data

Table 4.15 show that the model used is fit in explaining that Extended ERP implementation contributes to SOE performance with (F=179.625>0) and (p=0.00<0.01).

**Table 4. 16 Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.716	.221		3.242	.001		
	Extended_ERP	.791	.059	.690	13.402	.000	1.000	1.000

a. Dependent Variable: SOE\_Performance

Source: Primary data

Extended ERP implementation ( $\beta = 0.690$ ,  $p = 0.000 < 0.05$ ) has a statistically significant positive impact on extended SOE performance.

**Final Regression Equation.**

$$0.716 + 0.69EERP = SOEP$$

If SOE companies fail to invest in extended ERP systems they will still benefit from increased corporate performance at a rate of 0.716. However an increase by 1 unit on extended ERP will

result in 0.69 increase on corporate performance. Increase in extended ERP is dependent on due diligence on other factors identified in the study that is business vision, leadership skills, module integration and information quality. SOEs needs to invest greatly on module integration followed by ensuring that the extended ERP generate information timeously, relevant and usable to the organization. Leadership skills is a factor that needs investment in the organization through continuous training and development of leaders in SOEs. A shared business vision helps in achieving SOEs business goals and objectives. SOEs stakeholders needs to treat extended ERP systems as a strategic tool used to support the business functions.

#### 4.8 Hypothesis Testing and decision making

A conceptual framework was designed in Chapter 2 supported with literature review to explain the relationship between the variables under study.

**Table 4. 17 Hypothesis Testing**

Hypothesis	Description	Research Findings
H1	There is a positive relationship between a well-understood vision and implementation of Extended ERP systems <i>(<math>\beta=0.124</math>), (<math>p= 0.039&lt;0.05</math>)</i>	Supported.
H2	Leadership Skills positively influence implementation of Extended ERP systems. <i>(<math>\beta=0.136</math>), (<math>p= 0.041&lt;0.05</math>)</i>	Supported
H3	Module Integration affects positively the implementation of Extended ERP systems <i>(<math>\beta=0.314</math>), (<math>p = 0.000&lt; 0.05</math>)</i>	Supported.
H4	The Information Quality positively trigger successful implementation of Extended ERP systems. <i>(<math>\beta=0.295</math>), (<math>p= 0.000&lt; 0.05</math>)</i>	Supported
H5	Implementation of Extended ERP positively impact SOEs performance. <i>(<math>\beta = 0.690</math>) (<math>p = 0.000&lt;0.05</math>)</i>	Supported

Source: Author's Compilation (2018)

Table 4.17 shows all the hypothesis which were tested and concluded in the research. The regression analysis assisted in confirming all the research hypothesis with a positive value on all the Pearson correlation constant indicating a positive and statically significant with all “p” values less than 0.05. The outcome of the research proved that the chosen success factors contributes positively to successful implementation of extended ERP systems and implementation of extended ERP systems impact positively on SOE performance.

#### **4.8.1 Discussion**

The aim of this research was to investigate the effect of business vision, leadership skills, module integration and information quality on successful implementation of Extended ERP systems and the associated impact on SOE performance.

In Chapter two, the researcher conducted a thorough review on theoretical and empirical literature and designed a conceptual framework for the factors affecting successful implementation of extended ERP systems. Hypothesis were formulated on business vision, leadership skills, module integration and information quality as factors influencing successful implementation of extended ERP systems and the impact on SOE Performance.

Regression analysis results assisted in providing a conclusive explanatory effect on the relationship between variables under study.

*H1: There is a positive relationship between a well-understood vision and implementation of Extended ERP systems*

The regression analysis reveals that the beta value ( $\beta=0.124$ ) for business vision was positive and statistically significant ( $p= 0.039<0.05$ ) in contributing to successful implementation of ERP systems. This supported Hypothesis (H1) of the study.

Curko, Stepanic and Varga, (2012) states that there should be a clear defined business vision when implementing ERP projects. Business goals and objectives must be easily measurable and understandable by the organization. These findings are in line to other previous studies that a well understood vision of the organization contribute to successful implementation of extended ERP systems.

***H2: Leadership Skills positively influence implementation of Extended ERP systems.***

The regression analysis reveals that the beta value ( $\beta=0.136$ ) for leadership skills was positive and statistically significant ( $p=0.041<0.05$ ) in contributing to successful implementation of ERP systems. This supported Hypothesis (H2) of the study.

Curko, Stepanic and Varga, (2012) also explains that leadership skills is an important factor in Extended ERP project implementation and project managers are expected to possess high technical skills, business knowledge, effective decision making and motivational skills. (Shao, Feng and Hu, 2012) also contributed that successful extended ERP faces different challenges and it's important for leaders to have execution focus, motivational skills and the ability to resolve conflicts as this are unavoidable in any project implementation. The results show that in Zimbabwe, SOEs to successfully implement extended ERP systems needs to invest in leadership development so that computerized system are managed with people with technical skills, human skills and conceptual skills.

***H3: Module Integration affects positively the Implementation of Extended ERP systems,***

The regression analysis reveals that the beta value ( $\beta=0.314$ ) for module integration was positive and statistically significant ( $p=0.000<0.05$ ) in contributing to successful implementation of ERP systems. This supported Hypothesis (H3) of the study. Supramaniam and Kuppusamy, (2011) agrees that module integration must help the business to be agile, adapt to changing environment and improve operational flexibility. Systems should be customized and configured to provide interdepartmental communication in the organization. These findings agree with other researcher findings that an integrated solution that provide interdepartmental communication to the business contributes to acceptance of extended ERP systems.

***H4: The Information Quality positively trigger successful Implementation of Extended ERP systems.***

The regression analysis reveals that the beta value ( $\beta=0.295$ ) for information quality was positive and statistically significant ( $p=0.000<0.05$ ) in contributing to successful implementation of ERP systems. This supported Hypothesis (H4) of the study. Ifineldo, (2008) purports that ERP systems success is contributed by configuring and customizing the system correctly so that users are able to generate reliable and relevant information. These research finding show that information quality

is an important factor for extended ERP implementation as it contribute to the business informed decision making. SOEs in Zimbabwe needs to monitor the integrity of the data in the extended ERP system, its relationship and correctness by analyzing using tools like Business Intelligence.

