

The value of Enterprise Resource Planning (ERP) Systems in Companies: Case study of Lesotho

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Abstract

While modern organisations are pressurised to invest in the latest Information Technology (IT) to keep abreast with the competitive global market, today's operational processes and supply chains also require systems that are capable of handling complex business functions. As a result, companies are investing in complex Information Systems (IS) such as Enterprise Resource Planning systems (ERPs) to cope with the dynamic business environment. Despite the continued popularity of ERPs, the literature has shown that ERP failure is a major challenge facing organisations. Findings concerning the benefits that organisations accrue from the implementation of ERPs are mixed.

Nevertheless, companies invest a considerable amount of money into these systems, expecting a return on investment. The purpose of this research was to explain how ERP systems provide value to companies. An online survey strategy was used for collecting data from companies in Lesotho. The empirical results of this study confirmed a strong association between the use of ERP and ERP value, and the improvement of business processes and ERP value. This finding also emphasised the importance of organisational culture and training. The significance of this research lay in description of Lesotho context.

Acronym Definition

ACCPAC A	Complete and Comprehensive Program for Accounting Control
CSF	Critical Success Factors
CVF	Competing Values Framework
ERP	Enterprise Resource Planning
GDP	Gross Domestic Product
ICT	Information Communication Technology
IS	Information Systems
IT	Information Technology
SEM	Structural Equation Modelling
SMEs	Small and Medium Enterprises
TAM	Technology Acceptance Model
TOE	Technology, Organisation and Environment
UCT	University of Cape Town

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1. Introduction

While modern organisations are pressurised to invest in the latest Information Technology (IT) to keep abreast with the competitive global market (Sedera et al., 2016), today's operational processes and supply chains also require systems that are capable of handling complex business functions (Ali & Miller, 2017; Bitsini, 2015). As a result, companies are investing in complex Information Systems (IS) such as Enterprise Resource Planning systems (ERPs) to cope with the dynamic business environment. ERPs are systems that can integrate core business processes into unified functions, thereby improving performance and enhancing competitive advantage within an organisation (Mutongwa & Rabah, 2013). These systems can also centralise data, thereby reducing its redundancy and duplication (Ali & Miller, 2017). Due to their vast opportunities, ERPs have rapidly spread across organisations worldwide, especially in large organisations (Panorama Consulting Solutions, 2019). For example, in 2018, ERPs had occupied a market share of \$35 billion globally with an annual growth of 10 per cent (Wilson, 2019) and is projected to reach \$61.69 Billion by 2025 (Bhatt, Guru, Thanki, & Sood, 2021).

Despite the continued popularity of ERPs, the literature has shown that ERP failure is a major challenge facing organisations (Ravasan & Mansouri, 2014). Wong et al. (2005, p.3) defines ERP failure as "an implementation that does not achieve a sufficient Return On Investment (ROI) identified in the project approval phase". While the failure rate of ERPs has been reported globally, a low successful implementation rate of ERPs in developing countries is concerning (Bailey et al., 2015; Le & Han, 2016; Jansen van Vuuren & Seymour, 2013). Many businesses that invested in ERPs have become bankrupt or have been forced to close (Ravasan & Mansouri, 2014). Because of their complex nature, ERP benefits remain difficult and unpredictable to achieve (Bitsini, 2015; Staehr, Shanks, & Seddon, 2012). Findings concerning the benefits that organisations obtain from the implementation of ERPs are mixed (Ruivo, Johansson, Sarker, & Oliveira, 2020). On the one hand, some studies claim that ERPs provide considerable benefits (Nwankpa, 2015; Xu, Ou, & Fan, 2017). For example, the findings of Wieder et al. (2006) have revealed that ERPs provide both financial and operational benefits. Similarly, the study of Seddon et al. (2010) has come up with a comprehensive list of organisational

ERP benefits. In the same way, Shang and Seddon (2000) have classified ERP benefits into five categories: operational, managerial, strategic, IT infrastructure, and organisational. On the other hand, some organisations are still struggling to get value from ERPs (Akeel & Wynn, 2015; Serhan & Hajj, 2019; Gupta et al., 2004). Compared to developed countries, developing countries still have very low success rate of ERP implementation (Le & Han, 2016; Muyambi, 2019). In the Volkswagen case, ERPs have been found to have negatively impacted on business performance (Gupta et al., 2004). The adoption of ERPs has led to significant delays in the shipment of parts (Gupta et al., 2004).

Despite a high failure rate reported by researchers, the adoption of ERP is continuously increasing in developed countries as well as in developing countries, (Asamoah & Andoh-Baidoo., 2018). This increase, particularly in developing countries, is due to improved economic growth in these nations and ERP market saturation in developed countries (Asamoah & Andoh-Baidoo, 2018). The COVID-19 pandemic has also accelerated digital transformation in these nations (Soto-Acosta, 2020). However, previous studies have reported a low successful implementation rate of ERP in developing countries (Bailey et al., 2015; Jansen van Vuuren and Seymour, 2013). While there is a low success rate of ERP implementation, a lack of ERP studies has also been reported in developing countries (Tobie, Etoundi, & Zoa, 2016).

While ERPs embedded best practices, African countries have their way of doing business (Bailey et al., 2015). Furthermore, developing countries are faced with extra challenges in implementing ERPs over and above challenges experienced by developed countries such as inadequate IT infrastructure, a particular culture, and economic condition (Tobie et al., 2016). Given these challenges, implementing ERP in African context setting increases risk of failure (Bailey et al., 2015). Unlike developed countries with various ERP studies, African regions remain understudied (Tobie et al., 2016). Most of the studies undertaken are based on the South African context, a middle-income country, leaving low income countries like Lesotho understudied (Maphephe, Balkaran & Thakur, 2014; Tobie et al., 2016). This gives the opportunity to investigate the value of ERP in Lesotho organisations.

Lesotho companies were forced to adopt ERPs by global competition (Rantšo, 2016). In Lesotho, ERPs are mostly adopted by large entities like Electricity Company, Water and Sewerage Company and others because of high implementation costs (Kabanda, Pitso & Kapepo, 2019; Mapeshoane & Pather, 2016). Lesotho is a low-income, small landlocked, mountainous country with a low gross domestic product (GDP) per capita (The World Bank, 2020). The country's economy is dependent on the agriculture sector, manufacturing sector, mining sector (The World Bank, 2020). Lesotho has a poor ICT infrastructure, particularly in rural areas (The World Bank, 2020). According to The World Bank report (2020), Lesotho fixed broadband penetration is one of the lowest in Southern Africa, with 0.2 percent. These challenges increase a risk of ERP implementation failure.

1.1 Problem Statement

While companies are spending huge sum of money on ERP investment, benefits from the system are not always as expected. According to previous studies, ERP outcomes vary depending on the context in which ERP is implemented (Staehr et al., 2012). Unlike developed countries, African countries have limited studies regarding ERP implementation (Bailey et al., 2015). There is no empirical evidence of factors and processes driving ERP value in Lesotho. Therefore it is critical to understand the value of ERP in organisations of Lesotho.

1.2 Aim and Objectives

The aim of this study was to explain how ERP systems provide value to companies.

1.3 Research question

The following research question emerged, considering the identified problems:

- How do ERP systems provide value to companies?

1.4 The structure of the study

This study was structured as follows. Chapter 1 provided the context and the problem statement leading to research questions. Chapter 2 discussed relevant existing literature and the identified gap in the literature leading to the conceptual model and hypothesis. In chapter 3, the methodology and procedures are explained. In chapter 4, the presentation of findings was outlined, and then analyses of results followed. The last chapter summarises the research study and provides the implication of the study as well as recommendations.

2 Literature Review

This chapter overviews related research work, conceptual models, and frameworks that support the research. This overview allowed for the identification of research gaps. The literature is structured as follows: the definition section, the value of ERP system literature and knowledge gap, conceptual model development, and the literature summary section.

2.1 ERP system

If traced as far back as 1990, it is evident that ERP systems were for manufacturing company needs (Wilson, Desmond, & Roberts, 1994). During the 1990s and beyond, ERP systems have spread to other sectors, including service, private, and public (Mushavhanamadi & Mbohwa, 2013). Shang and Seddon, (2000, p. 2005) defined ERP as “integrated, enterprise-wide, packaged software applications that impound deep knowledge of business practices accumulated from vendor implementations in many organisations”.

2.2 ERP value

Even though the value of ERPs is defined in several ways, the definition by Uwiseyemungu and Raymond (2012) was accepted as a working definition in this study. Uwiseyemungu and Raymond (2012, p. 69) define ERP value as “the value added by automation, informational and transformational effects of ERP capabilities upon the firm’s operational and managerial processes”.

The business value of ERP has been conceptualised into two parts: potential value and realised value (Dewan & Min, 1997). The potential value refers to the maximum ERP value or benefits provided by a successfully implemented system (Uwiseyemungu & Raymond, 2012). Realised values represent actual benefits provided by the system (Uwiseyemungu & Raymond, 2012). Transforming potential benefits into realised benefits is a process that is affected by distinct factors. The literature on ERP value has three categories. Firstly, studies focusing on conditions surrounding ERP system success (Lofty & Halawi, 2015; Rajan & Baral, 2015; Ruivo et al., 2016). Secondly, studies focusing on the benefits and classification of ERP benefits (Shang & Seddon, 2000; Staehr et al., 2012). Thirdly, studies focusing on the processes involved in achieving benefits from ERPs (Staehr et al., 2012; Uwiseyemungu & Raymond, 2012).

2.3 ERP benefits

Organizations invest in ERPs to obtain desired benefits for improved business processes. These benefits may come in tangible and intangible forms (Xu et al., 2017). According to Xu et al. (2017), intangible benefits are more visible than tangible benefits. However, these anticipated benefits are not always achievable due to various factors surrounding ERP implementation (Hietala, 2020). Depending on the implementing firms, ERP benefits are variable across industries (Staeher et al., 2012). While previous studies developed different frameworks to understand how to achieve benefits from ERPs, Shang and Seddon (2000) framework became a widely used framework for explaining ERP benefits (Staeher et al., 2012). As shown in Table 1, Shang and Seddon (2000) have classified these benefits into five categories; operational, managerial, strategic, IT infrastructure, and organisational (Shang & Seddon 2000). Staeher et al. (2012) used the framework to develop a model for explaining how and why benefits are achieved from the ERP system.

Dimensions	Sub-dimensions
1.Operational	<ul style="list-style-type: none"> • Cost reduction • Cycle time reduction, • Productivity improvement, • Quality improvement, • Customer services improvement
2.Managerial	<ul style="list-style-type: none"> • Better resource management • Improved decision-making and planning • Performance improvement
3.Strategic	<ul style="list-style-type: none"> • Support business growth • Support business alliance • Build business innovations • Building cost leadership generate product differentiation (including customisation) • Build external linkages (customers and suppliers)
4.IT Infrastructure	<ul style="list-style-type: none"> • Build business flexibility for current and future changes • IT costs reduction • Increased IT
5.Organisational	<ul style="list-style-type: none"> • Support organisational changes • Facilitate Business learning • Empowerment • Built common visions

Table 1: Shang and Seddon (2000) ERP Benefits Framework

2.4 Critical Success Factors

As a result of increasing ERP implementation failures and varying ERP benefits, Critical Success Factors (CSFs) became a famous topic, which resulted in many studies (Ram,