*H5: Implementation of Extended ERP positively impact SOEs performance.*

The regression analysis reveals that the  $\beta$  value ( $\beta = 0.690$ ) for Extended ERP implementation was positive and statistically significant ( $p = 0.000 < 0.05$ ) in contributing SOE performance. This supported Hypothesis (H5) of the study.

According to Supramaniam and Kuppusamy, (2011) extended ERP implementation contributes to corporate performance by increasing operational effectiveness through high level integration and timely access to corporate data provided by these systems. The results shows that SOEs in Zimbabwe for them to survive in this volatile, uncertain , complex and ambiguous environment needs to embrace technology by implementing extended ERP systems to improve their corporate performance. Successful implementation of extended ERP systems will improve the business in its financial, managerial, operational and strategic performance.

## **4.6 Test of Independence**

### **4.6.1 Independent Sample Test**

The grouping variable gender was used to identify the means between male and females on the variables under study.

**Table 4. 18 Comparing Means**

<b>Group Statistics</b>					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Business_Vision	Male	121	3.77	.74	.06765
	Female	79	3.96	.54	.06094
Leadership_Skills	Male	121	3.45	.72	.06536
	Female	79	3.45	.61	.06843
Module_Integration	Male	121	3.71	.60	.05484
	Female	79	3.68	.58	.06495
Information_Quality	Male	121	3.65	.66	.05968
	Female	79	3.59	.63	.07094
Extended_ERP	Male	121	3.64	.64	.05774
	Female	79	3.77	.54	.06067
SOE_Performance	Male	121	3.58	.71	.06429
	Female	79	3.71	.66	.07391

*Source: Primary data*

Table 4.18 shows that on business vision the mean values (males= 3.77, females =3.96) were not the same as females and males had different perception on the questions provided for business vision. However the other variables seem to have identical means with a small standard deviation from the mean.

**Table 4. 19 Equality of means t-test**

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Business_Vision	Equal variances assumed	9.701	.002	-2.025	198	.044	-.19674	.09716	-.38834	-.00513
	Equal variances not assumed			-2.161	195.608	.032	-.19674	.09105	-.37631	-.01716
Leadership_Skills	Equal variances assumed	1.675	.197	.025	198	.980	.00242	.09800	-.19082	.19567
	Equal variances not assumed			.026	185.099	.980	.00242	.09463	-.18426	.18911
Module_Integration	Equal variances assumed	.146	.702	.342	198	.733	.02933	.08579	-.13985	.19852
	Equal variances not assumed			.345	172.026	.730	.02933	.08500	-.13845	.19711
Information_Quality	Equal variances assumed	.190	.663	.716	198	.475	.06690	.09349	-.11747	.25127
	Equal variances not assumed			.722	171.599	.471	.06690	.09270	-.11609	.24989
Extended_ERP	Equal variances assumed	1.807	.180	-1.495	198	.136	-.12959	.08668	-.30052	.04134
	Equal variances not assumed			-1.547	184.772	.124	-.12959	.08376	-.29483	.03565
SOE_Performance	Equal variances assumed	1.262	.263	-1.296	198	.197	-.12890	.09949	-.32509	.06730
	Equal variances not assumed			-1.316	175.407	.190	-.12890	.09796	-.32222	.06443

Source: Primary data

The p value on t-test for equality of means shows that business vision means between females and males was different with (p= 0.044<0.05) The other variable had all p value greater than 0.05 indicating that the means responses on the variables under study were the same.

#### 4.6.2 Levene's test

The researcher sought to understand if the variances of the dependent variable of each group were equal in the study. Nordstokke and Zumbo (2010) refer this assumption as the homogeneity of variances when using t tests or analysis of variances to compare group means. The researcher used a sample data with 121 males and 79 female respondents to analyze if the mean score were the same and not affected by gender perceptions.

**Table 4. 20 Levene’s Test**

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Business_Vision	9.701	1	198	.002
Leadership_Skills	1.675	1	198	.197
Module_Integration	.146	1	198	.702
Information_Quality	.190	1	198	.663
Extended_ERP	1.807	1	198	.180
SOE_Performance	1.262	1	198	.263

Source: Primary data

**H0:** There is no significant difference between gender and perception on the variables under study.

*Condition Reject H0 if ( $p < 0.05$ )*

**H1:** There is a significant difference between gender and perception on the variable under study

Based on the results Business vision  $F(1,198) = 9.701$ ; ( $p=0.002 < 0.05$ ) we reject **H0** and conclude that females and males had a different view on the factors presented on business vision. This might have been caused by less involvement of males in business vision awareness programs as compared to females. However, we fail to reject H0 for the other variables leadership skills  $F(1,198) = 1.675$ ; ( $p= 0.197 > 0.05$ ), module integration  $F(1,198) = 0.146$ ; ( $p=0.702 > 0.05$ ), information quality  $F(1,198) = 0.190$ ;  $p=0.663 > 0.05$ , extended ERP implementation  $F(1,198) = 1.807$ ; ( $p=0.180 > 0.05$ ) and SOE performance  $F(1,198) = 1.262$ ; ( $p=0.263 > 0.05$ ) concluding that there is no significant difference between gender on leadership skills, module integration, information quality, extended ERP implementation and SOE performance. Levene’s test is non-significant and equal variances are assumed by the researcher. This implies the difference in the number of female and male participant had no perception impact in the research.

## **4.7 Discussion of Results**

### **In relation to literature**

The study sought to assess the success factors to successful implementation of extended ERP systems and the impact on SOE performance. Literature review in Chapter two discussed four success factors chosen for the study namely business vision, leadership skills, and module integration and information quality.

According to Madzikanda (2015), a business vision is a panoramic view of where the business is going indicating a description of top management aspirations providing foresight of the business where it wants to reach in subsequent times, charts a particular strategic path and moulds the identity of the organization. Business vision from the research confirmed that it contributes 12.4 % to successful implementation of extended ERP systems. Companies need to have a well-defined shared organization vision to benefit from successful implementation of ERP systems. Extended ERP systems should be seen as strategic tools for the business that assist the organization to achieve its goals and objectives. A clear and well defined organizational vision can influence the successful implementation of ERP systems. The business vision must be clear and communicated down to all employees so that it is a rallying point that motivates employees.