Corkindale & Wu, 2013). Various researchers identified different factors influencing ERP success. These factors were meant to assist managers in planning and executing ERP systems successfully (Kamdjou, Bawack & Tayou, 2020). Some CSFs classifications were along the lifecycle of ERP implementation (Anaya, 2013), whereas some CSFs classifications were based on the specific ERP implementation phase (Staehr et al., 2012). Some scholars focused on Small and Medium Enterprises (SMEs) (Chatzoglou, Fragidis, Chatzoudes, & Symeonidis, 2016; Hasheela-Mufeti & Smolander, 2017; Moeuf et al., 2020) while others focused on large entities (Ram et al., 2013; Saade & Nijher, 2016; Xu et al., 2017). Others went further to compare CSFs between developed and developing countries (Asemi & Jazi, 2010). Despite several lists and frameworks, there was no consensus amongst IS scholars on a set of factors that are critical for ERP success. This variance is attributed to a different context and research samples in which studies are conducted (Ngai, Law, & Wat, 2008). However, Ngai et al. (2008) classification of CSFs has been identified as the best-encompassing classification (Asemi & Jazi, 2010). The classification has been widely cited in ERP CSFs studies (Asemi & Jazi, 2010). The classification grouped CSFs into 18 main categories as follows

- Business and IT legacy systems
- Business plan
- Business Process Reengineering
- Change management
- Communication
- Data accuracy,
- ERP strategy and implementation
- ERP project team
- ERP Vendor
- Monitoring and evaluation of performance
- Organisational characteristics
- Project champion
- Project management
- Software Development, testing, and troubleshooting
- Top management support

- Fit between ERP and business processes, and National culture
- Country-related functional requirements

Over and above challenges experienced by developed countries, low economy, inadequate IT infrastructure, government regulations, lack of skills, cultural issues are dominant critical challenges facing African nations in implementation of ERPs (Bitsini, 2015; Eytayo, 2014; Bailey et al., 2015; Tobie et al., 2016). Lesotho is one of African countries experiencing poor IT infrastructure which negate desired ERP benefits.

Culture

ERP vendors have assumed western processes and cultures in designing ERP systems (Prasetyo et al., 2019). Contrary to these designs, African countries have their local organisational cultures and ways of doing things (Bitsini, 2015). Several researchers have identified a misfit between ERPs and African companies (Egdair, Rajemi & Nadarajan, 2015; Bailey et al., 2015). Similarly, Hawari and Heeks (2010) have found a mismatch between ERP system designs and the actual realities of company needs. A study by Eytayo (2014) has confirmed that culture plays a vital role in ERP implementation. The study has revealed that hierarchy culture is dominant in Botswana. Their culture contradicts ERP implementation designs. This mismatch between ERP systems and organisation requirements is called design-reality gap (Bailey et al., 2015). The design-reality is defined as “the degree of fit between, on the one hand, the requirement and assumptions built into the information system design and, on the other, the real situation found in the organisational context of implementation” (Hawari & Heeks, 2010, p.6). Hawari and Heeks (2010) linked this gap to the failure of ERP implementation in developing countries.

Infrastructure

There is a linkage between technology success and technology infrastructure (The World Bank, 2018). According to the World Bank report (2020), limited ICT (Information Communication Technology) infrastructure is still a huge challenge in developing countries leading to unreliable and poor internet connections (The World Bank, 2020). Unlike developed nations, African nations have a low 4G network coverage (The World Bank, 2020). Given these challenges, implementing IT-related projects in African countries increase the chance of failure (Kyobe, 2011). Lesotho is not an exception in

experiencing poor ICT infrastructure, particularly in rural areas (The World Bank, 2018) leading to low smartphone penetration and grid electricity (The World Bank, 2018). Hence the low internet usage of 33 percent countrywide (The World Bank, 2018). Apart from inadequate technology infrastructure, the low internet penetration rate is linked to smartphones cost and data costs (Lesotho Communications Authority, 2017). Given the ICT situation in Lesotho, IT Compatibility is critical in implementing ERPs.

Economic condition

The economic growth of the country plays an essential role in determining technology infrastructure development. An organisation cannot support technology infrastructure if it is financially unstable. The cost of technology infrastructure is a barrier for most African countries due to the low economy (The World Bank, 2020). Developing countries are not able to acquire modern technology to support their sustainability (Bitsini, 2015). Lesotho is classified under the least developing countries with a low Gross Domestic Product (GDP) per capita and an extreme poverty level of fifty-seven percent (The World Bank, 2018). Contrary, ERP systems design assumed suitable technology infrastructure.

2.5 ERP implementation process

Implementing an ERP system can be an exceptionally complex process that depends on numerous factors (Nawaz & Channakeshavalu, 2013). The ERP implementation process is a process of ERP interacting with a social system which is internal or external to the organisation (Staeher et al., 2012). It is also an organisational change happening over some time which affects not only organisational structure but also work practices (Staeher et al., 2012). During this process, internal and external factors are likely to influence the desired outcome either positively or negatively. While extensive work in investigating CSFs for ERP implementation is acknowledged, many studies focused on frameworks development that lists factors influencing ERP benefits ignoring relationships among the factors (Staeher et al., 2012). The implementation process was treated as static, without considering the interactive effects of the CSFs and the organisational environments (Staeher et al., 2012). However some of researchers who identified this gap came up with several frameworks to explain this process. The study of Staeher et al. (2012) is a famous example well known for explaining how and why ERP provides value to organisation. The study has used process theory to explain how ERP benefits are obtained. The study

identified nine themes that were categorised into three groups that are interlinked to achieve business benefits. The first group (contextual theme) consisted of environmental context, organisational context and chartering, and project phases. The second category (business benefits enablers) consisted of technochange/change management, education, training and support, and people resources. The third category (business-benefit-drivers) consisted of efficient and effective use of the ERP system, business process improvement, and new projects/extension of existing projects to leverage off the ERP system. However, this model has never been empirically tested in the Africa context.

2.6 Gap

While extant literature has investigated the effect of ERPs on organisations, little research has centred on explaining how ERP benefits are achievable in the African setting (Asamoah & Andoh-Baidoo, 2018). Furthermore, this literature has revealed a lack of empirical studies on ERP benefits in the African context. With the increased ERP adoption in the African continent, there is a need to empirically examine the value of the ERP system in Lesotho organisations.