Leadership skills is required in organization as people interact in their daily business processes. Stakeholders are expected to have human skills, technical skills and conceptual skills to reduce conflicts in workplaces. This research confirms that leadership skills also contribute 13.6 % to successful implementation of extended ERP systems.

Module integration has been identified as the greatest determinant contributing 31.4 % to successful implementation of extended ERP systems. Literature supports that computerized systems should provide interdepartmental communication as an important feature in improving corporate performance according to (Ram, Corkindale and Wu, 2014).

The quality of information generated in extended ERP system also contribute to successful implementation of ERP systems by 29.5 %. The software can be rejected if it's not producing correct analytic figures for informed decision making.

#### 4.8 Chapter Summary

In this chapter, the researcher analyzed, presented and interpreted the collected data showing methods used. The researcher started by showing the response rate of the instrument to assist in giving credibility of the study. Distribution on demographic data and the impact on extended ERP implementation was explored. The distribution on all variables was negatively skewed and the researcher had to use spearman correlation test as the data qualified for non-parametric tests. Correlation analysis was done to test the relationship strength between variables and regression analysis was done to test the cause-and-effect relationship between business vision, leadership skills, module integration and information quality on extended ERP implementation. Regression analysis was also used to analyze cause effect relationship between extended ERP implementation and SOE performance. The test for independence was done using Mann-Whitney test and Kruskal-Wallis test since it was for the non-parametric test. A hypothesis testing was done and all chosen hypothesis were accepted. After analysis the data, the findings were compared with previous studies results to see if there were any similarities or differences in the results. After formulating the regression equation, the researcher came up with some managerial implications of the results and importance of business vision, leadership skills, module integration and information quality on successful implementation of ERP systems and its impact on SOEs performance. The final regression equation  $0.716 + 0.69EERP = SOEP$  show that if companies make efforts to align their extended ERP systems they can benefit 69 % contribution on improved SOE performance. The next chapter covers the recommendations and contribution of this study and a research gap for future study.

## CHAPTER 5

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

The previous chapter covered data analysis and interpretation. This chapter provides a conclusion to the research, giving recommendations supported by empirical research findings. The researcher formulated new policy and recommendations to board of directors and executives for SOEs on the new strategic ways of improving corporate performance in an over changing business environment. The chapter explains how the research findings can be generalised to SOEs in Zimbabwe. The researcher ends the chapter, with limitations of the current study and areas of further research.

#### 5.2 Achievement of Research Aim and Objectives

The aim of the research was to investigate factors affecting the successful implementation of Extended ERP system and the impact on performance for selected SOEs in Zimbabwe. To achieve research objectives, correlation analysis and regression analysis were done (please refer to tables: 4.12, 4.13, 4.14, 4.15, 4.16 and 4.17).

##### 5.2.1 Objective 1:

To ascertain if a clear and shared organizational vision has an impact on the successful implementation of Extended ERP systems.

The research findings on correlation analysis reviewed that business vision ( $r = 0.448^{**}$ ,  $p = 0.00 < 0.01$ ) is statistically significant with a moderate positive relationship on successful implementation of Extended ERP system. Regression analysis also confirmed that business vision ( $\beta = 0.124$ ,  $p = 0.039 < 0.05$ ) has a positive and statistically significant impact on the implementation of extended ERP. Smeds and Pietilä (2010) explained that business vision steer project direction throughout the extended ERP cycle with goals and objectives assisting in measuring project progress. This concludes that, a clear, understood vision has a significant and positive influence to successful implementation of ERP systems.

### **5.2.2 Objective 2:**

To assess the impact of Leadership Skills on successful implementation of Extended ERP systems.

To achieve the second objective in the study correlation analysis was tested and confirmed that leadership skills ( $r = 0.532^{**}$ ,  $p = 0.000 < 0.01$ ) have a statistically significant strong positive influence on successful implantation of Extended ERP systems. This agreed also with regression analysis that leadership skills ( $\beta=0.136$ ,  $p= 0.041<0.05$ ) has a positive and statistically significant impact on the implementation of extended ERP. Staehr, Shanks and Seddon (2012) emphasised that implementing extended ERP systems requires training and skills on staff to properly manage project implementation. In this regard, the researcher concludes that leadership skills positively influence successful implementation of extended ERP systems.

### **5.2.3 Objective 3:**

To establish the effect of Module Integration on implementation of Extended ERP system.

The research assumed that module integration has a positive influence on successful ERP implementation. Correlation analysis reviewed that module integration ( $r= 0.643^{**}$ ,  $p = 0.000<0.01$ ) is statistically significant with strong positive relationship on successful extended ERP implementation. Regression analysis was also consistent with correlation analysis indicating that module integration ( $\beta=0.314$ ,  $p = 0.000< 0.05$ ) has a positive statistically significant impact on the implementation of extended ERP systems. According to Seethamraju and Sundar (2013) companies needs to migrate from posting data in different legacy systems and have an integrated system that provides the business with a central repository to information. Form the results, it can be concluded that module integration influence positively to successful implementation of extended ERP systems.

### **5.2.4 Objective 4:**

To understand the impact of Information Quality on successful implementation of Extended ERP Implementation.

The fourth objective sought to understand the impact of information quality on successful implementation of extended ERP systems. Correlation analysis findings indicated that information quality ( $r= 0.644^{**}$ ,  $p = 0.000 \leq 0.01$ ) is statistically significant with a strong positive relationship on successful implementation of extended ERP systems. Regression analysis also proved that information quality ( $\beta=0.295$ ,  $p= 0.000 < 0.05$ ) has a positive statistically significant impact on the implementation of extended ERP systems. Zach (2012) agreed that organisation must have access to information that is usable, understandable and relevant for decision making for extended ERP system to be valuable to the business. Therefore, the study agrees that information quality positively influence successful implementation of ERP systems.

### **5.2.5 Objective 5:**

To determine the effect of extended ERP systems implementation on SOEs performance.

The fifth objective sought to determine the effect of successful implementation of extended ERP systems on SOEs performance. The results on independent test using correlation analysis reviewed that successful implementation of extended ERP ( $r= 0.690^{**}$ ,  $p = 0.000 \leq 0.01$ ) is statically significant with a high positive correlation on SOEs performance. Regression analysis also concluded that extended ERP implementation ( $\beta = 0.690$ ,  $p = 0.000 < 0.05$ ) has a statistically significant positive impact on extended SOE performance. HassabElnaby, Hwang and Vonderembse (2012) explain that successful implementation of ERP increases operational efficiency and strategic decision making overallly contributing to the corporate performance. Therefore, this study agrees that successful implementation of extended ERP systems contributes positively to SOEs performance.