2.7 Theoretical foundation

Several theoretical foundations were used to explain how ERP provides value to organisations. These theoretical foundations include Technology-Organisational-Environmental (TOE) framework, Competing Values Framework (CVF), and existing ERP implementation literature. The theories are briefly explained in the next section.

2.7.1 Technology-Organisational-Environmental framework

An organisation together with its surroundings affects the success of ERP (Baker, 2012). TOE framework of DePietro et al., (1990), was developed to explain how these factors affect ERP success at the firm level (Ruivo et al., 2017). The framework has a theoretical basis and concrete empirical support of ERP implementation studies (Egdair et al., 2015). The framework consists of three main elements namely technological context, organisational context, and environmental context. Technological context refers to both internal and external technologies surrounding the firm (Egdair et al., 2015). Organisational context refers to organisational characteristics affecting the implementation of IT (Egdair et al., 2015). The environment context is made up of external factors that may affect the use of IT (Xu, Ou, & Fan, 2017). These contexts are influential

in determining extent of ERP use (Ruivo et al., 2017). The framework has been used by several studies for explaining ERP adoption and implementation. Ruivo et al., (2016) have used the framework for assessing the value of ERP in Iberian SME companies. Similarly, Xu et al., (2017) have used the framework to investigate the impact of ERP on Chinese firms. Despite the popularity of the TOE framework, it does not focus on the individual level, yet individual characters such as attitude of users influence the use of the ERPs.

2.7.2 Competing Values Framework

The Competing Values Framework (CVF) is a widely used framework for assessing organisational culture in an organisation (Gregory et al., 2009). The differences between organisational cultures are conceptualised along two dimensions: structure and focus (Gregory et al., 2009). The structure dimension ranges from flexibility on one extreme to control at the end of the spectrum. In contrast, the focus dimension ranges from an internal focus to an external emphasis (Gregory et al., 2009). Inner focus is related to internal factors in the organisation, while external focus relates to the functionality of an organisation in the external market environment (Carolissen, 2018). The dominant culture influences the norms and values of employees in an organisation and can either be one of four cultural types according to the CVF: Clan, Hierarchy, Adhocracy, or Market (Cameron & Quinn, 2006).

Organisations having inward orientation and supported by a flexible organisational structure are said to have clan cultures (Cameron & Quinn, 2006). These cultures are characterised by friendly, supportive teamwork environments (Nickels & Janz, 2010). Organisations exhibiting flexibility in structure and externally orientated are adhocracy culture oriented. (Carolissen, 2018). Change and adaptation are main characteristics of this type of culture (Gregory et al., 2009). Organisations that are outward orientated which putting more emphasis on stability and control structures have adopted market-type cultures (Carolissen, 2018). This kind of culture is customer-driven and market-driven with designs that support the achievement of goals (El-Mekawy & Rusu, 2014). Organisations with inward orientation and characterised by stable and controlled structures are termed as having hierarchy cultures (Carolissen, 2018). The hierarchical culture is procedural-based, with a formalized and structured work environment (Carolissen, 2018). Culture is procedure-driven and is characterised by a formalised and

structured work environment (Carolissen, 2018). The framework has been used in different studies for assessing the role played by culture in organisations.

2.8 Proposed Model

The business value conceptual model depicted in Figure 1 was developed based on Staehr et al., (2012) `s work, TOE framework, and CVF. The conceptual model has three components, namely context variables (TOE), business enablers, and ERP value. The first component (context variables) has three categories, according to the TOE framework; technological dimension, organisational dimension, and environmental dimension. While the technology context consists of IT compatibility and complexity, the organisation context consists of business process fit, training, organisational ERP extension and organisational culture from CVF. The environmental context consists of the number of years since ERP implementation. The second component (business enablers) also from Staehr et al., (2012) work comprised of three variables namely the extent of ERP implementation, business process improvement, and ERP usage. The last part of the model is ERP value as defined in Shang and Seddon (2000) framework.

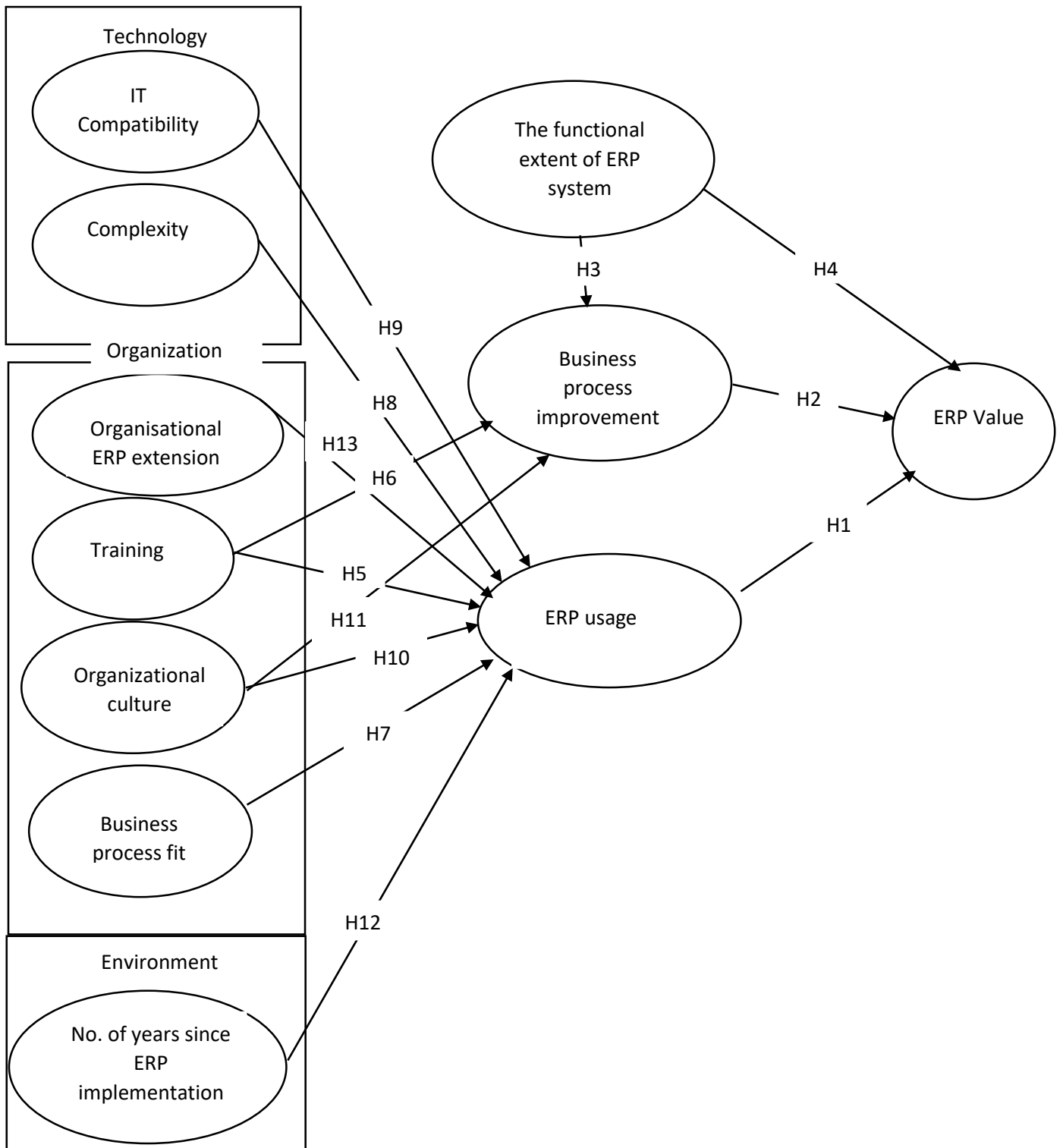


Figure 1: ERP Business Value Creation Model

2.9 Hypotheses

2.9.1 ERP system usage

ERP systems are end-to-end integrated software applications which depend on practical system usage (Asamoah, Andoh-Baidoo, & Agyei-Owusu, 2015; Ruivo et al., 2017). Given challenges experienced by African nations, ERP usage is critical. Therefore it is hypothesised that

H1: ERP usage positively influences the ERP business value.

2.9.2 Business process improvement

Business practices are often different depending on the context in which the business is operating (Bailey et al., 2015; Gill, Shahzad & Ramalu, 2018). African countries have a specific way of doing business (Tobie et al., 2016). In contrast, ERP systems are global products built based on best practices (Bailey et al., 2015). This contradiction forces ERP implementers to reengineer their business processes to fit the ERP system (Bitsini, 2015). These major changes brought by an ERP system are claimed to eventually improve business processes, contributing to ERP business value creation (Ha & Ahn, 2014; Lotfy & Halawi, 2015; Staehr et al., 2012). Hence the following hypothesis is put forward.

H2: The extent of business process improvement is positively associated with ERP business value creation.

2.9.3 The extent of ERP implementation

The extent of ERP implementation is not only linked to business process improvement but is also associated with improved ERP outcomes (Karimi, Somers & Bhattacharjee, 2007). Adding more modules improves the functionality of the system which in turn increases system benefits (Asamoah et al., 2015). Therefore, it is claimed that

H3: The functional extent of ERP system implementation is positively associated with improved business processes

H4: The functional extent of ERP system implementation is positively associated with ERP business value creation

2.9.4 Training

Because of the complexity and considerable risk of ERP systems, ERP systems demand rigorous training for successful ERP systems implementation (Dezdar, 2012). The level of training provided gives employees confidence in using the system (Rajan & Baral, 2015). This level of training leverages employees' attitudes towards using the system

rather than implanting resistance on a newly implemented system (Nwankpa, 2015). Lack of training has been highly associated with less usage, which in turn leads to ERP failure (Rajan & Baral, 2015). Training is most critical in African countries where IT maturity and IT experience are still enormous challenges (Al-Debei & Al-Lozi, 2012; Rajan & Baral, 2015). Therefore, the following hypotheses are postulated.

H5: The quality of training provided to Employees will positively influence the use of the ERP system.

H6: The quality of training provided to Employees will positively influence business process improvement.

2.9.5 Business process fit

Considering that ERP systems are western software, their design assumptions are based on western culture (Egdair et al., 2015). In contrast, African nations are characterised by their own way of doing business (Bailey et al., 2015). This contradiction is likely to cause a misfit challenge between the organisational setting and an ERP design (Bailey et al., 2015). Therefore, it is argued that ERP system usage is influenced by business process fit.

H7: ERP systems which are not customised to fit African countries' business processes are likely to be used less.

2.9.6 Complexity

Much as other Management Information Systems are perceived to be difficult, implementation of ERP is very complex and risky (Rajan & Baral, 2015). Given the complexities and risks associated with ERPs implementation, implementing them in African nations pose a considerable challenge. Complexity refers to the degree to which an ERP system is perceived to be difficult (Maldonado & Sierra, 2013). The complex nature of ERPs can negatively affect the attitude of users towards exploring ERP capabilities. Therefore, it is hypothesised that system complexity will have a negative impact on ERP usage.

H8: ERP systems which are believed to be complex are likely to be used less.

2.9.7 IT Compatibility

Technology compatibility refers to the degree to which an ERP system matches existing technology resources (Ruivo, Oliveira, & Neto, 2015). These resources include technology infrastructure as well as software infrastructure. Unlike developed countries

with excellent infrastructure, a strong economy, and IT supportive policies, ERP systems in developing nations are affected by limited technology infrastructure and a lack of governmental IT policies that support the implementation of ERP systems (Alhirz & Sajeev, 2015). Therefore, integration of existing technology with an ERP system is critical in determining system usage.