### **5.3 Conclusion**

In today's competitive business environment, use of extended ERP system is important to meet the organisation strategic business goals. The research attempts to provide an explanatory and conclusive analysis on the impact of business vision, leadership skills, module integration and information quality to successful implementation of ERP systems in SOEs in Zimbabwe.

The research hypothesis proposed in section 1.6 are presented in table 5.1 to provide a conclusive, informed decision on the study. Correlation analysis on section 4.7.1 and regression analysis on

section 4.7.3 with special reference to tables 4.12, 4.13, 4.14, 4.15, 4.16 and 4.17 assisted the researcher to make the followings decisions on the hypothesis:

**Table 5. 1 Hypothesis testing and decision making**

Hypothesis	Description	Research Findings
H1	There is a positive relationship between a well-understood vision and implementation of Extended ERP systems <i>(<math>\beta=0.124</math>), (<math>p= 0.039&lt;0.05</math>)</i>	Supported.
H2	Leadership Skills positively influence implementation of Extended ERP systems. <i>(<math>\beta=0.136</math>), (<math>p= 0.041&lt;0.05</math>)</i>	Supported
H3	Module Integration affects positively the implementation of Extended ERP systems <i>(<math>\beta=0.314</math>), (<math>p = 0.000&lt; 0.05</math>)</i>	Supported.
H4	The Information Quality positively trigger successful implementation of Extended ERP systems. <i>(<math>\beta=0.295</math>), (<math>p= 0.000&lt; 0.05</math>)</i>	Supported
H5	Implementation of Extended ERP positively impact SOEs performance. <i>(<math>\beta = 0.690</math>) (<math>p = 0.000&lt;0.05</math>)</i>	Supported

*Source: Author's compilation (2019)*

### 5.3.1 Main Hypothesis

**H0:** The main hypothesis of the study was that business vision, leadership skills, module integration and information quality positively influence extended ERP implementation and extended ERP implementation has a positive influence of SOE performance. The results from correlation analysis and regression analysis revealed that business vision, leadership skills, module integration and information quality positively influence successful implementation of extended ERP systems and extended ERP systems implementation positively impact SOE performance. Figure 5.1 below shows the final conceptual framework to the study.

### 5.3.2 Final Conceptual Framework



**Figure 5.1 Final Proven Four Factor Conceptual Framework: Source: Author’s Compilation (2018)**

### 5.4 Answer to Research Questions

Basing on the empirical research findings presented and evaluated, the study answers the research question formulated in section 1.4. The study highlighted the effect of business vision, leadership skills, module integration and information quality on successful implementation of extended ERP systems and its impact on SOE performance. The conclusion to the main and sub questions is that business vision, leadership skills, module integration and information quality has a significant and positive contribution to successful implementation of extended ERP systems and extended ERP systems implementation positively influence SOE performance.

#### 5.4.1 Research Question 1

What is the effect of a shared organizational vision on the successful implementation of Extended ERP systems?

Regression analysis was used to test the relationship between business vision and successful ERP implementation and the result revealed that business vision was positively and significantly affecting extended ERP implementation. Hypothesis H1 which states that there is a positive relationship between a well-understood vision and implementation of extended ERP systems was **accepted**. SOEs needs to invest in business vision in order to increase the chances of successful extended ERP systems implementation.

#### **5.4.2 Research Question 2**

The second specific question was “what is the impact of Leadership Skills on successful implementation of extended ERP systems?” The results revealed that leadership skills positively and significantly affect successful implementation of extended ERP systems. Therefore, Hypothesis H2 of the research which states that “leadership skills positively influence implementation of Extended ERP systems” was **accepted**.

#### **5.4.3 Research Question 3**

Specific question 3 sought to determine how “Does Module Integration have a positive impact on the successful implementation of Extended ERP systems?”. The regression test revealed that module integration has a positive and greatest significant impact on successful implementation of ERP systems. Hypothesis H3 which states that “module integration affects positively the implementation of Extended ERP systems” was **accepted**.

#### **5.4.4 Research Question 4**

The fourth specific question was “can information quality be a factor in the successful implementation of Extended ERP Systems” The research finding using regression analysis revealed that information quality had a positive and high significant impact on successful implementation of ERP systems. The research hypothesis H4 which stated that “information quality positively trigger successful implementation of extended ERP systems” was **accepted**.

#### **5.4.5 Research Question 5**

The specific question 5 was “to what extent does the implementation of Extended ERP positively influence SOEs performance” The results indicated that extended ERP systems has a positive and

statistically significant contribution to SOEs performance. Following these results, hypothesis H5 which states that “implementation of extended ERP positively impact SOEs performance” was **accepted**.

## **5.5 Contribution**

This section focuses on theoretical, methodological, empirical and policy contributions of the study.

### **5.5.1 Theoretical Contribution**

The research has made significant contributions to the existing body of knowledge on the relationship between investing in computerised systems and the anticipated benefits on SOE performance. The study also looks at critical steps SOEs needs to take if they need to successfully implement extended ERP systems. Four dimension (business vision, leadership skills, module integration and information quality )have been selected from previous qualitative studies ((Curko, Stepanic and Varga, 2012); (Shao, Feng and Hu, 2012)) that were believed to contribute to successful implementation of ERP systems. A conclusive, empirical quantitative study is done to ascertain the impact of business vision, leadership skills, and module integration and information quality on the successful implementation of ERP systems. A conceptual framework is designed in section 5.3 which provides the new relationship on the contributing effect of business vision, leadership skills, module integration and information quality to successful implementation of ERP systems and the impact of ERP systems to SOE performance

### **5.5.2 Methodological Contribution**

This study provides contributions on intrinsic benefits SOEs can achieve on successful implementation of extended ERP systems. The study however, acknowledge four (4) dimensions business vision, leadership skills, module integration and information quality as important success factors to extended ERP implementation. A sample survey was used in data collection to target all extended ERP system users in different levels (non-managerial, junior management, middle management and senior management) in SOEs to assess on the relationship between independent and dependent variables. This quantitative analysis has not been used before in measuring the impact on the success factors to extended ERPs in SOEs in Zimbabwe.