H9: The degree of Compatibility of ERP systems with existing hardware and software will positively influence ERP system usage

2.9.8 Organisational Cultural

Considering that ERP systems originate from western nations, they were developed based on western cultural assumptions (Egdair et al., 2015). Consequently, organisations outside western countries may find these assumptions unfavourable to their local work practices (Bailey et al., 2015). In contrast, African countries are characterised by a particular culture that contradicts best practices embedded in ERP systems (Eyitayo, 2014). Previous studies have revealed high cultural variance between Africans and developed nations (Eyitayo, 2014). Africans are rated high in terms of power distance (Eyitayo, 2014). These make managers in African countries feel uncomfortable with central information sharing. For example Botswana people have been found to have hierarchical orientated culture, contrary to ERP design which assumed the sharing of information amongst employees (Eyitayo, 2014). The ERP design aligns well with adhocracy culture which is based on flexibility and externally orientated structures (Gregory et al., 2009). Therefore, companies with an adhocracy culture are likely to succeed in ERP implementation.

H10: Organisations with an adhocracy culture are likely to use ERP systems more.

H11: Organisations with an adhocracy culture are positively associated with business process improvement.

2.9.9 Number of years since the introduction of the ERP system

The majority of IS scholars, including Staehr et al. (2012), have emphasised the criticality of time in ERP outcomes (Ortiz de Guinea & Webster, 2014; Staehr et al., 2012; Uwiseyemungu & Raymond, 2012). In their study, De Toni, Fornasier and Nonino (2015) have confirmed that, indeed, time plays a vital role in influencing users to interact with ERP systems more. The study revealed that users' perception of system usage is

accelerated by experience in ERP usage. The more one gets used to the system, the more the system is explored. Hence the following claim.

H12: Number of years since the introduction of the ERP system is positively linked to more ERP usage

2.10 Organisational ERP extension

Organisational system extension is an extension of an ERP system to cover all organisational departments and geographical company areas to allow for system integration. This integration also allows for the centralised database, which facilitates decentralised coordination, collaboration, and communication in the organisation (Koufteros, Rawski & Rupak, 2010). Therefore the relationship between organisational system extension and ERP use is postulated.

H13: Organisational ERP extension has a positive influence on ERP usage.

Table 2 represents a summary of proposed hypotheses in this research.

Hypothesis	Description
H1	ERP usage positively influences the ERP business value
H2	The extent of business process improvement is positively associated with ERP business value creation.
H3	The functional extent of ERP system implementation is positively associated with improved business processes
H4	The functional extent of ERP system implementation is positively associated with ERP business value creation
H5	The quality of training provided to Employees will positively influence the use of the ERP system
H6	The quality of training provided to Employees will positively influence business processes improvement.
H7	ERP systems which are not customised to fit African countries' business processes are likely to be used less.
H8	ERP systems which are believed to be complex are likely to be used less.
H9	The degree of Compatibility of ERP systems with existing hardware and software will positively influence ERP system usage
H10	Organisations with an adhocracy culture are likely to use ERP systems more.
H11	Organisations with an adhocracy culture are positively associated with business process improvement.

Hypothesis	Description
H12	Number of years since the introduction of the ERP system is positively linked to more ERP usage
H13	Organisational ERP extension has a positive influence on ERP usage.

Table 2: Research hypotheses

2.11 Literature summary

This chapter presented the development of a conceptual model derived from previous ERP literature. The discussion reiterated around research question and objectives led to the development of the conceptual model which provided the opportunity for hypotheses development. The literature has revealed that empirical ERP value studies in the context of African countries particularly low-income countries like Lesotho are lacking (Tobie et al., 2016). Furthermore, unlike developed countries, African countries generally have limited ERP studies (Bailey et al., 2015). While previous studies emphasised the critical role played by context in ERP value creation, the cultural difference between Africans and developed nations was also revealed (Eyitayo, 2014). Moreover, the results of previous studies on ERP value are varying. Some studies have got positive results, while others got negative results. According to the literature, this variation is associated with the context of the study. Given these identified gaps, a conceptual model was developed based on Staehr et al. (2012) `s work, TOE framework, and CVF. The study restricts the above variables in the conceptual model to answer the objectives of this research.

3. Methodology

The purpose of this chapter was to provide a road map for conducting this study, discussing in detail methodological choices, procedures, and techniques used to carry out this research successfully. The methodological choice was guided by the study research objectives and the philosophical stance of the researcher. The chapter consisted of 10 sections namely research design, philosophical stance, research approach, research strategies, time zone, data collection method, Population and Sampling method, data analysis, ethical issues and the chapter summary.

3.1 Research design

Some several approaches and methodologies must be followed in research to achieve intended research goals. The choice of research design is determined by the research question (Saunders, Lewis, Thornhill, 2007). Answering the research question dictated the overall research plan. This research has described the research design developed by Saunders et al. (2007), which consists of five choices discussed in the following sub-sections.

3.2 Philosophical stance

The philosophical stance of research is described as beliefs behind worldview (Saunders et al., 2007). It is claimed that the researcher's assumption is contained in his/her philosophical perspective (Saunders et al., 2007). These beliefs are categorised as ontology assumption and epistemology assumption (Saunders et al., 2007).

Ontology is defined as the reality of the world (Saunders et al., 2007). It is concerned with the "nature of reality, and the assumptions researchers have about the way the world operates and the commitment held to a particular view" (Saunders et al., 2007, p. 110). Ontology is categorised into two schools of thought: objectivism and subjectivism (Saunders et al., 2007). Objectivism is concerned with the independence of social actors in social reality (Saunders et al., 2007). Human beings as actors of social reality work as responding mechanisms with limited involvement in investigating social reality (Muijs, 2011); "Reality is objective and singular apart from the researcher" (Sukamolson, 2007, p. 7). Unlike the objective school of thought, subjectivists believe reality is subjective (Sukamolson, 2007). The truth and meaning do not exist in some external world but are created by interacting with the world (Sukamolson, 2007). Therefore, meanings are

attached to the phenomenon that surrounds the human being (Sukamolson, 2007). The study has adopted an objective view since there will be independence of social actors. Epistemology is to do with beliefs about how knowledge discovers about the world (Saunders et al., 2007). In other words, it is concerned with what is considered adequate knowledge (Saunders et al., 2007). There are two schools of thought in the epistemology perspective; optimistic epistemology and interpretive epistemology (Saunders et al., 2007). With optimistic epistemology, studies try to resolve major practical problems through statistical analysis (Sukamolson, 2007). Positivists believe the researcher is external from that being researched (Sukamolson, 2007, p. 7). Unlike the positivism view, interpretivism believes that research is part of that being researched (Muijs, 2011). The vital role of research is critical in understanding social reality (Sukamolson, 2007). Researchers interact with what is being researched to create meaningful information from the data (Sukamolson, 2007). The epistemological stance in this study is based on the positivist view; the researcher acknowledges that facts are gained through investigating the nature of relationships among phenomena. The performance of an ERP system is affected by some realities that exist in the world; hence the ERP value is likely to vary in organisations.

3.3 Research approach

This study followed a deductive approach. From a reasoned perspective, the deductive approach supports testing a hypothesis constructed from an idea or conceptual framework (Saunders et al., 2007). The nature of the study and the research question formed the basis for the quantitative study. The main aim of quantitative research is to generalise the survey results (Sukamolson, 2007). Quantitative studies are known for the explanatory research approach, whereby numerical data will be collected and statistically be analysed (Creswell, 2003). The quantitative method not only allowed for describing phenomena numerically but was also useful in determining relationships between variables (Creswell, 2003).

3.4 Research strategies

A survey approach was used to collect data from respondents. The survey strategy not only allowed for the collection of quantitative data from a large sample size that can be analysed quantitatively, but also allowed for reaching a larger population with lower costs

and less time (Saunders, 2007). Quantitative data was relevant for testing proposed hypotheses because it gave the researcher control over processes used, including choosing the sampling technique (Saunders, 2007). An online form hosted on Microsoft office 365 was deployed for this study. Online surveys are popularly used in research because they can reach many respondents with fewer costs (Creswell, 2003).

3.5 Time horizon

The objective of this research dictated the research to adopt a cross-sectional analysis. Cross-sectional studies are those studies that are undertaken at one point in time (Saunders et al., 2007). Cross-sectional studies often employ the survey strategy (Sedera et al., 2016). With a cross-sectional survey, inferences about relationships between independent and dependent variables can be drawn (Creswell, 2003). The aim was to explain how ERP systems provide value to organisations at a particular time. Therefore, the study was suitable for cross-sectional research.

3.6 Data collection method

The questionnaire was used as an instrument in a survey. Questionnaires go well with the survey strategy because they can be easily distributed to many people with fewer costs and within an abbreviated time (Sukamolson, 2007). The questionnaire was divided into two sections: demographic questions for collecting primary data about the company and employees and questions testing a proposed hypothesis. A five-point Likert scale "ranging from strongly agree to strongly disagree" was used to structure questionnaires. To ensure content validity, previous questions from prior studies which had a similar hypothesis to this study were used in the questionnaire but modified to suit the current research (Saunders et al., 2007). A pilot study was conducted with five employees from different companies using ERP systems. A pilot study provided a practical sense of real research (Saunders et al., 2007). The questionnaire is attached as Appendix 2 to the research study.

3.7 Population and Sampling method

The researcher targeted registered companies in Lesotho using ERP systems. The researcher obtained a list of enterprises using ERP systems in Lesotho from ERP suppliers and used a simple random sampling technique to select participants. This technique was suitable because the sampling frame was accurate and easily accessible (Saunders et al., 2007). Using the simple random method, each person in a population is

equally likely to be selected (Creswell, 2003). The sample size (169) was estimated using an online sample size calculator (Qualtrics, 2020). The researcher gave a unique number to each company on the list of companies. Subsequently, an online random number generator was used to generate 169 out of 300 businesses from the survey frame (Urbaniak & Plous, 2013). Selected companies were requested to provide one employee's email for each company that holds a management position. Management is in a place to know the performance of the company better. The consent forms (copy of consent form appended as appendix 1) together with questionnaires were distributed via emails using an Online Microsoft survey form to participants. The average survey completion time was 20 minutes.

3.8 Data analysis

In order to understand how ERP systems provide value to organisations, the conceptual model was used. With a survey strategy, the model and its relationships were tested using hypotheses. After completing the survey, the first step was to import collected data from the Microsoft form survey to an Excel sheet for data cleaning and coding. Out of 169 questionnaires distributed to employees, the researcher received 115 responses, a 68 percent response rate. This response rate is above the standard rate, hence considered yielding accurate results (Uddin, Mahmood, & Fan, 2019). Then data was entered into Statistica software for generating the required statistical results. Reliability and validity tests were firstly used to validate the accuracy and validity of the collected data. Cronbach's Alpha was used to test the reliability of constructs in the model. Cronbach Alpha is used to determine the wellness of constructs in measuring what is supposed to be measured. It ranges between 0 and 1. When the Cronbach Alpha value is close to 1, it indicates that constructs are exceptionally reliable; the constructs measure what it is expected to measure. For explanatory research, a range of 0.5 to 0.6 remains an acceptable level (Vaske, Beaman, & Sponarski, 2017). To test the validity of the data, factor analysis, which tested convergent and discriminant validity, was used to determine the well-being of the clustering of the elements. The recommended cut-off factor loading value is 0.5 (Nunnally & Bernstein, 1978). The next step was to test the normality of the data. Then Spearman rank-order correlation tests and multiple regression tests were performed to validate the hypotheses. A Spearman rank-order correlation was used for

assessing the strength of the relationship between pairs of variables (Hauke & Kossowski, 2011). A multiple regression test was used to measure the strength of a cause-and-effect relationship between variables (Hauke & Kossowski, 2011).

3.9 Ethical research consideration

Research ethical clearance was applied from the University of Cape Town (UCT) ethical clearance committee and was approved. An approval letter has been referenced as REC 2020/05/006. The researcher also provided a consent form to each participant as an agreement with terms and conditions.