### **5.5.3 Empirical Contribution**

The research instrument used had a Cronbach alpha of 0.953 which implied that the questionnaire was measuring what it was supposed to measure. The study credibility for its determinant variables was also measured, giving a Cronbach alpha all above 0.7. Future researcher can adopt this instrument so that they can use it to a different group of ERP users like managers building on the existing body of knowledge. Empirical studies on the effect of business vision, leadership skills, module integration and information quality on successful implementation of extended ERP systems are not there for SOEs in Zimbabwe. This study is the first one of its kind to also compute the contributing effect of successful ERP implementation on SOEs performance. This study proved that SOEs needs to invest much on module integration and information quality as they carry the greatest impact to successful extended ERP implementation. This will assist the business to make decisions from accurate, relevant and reliable information for strategic decision making. Concisely, the study has proven that for SOEs to improve on performance they have to successfully implement extended ERP systems with integration capacity to provide direct communication between the business and its customers and suppliers.

### **5.6 Policy Recommendations**

After a deep analysis and evaluation of the research findings, the researcher recommends the following to policy makers:

- The Office of the President and Cabinet (OPC) needs to provide an overall oversight on the performance of all SOEs in Zimbabwe as they belong to different ministries. The OPC must have different departments within its structure that can supervise performance for each SOE in Zimbabwe. From the respondents almost 50 % confirmed that the extended ERP systems are integrated with other legacy systems. 60 % of the respondents confirmed that these systems are customizable to meet the business needs. With 70 % of the respondents ratifying that the systems supports data integration, the OPC must initiate system integration programs that will improve the overall performance of different SOEs in Zimbabwe.
- External Auditors involvement in certifying a new configured system is important as these extended ERP implementation project are high capital intensive in SOEs. The quality of

the customised system require checks from an independent opinion based on the inputs provided in the business blueprint document. This will assist going live with a system that has been configured in line to the business requirements. Test scenarios must adhere to the items formulated in business blueprint document to confirm that all scenario configured are done according to the business needs. Hurried decisions when implementing a new system without due diligence of the context around the system can affect acceptance of the solution by business in future resulting in total project failure. Hence check and balances should be supported also by external auditors.

- Project Methodology chosen by SOEs is an important approach that should be followed to guarantee project implementation success. Adherence to correct software implementation methodology is of paramount importance. Project teams needs to be trained in the methodology being used like Agile methodology, Accelerated SAP (ASAP) Methodology and Prince 2 methodology. Proper system documentation must be done with enforcement to follow the proper methodology done by internal auditors, external auditors and the OPC ICT team. Project team members should attend training every year so that they are continuous acquainted with the required skills to champion project implementation success.
- SOEs Awareness Workshops must be conducted at least twice a year giving full information on the vision of the organisation and the business reason for existence. 80 % of the respondent agreed that the business vision supports the reason of existence of the organisation but only 60 % confirmed that vision was consistent across different levels of the organisation resulting in only 70 % of the respondent agreeing on the contribution of vision in achieving the organizational goals. Awareness can be done through workshops, meetings and also investing in advertisement through newspaper, television, radio and social media platform. This will build a new culture of excellence among employees.
- Supporting legislation to facilitate sharing of information among SOEs. An integrated solution is required for SOEs in Zimbabwe. The sense of involvement of all stakeholders in legislation or policy formulation is important so that we have input from all the stakeholders in SOEs. SOE share information to do with tax remittances, master data on tax payers and an integrated solution under one common platform in Zimbabwe is crucial

to facilitate the sharing of information. Legislation needs to be in place among SOEs to facilitate designing system that support information sharing.

- Vendor Selection has been a major challenge as SOEs are dependent on a single local vendor to manage their ERP systems. 55% of the respondents confirmed that the system contains accurate data with only 50% confirming that the systems are integrated with other legacy systems. There is a chance of a skill gap that can impact on system customisation and configuration reducing the chance of extended ERP implementation by the business. Vendor selection must be done based on success history of the supplier from previous implementation and must not be country bound with SOEs having the ability to choose consultancy services from other countries regionally and globally.

## **5.7 Managerial Recommendations**

Extended ERP implementations are high risk and capital intensive projects. The following findings when identified that if due attention in SOEs could enable improved corporate performance in the provision of good and services to the general population of Zimbabweans. The following managerial recommendations are preferred:

### **5.7.1 Employees Training and Development**

Failure to properly use extended ERP systems has been a major concern as system users have not received the relevant training to equip them to use all the functions provided by this systems. 50 % of the responded confirmed that leadership had the required technical skills in championing projects success but only 55 % agreed that the leadership continuously attended training to equip themselves. No user should transact in extended ERP application without first going for a training for the relevant module. 45 % of the respondent also confirmed that leaders communicates well. Continuous training yearly of employees in courses that involve the ability to communicate, manage and inspire subordinates like people management, project management skills can improve the way employees interact during and after project implementation. SOEs should invest in training employees on the vision of the organisation so that it runs as the life blood of the organisation. This will help to build a positive culture in using extended ERP systems.

### **5.7.2 Staff Retention**

The human resource is a critical skill to the success of SOEs. From the random survey, 10 % of the respondents had less than 1 year of working in SOEs. The issue of staff retention has been overlooked as other SOEs are experiencing a high level of brain drain on critical skills (technocrats) in the organisation. The issue of trust among leaders in SOEs have resulted in most dismals due to suspicion on fraudulent activities and corruption. Replacing a skill requires time for the new person to be efficient as the resigned or fired employee. SOEs should maintain the skills so that there is continuity in the management of extended ERP systems and project implementation.

### **5.7.3 Systems Integration**

The extended ERP systems landscape must provide a central repository to access SOE performance information. A well-integrated solution with other legacy systems is important for the day to day running of the business. SOEs should remove all manual processes and automate dependent process to provide access to real time, reliable information in the organisation which is important for informed strategic decision making. The extend ERP system landscape must also provide integration with customers and suppliers through web based portal and mobile application so that there is total communication between business and all its stakeholders.

### **5.7.4 Data Analytics**

Raw data is not important to the business unless necessary meaning can be drawn for informed decision making. The power of data analytics is centred on the quality of information generated from extended ERP application. SOEs needs to invest in information quality so that relevant, reliable information can be processed through data analytics. All connected application must enforce data validation to restrict erroneous postings in the systems. As SOEs do their core mandate in providing goods and services, needs to better use their data resources and provide real time access to information.

### **5.7.5 Extended ERP systems as a strategic tool**

The extended ERP system should be seen as a strategic tool to the business and assist in helping the business to achieve its mission. The study also show that companies that successfully

implement their extended ERP systems benefit 69 % from increased SOE performance. Proposed system changes must involve all the stakeholders as a small change in extended ERP can trigger malfunctions in other modules overall leading to denial of the system by business.

#### **5.7.6 Business Process optimization and agility**

Extended ERP systems configuration might fail to address the business needs. However over customisation of extended ERP systems can lead to incompatibility and repetition of configuration work during system upgrades. SOEs needs to know that development of extended ERP systems involves a lot of consultancy in formulating the business processes by leading organisations and functionality provided would have undergone vigorous testing and analysis. Module integration can be affected by over customisation of the system and SOEs needs to manage their business process, legislation and policy with system standard functionality and reduce over customisation of extended ERP systems.

#### **5.7.7 System upgrades to the latest extended ERP version**

Developers for extended ERP systems are continuous building new enhancements to address changing business needs. SOEs needs to make sure they update their extended ERP systems to the latest updates with the support of the vendor. This assist also in seamless module integration for easy inter departmental communication with the organisation. SOEs can also integrate their on premise application with cloud based solution in a drive to move with changing technology.

### **5.8 Generalization of Findings**

The study findings were limited to only SOEs in Zimbabwe that had implemented extended ERP systems. Most SOEs companies in Zimbabwe have not advanced their system to run with the latest version on ERP systems. This poses a limitation on generalizability of the research as a few SOEs have implemented extended ERP systems in Zimbabwe. However the results findings can be used as a reference guide by those SOEs that needs to upgrade their ERP systems to extended ERP systems.

## **5.9 Limitations of the Research**

The researcher managed to collect data from 200 respondents out of the 250 questionnaire submitted to SOEs due to time constraints which was relevant for the study as a bigger sample would assisted in calculating the quantum contribution of each variable to successful implementation of extended ERP systems.

Almost 80 % of the target managers responded to the research instrument with others not willing to respond for different reasons like not having time to complete the questionnaire and fear of revealing confidential information of the company. However the other managers would refer us to their subordinates who were the actual users of the extended ERP systems in everyday business transactions. This contributed to areas for future research like considering other dimensions (communication, change management and vendor selection) as deterministic factors to be considered in future research. The issue of access to SOE is major concern as companies don't want to disclose information. However to enable sharing of information the researcher promised to share the research findings so that SOEs can use the information to improve their business performance. The OPC should act as a supervisory body to manage performance of SOEs and also assist in seeking for compliance in future research.

The researcher thirst to provide an explanatory effect by choosing a quantitative research methods limited room for respondent to give their views and opinions resulting in limited information collected in the study. A mixed method with qualitative and quantitative in future will be ideal. The research was also limited to SOEs in Zimbabwe that had implemented extended ERP systems and it pose challenges in generalising the study as only three companies in revenue authority, agro industrial and power utility had implemented.

## **5.10 Areas of Further Research**

Throughout the research a lot of key issues were identified that pose a gap for future researchers to build on the current study

- The provided research questions also generated new determinant variables (communication, change management and vendor selection) that might need deep analysis in the future. This variables had weak score which pose a concern to the researcher as theory support that this variable impact successful implementation of extended ERP systems. Combing this factors in future studies will improve successful decision making

by SOEs who needs to implement extended ERP systems. It's not clear how vendor selection, communication effectiveness in the organisation and change readiness affect successful implementation of extended ERP.

- The study looked at leadership skills contributing only 13.6 % to successful implementation of ERP systems. Future researcher can do a similar study focusing extended ERP users in leadership position (managers, executives and directors) to ascertain the quantum contribution of leadership skills to successful implementation of extended ERP systems.
- The OPC can also request participation of managers in SOEs using the same instrument with their supervision to enable enforcement of compliance at company in answering the instrument. This will enable acceptance of the research from top leadership in SOEs.
- The conceptual framework can be enhanced in future studies to include other dependent variables but building on the new model confirmed from in this research.

### **5.11 Chapter Summary**

This chapter provided a conclusion of the study. The conclusion focused on business vision, leadership skills, module integration and information quality and its impact on extended ERP implementation. The respondent indicated that business vision, leadership skills, module integration and information quality contribute positively and significantly to successful implementation of ERP systems and SOEs that implement ERP systems benefits positively on corporate performance. Therefore, the recommendation crafted in this study are strategic initiatives SOEs can adopt to survive in this dynamic business environment as they move towards establishing a sustainable competitive advantage.

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## APPENDIX A: RESEARCH INSTRUMENT

This questionnaire is designed for the purpose of information gathering on the impact of business vision, leadership skills, module integration and information quality to successful adoption of Extended Enterprise Resource Planning (ERP) systems and its effect on State Owned Enterprises (SOEs) performance.

<b>Section A : Demographic Information (DI)</b>				
<b>General information about the respondent and organisation</b>				
<i>Please tick or mark with an X in the appropriate box to indicate the most suitable response.</i>				
DI1. Organisation: _____				
DI2. Department: <input type="checkbox"/> ICT				
<input type="checkbox"/> Sales and Marketing				
<input type="checkbox"/> Finance				
<input type="checkbox"/> Procurement				
<input type="checkbox"/> Other            Specify _____				
DI3. Please Indicate your gender				
Male <input type="checkbox"/>		Female <input type="checkbox"/>		
DI4. Indicate your age range				
Less than 25 years	25 – 30 years	31 – 40 years	41– 50 years	Above 50 years
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DI5. What is the highest level of education you have completed?				
<input type="checkbox"/> Certificate				
<input type="checkbox"/> Diploma				
<input type="checkbox"/> Higher National Diploma				
<input type="checkbox"/> General Degree				
<input type="checkbox"/> Honours Degree				
<input type="checkbox"/> Master’s Degree				
<input type="checkbox"/> Doctorate Degree				
DI6. How long have you been working at a State Owned Enterprise?				

Less than 1 year	1 - 3 years	4 – 10 years	11– 15 years	More than 15 years

DI7. What is your current position in the organisation?

Non Managerial	Junior Management	Middle Management	Senior Management

***For the questions to follow, may you rank your opinion on a Likert scale of 1-5 as guided below:***

<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

<b>Section B: Business Vision (BV)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
BV1. The business vision is consistent across different levels of the organisation.					
BV2. The business vision is known by all members on how the organisation should operate. (Weber <i>et al.</i> , 2014)					
BV3. The business vision helps in achieving organisation goals. (Weber <i>et al.</i> , 2014)					
BV4. The organisation view the ERP system as a strategic tool. (Weber <i>et al.</i> , 2014)					
BV5. The business vision supports our reason of existence as an organisation.					
<b>Section C: Leadership Skills (LS)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
LS1. Our Leadership has all the required technical skills to champion project implementation. (Weber <i>et al.</i> , 2014)					
LS2. Our Leadership continuously goes for training.					
LS3. Our Leadership are experienced in the areas of their specialty.					

LS4. Our Leadership are creative and understand complex business processes. (Ifineldo, 2008)					
LS5. Our Leadership supports the adoption and use of Extended ERP systems.					
LS6. Our Leadership has the required human skills. (Ifineldo, 2008)					
LS7. Our Leadership are capable of motivating project teams in implementing projects.					
LS8. Our Leadership communicates well. (Ifineldo, 2008)					
<b>Section D: Module Integration (MI)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
MI1. Our Extended ERP system modules support data integration.					
MI2. Our Extended ERP system modules contains accurate data.					
MI3. Our Extended ERP system modules support integration with other legacy systems.					
MI4. Our Extended ERP system modules are customizable to meet the business needs. (Wachanga, 2009)					
MI5. Our Extended ERP system modules have good features.					
MI6. Our Extended ERP system modules support inter-departmental coordination. (Wachanga, 2009)					
MI7. Our Extended ERP system modules are easy to learn.					
MI8. Our Extended ERP system modules are adaptable to modern technology.					
<b>Section E: Information Quality (IQ)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
IQ1. Our ERP system has up to date information.					
IQ2. Our ERP system has understandable information.					
IQ3. Our ERP system has timely information.					
IQ4. Our ERP system is easy to access information.					

IQ5. Our ERP system has data manipulation procedures making it easy to generate information. (Weber <i>et al.</i> , 2014)					
IQ6. Our ERP system has relevant information. (Weber <i>et al.</i> , 2014)					
IQ7. Our ERP system has usable information.					
IQ8. Our ERP system has reliable information. (Wachanga, 2009)					
<b>Section F: Extended ERP Systems (EERP)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
EERP1. Extended ERP system has effectively assisted in better use of data resources. (Wachanga, 2009)					
EERP2. Extended ERP system has successfully assisted in organisational wide communication.					
EERP3. Extended ERP system has integrated with other external systems.					
EERP4. Extended ERP system has managed to have a consistent look and feel across modules.					
EERP5. Extended ERP system has a common database that supports all the installed modules.					
EERP6. Extended ERP system provides information real time.					
EERP7. Extended ERP system supports e-business/e-commerce. (Wachanga, 2009)					
EERP8. Extended ERP system has facilitated a smooth supply chain in the organisation.					

<b>Section G: Corporate Performance (CP)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
CP1. Our company has improved its strategic decision-making through Extended ERP Adoption.					
CP2. Our company has gained sustainable competitive advantage.					
CP3. Our company financial performance have significantly improved.					
CP4. Our company operational efficiency has improved.					
CP5. Our Company resource management has improved.					
CP6. Our Company has managed to build external linkages.					
CP7. Our Company has experienced business growth.					
CP8. Our Company have improved in Customer Service.					

**Thank you**

## APPENDIX B: CRONBACH'S ALPHA IF ITEM DELETED

**Item-Total Statistics**

Research Questions	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
The business vision is consistent across different levels of the organisation	160.66500	493.832	.411	.	.952
The business vision is known by all members on how the organisation should operate	160.73500	493.593	.436	.	.952
The business vision helps in achieving organisation goals.	160.13500	496.298	.470	.	.952
The organisation view the ERP system as a strategic tool	160.32000	495.797	.452	.	.952
The business vision supports our reason of existence as an organisation	160.15500	496.725	.475	.	.952
Our Leadership has all the required technical skills to champion project implementation.	160.90500	495.976	.411	.	.952
Our Leadership continuously goes for training	160.50000	501.236	.300	.	.953
Our Leadership are experienced in the areas of their specialty	160.72000	495.941	.465	.	.952
Our Leadership are creative and understand complex business processes	160.91000	491.208	.606	.	.951
Our Leadership supports the adoption and use of Extended ERP systems	160.53000	494.100	.519	.	.952
Our Leadership has the required human skills	160.69000	491.270	.577	.	.951
Our Leadership are capable of motivating project teams in implementing projects	160.88000	489.312	.580	.	.951
Our Leadership communicates well	161.03500	490.938	.504	.	.952
Our Extended ERP system modules support data integration	160.45000	495.606	.510	.	.952
Our Extended ERP system modules contains accurate data	160.78500	491.506	.587	.	.951
Our Extended ERP system modules support integration with other legacy systems	160.67000	492.956	.554	.	.951
Our Extended ERP system modules are customizable to meet the business needs	160.48500	494.894	.522	.	.952
Our Extended ERP system modules have good features.	160.45000	494.209	.578	.	.951

Our Extended ERP system modules support inter-departmental coordination	160.48000	491.608	.596	.	.951
Our Extended ERP system modules are easy to learn	160.58000	495.632	.447	.	.952
Our Extended ERP system modules are adaptable to modern technology	160.47500	492.653	.565	.	.951
Our ERP system has up to date information	160.89000	487.345	.615	.	.951
Our ERP system has understandable information	160.56500	492.337	.586	.	.951
Our ERP system has timely information	160.69000	487.491	.646	.	.951
Our ERP system is easy to access information	160.52500	495.919	.482	.	.952
Our ERP system has data manipulation procedures making it easy to generate information	160.71500	495.672	.462	.	.952
Our ERP system has relevant information	160.50000	489.387	.706	.	.951
Our ERP system has usable information	160.45000	491.284	.654	.	.951
Our ERP system has reliable information.	160.60500	489.064	.621	.	.951
Extended ERP system has effectively assisted in better use of data resources	160.50000	491.457	.668	.	.951
Extended ERP system has successfully assisted in organisational wide communication	160.50000	495.005	.542	.	.951
Extended ERP system has integrated with other external systems	160.66000	496.276	.428	.	.952
Extended ERP system has managed to have a consistent look and feel across modules	160.59500	494.554	.571	.	.951
Extended ERP system has a common database that supports all the installed modules	160.57500	495.914	.458	.	.952
Extended ERP system provides information real time	160.50000	490.201	.600	.	.951
Extended ERP system supports e-business/e-commerce	160.48000	489.326	.618	.	.951
Extended ERP system has facilitated a smooth supply chain in the organisation	160.60000	487.307	.662	.	.951
Our company has improved its strategic decision making through Extended ERP Implementation	160.58500	483.782	.702	.	.950
Our company has gained sustainable competitive advantage	160.61500	489.806	.582	.	.951
Our company financial performance have significantly improved	160.47500	495.688	.469	.	.952
Our company operational efficiency has improved	160.63000	489.420	.605	.	.951
Our Company resource management has improved	160.62000	485.513	.701	.	.950
Our Company has managed to build external linkages	160.71500	492.285	.532	.	.951
Our Company has experienced business growth	160.61000	495.314	.499	.	.952
Our Company have improved in Customer Service	160.62500	490.035	.561	.	.951

## APPENDIX C: GSM APPROVAL LETTER



**GRADUATE SCHOOL OF MANAGEMENT**  
**UNIVERSITY OF ZIMBABWE**

6 Langham Road  
Mt Pleasant  
Harare, Zimbabwe  
Email: [info.uzgsm@gmail.com](mailto:info.uzgsm@gmail.com)

Tel: 263-242- 745316/18

07 January 2019

**TO WHOM IT MAY CONCERN**

**RE: ACADEMIC RESEARCH LETTER FOR MR PHILLIP CHINGWARO (R061634Y)**

This letter serves to confirm that Mr Chingwaro is a bona fide Master of Business Administration (MBA) student at the Graduate School of Management, University of Zimbabwe. He is carrying out a research in partial fulfillment of the requirements of the MBA degree programme.

We kindly request you to provide him with the information he needs to complete his research. Please note that only aggregated data will be used in the final analysis. Please also note that the Graduate School of Management upholds high levels of confidentiality and ethical standards in conducting research, and therefore the information that you provide will be used for academic purposes only and will not be disclosed to third parties.

Thank you.

A handwritten signature in black ink, appearing to be 'C. Tsikirayi', written over a horizontal line.



**MRS C. TSIKIRAYI**  
**ACTING DIRECTOR, GRADUATE SCHOOL OF MANAGEMENT**

/fg

## APPENDIX D: ZESA APPROVAL LETTER



# ZESA HOLDINGS (PRIVATE) LIMITED

HEAD OFFICE  
ELECTRICITY CENTRE  
25 SAMORA MACHEL AVENUE  
P. O. BOX 377  
HARARE, ZIMBABWE  
TELEPHONE: 263-4-774491-9 / 774508-35 / 773300-40  
FAX: 263-4-774542 / 774543

OUR REF: ..... S.Dube

YOUR REF: .....  
WHEN CALLING WITH REFERENCE  
TO THIS LETTER PLEASE ASK FOR:-  
.....

18 December 2018

Mr P. Chingwaro  
Zimbabwe Revenue Authority  
2<sup>nd</sup> Floor Kurima House  
**HARARE**

Dear Sir,

### **REQUEST FOR PERMISSION TO CARRY OUT A RESEARCH PROJECT**

We acknowledge receipt of your letter dated 1<sup>st</sup> December 2018 in which you are seeking to carry out a research topic entitled: "**A detailed Analysis on the Factors Affecting Successful Adoption of Extended ERP systems and its impact on SOEs performance in Zimbabwe.**" A case of ZESA Holdings (Pvt) Limited, ZIMRA, NSSA and ZIMDEF"

I am pleased to advise that permission is hereby granted.

Please note that any information obtained should not be disclosed to any unauthorised person(s) and should be used strictly for academic purposes. You are also required to share the research findings with us.

Yours faithfully,

**R. PASIPANODYA**  
**HEAD: CORPORATE SERVICES**

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Directors: Dr. H.M. Murerwa (Chairman), Eng. B. Rafemoyo (Deputy Chairman), Ambassador E.L. Kawonza, Mr S.J. Chihambakwe, Mrs H.C. Masuta, Eng. F. Mavhiya, Eng. G. Mhonde, Ms N.P. Mandeya, Eng. S.N. Kazhanje, Eng. E. Muchayi, Mrs T. Makovah, Eng. J.M. Chifamba \*(Group Chief Executive Officer)  
*\*Executive*

## APPENDIX E: ZIMRA APPROVAL LETTER



### ZIMBABWE REVENUE AUTHORITY COMMISSIONER GENERAL

Write To:  
The Commissioner General  
Zimbabwe Revenue Authority  
P O Box 4360  
Harare

Telephone:  
+263-4-790811  
Fax:  
+263-4-773161  
Telegraphs:  
Harare

Call At:  
Reception  
6<sup>th</sup> Floor ZB Centre  
Kwame Nkrumah Ave /  
First Street  
Harare

In Reply Please Quote:  
Ref: Research/11/2018

14 November 2018

Mr. Phillip Chingwaro  
The Graduate School of Management  
Number 6 Langham Road  
University of Zimbabwe  
Mt Pleasant  
Harare

Dear Mr. Chingwaro,

#### **RE: APPLICATION FOR AUTHORITY TO CONDUCT ACADEMIC RESEARCH**

**Topic:** *An analysis of the Factors Affecting Successful Adoption of Extended ERP systems and its impact on SOEs performance in Zimbabwe.*

The above matter refers.

Please be advised that your application for authority to carry out the above research has been approved. However, we may be unable to release some of the information to you because of its confidential nature. **Upon completion of the research, you are required to submit to this office a bound copy of the research.**

We wish you success in your studies.

Yours sincerely,

**S. SITHOLE**  
**HEAD, HUMAN CAPITAL ADMINISTRATION**