3.10 Chapter summary

The researcher provided the research plan for this study. The research instrument was developed and tested before distributed to respondents. A random sampling technique was used to select participants. An online survey strategy was used to collect data from participants. Collected data was then analysed using different statistical tools.

4. Findings and discussion

This chapter aims to present the findings of the data collection. As discussed in Chapter One, this study is intended to explain how ERP systems provide value to businesses. A conceptual model was developed, and assumptions were developed from the model to accomplish this objective. A survey was undertaken to collect data from respondents and the results are reported in the following section.

4.1 Demographic data

From 169 questionnaires sent to participants, 115 responses were received, showing a response rate of 68%. After data cleansing, 111 responses qualified for further analysis. The questionnaire had two sections namely demographic section and main section measuring value of ERP system. The details of demographic data is presented in the next section.

4.1.1 Question 2: In what type of industry is your company operating?

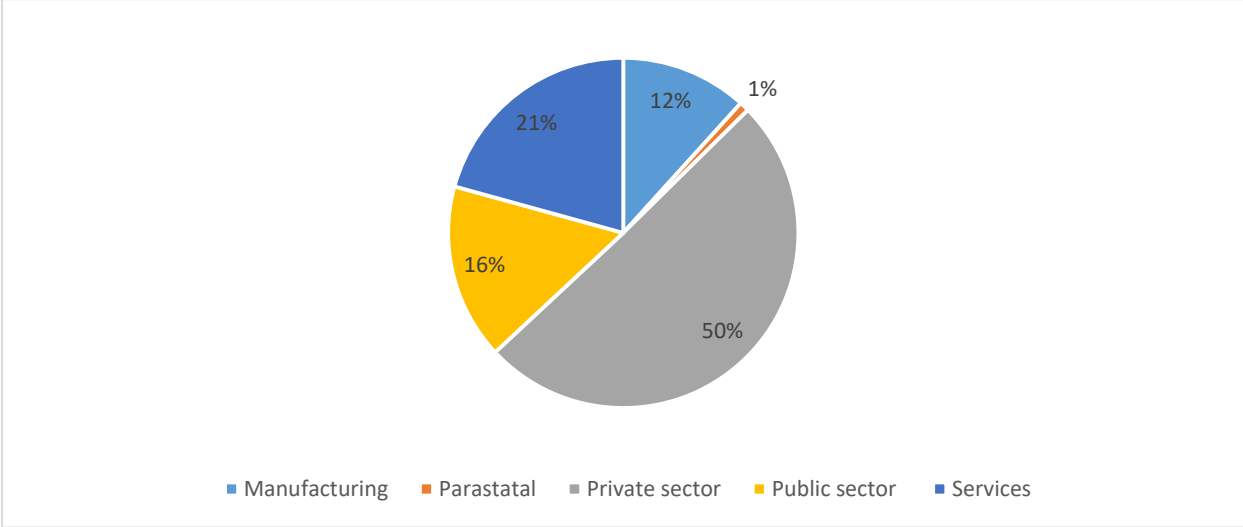


Figure 2: Industry type

The purpose was to examine the diversity of industries that participated in the survey by asking this question. As shown in Figure 2, the responses spread across various industries. Other private sector such as agriculture and mining scored the largest percentage of respondents (50%), whereas remaining industries like service, parastatals public sector and manufacturing share the remaining 50 percent of participants. According to Aromolaran and Daw (2021), Agriculture, Mining and Quarry are primary

sector contributing to GDP while manufacturing and service sector are secondary GDP contributors. Therefore this study has reached most of primary GDP contributors.

4.1.2 Question 3: What position do you hold in your company?

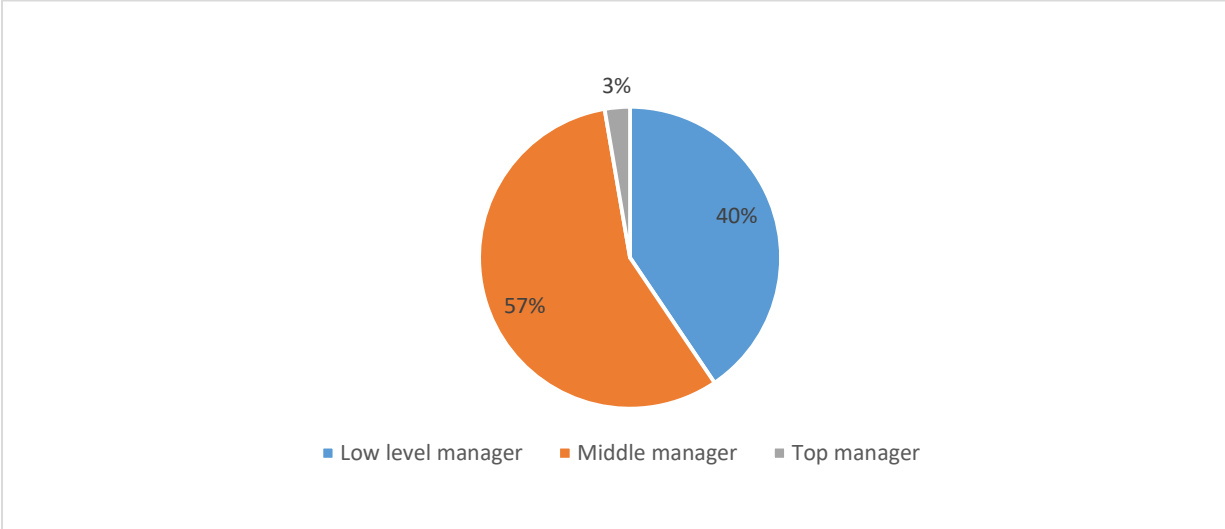


Figure 3: Position held in a company

The aim was to target decision-makers with business knowledge skills. As shown in Figure 3, the results indicate that most of the respondents were middle managers with 57 percent, followed by low-level managers with 40 percent, while a small portion of respondents was from the top managers. These results confirmed that indeed decision-makers participated in this survey.

4.1.3 Question 4: How old is your company?

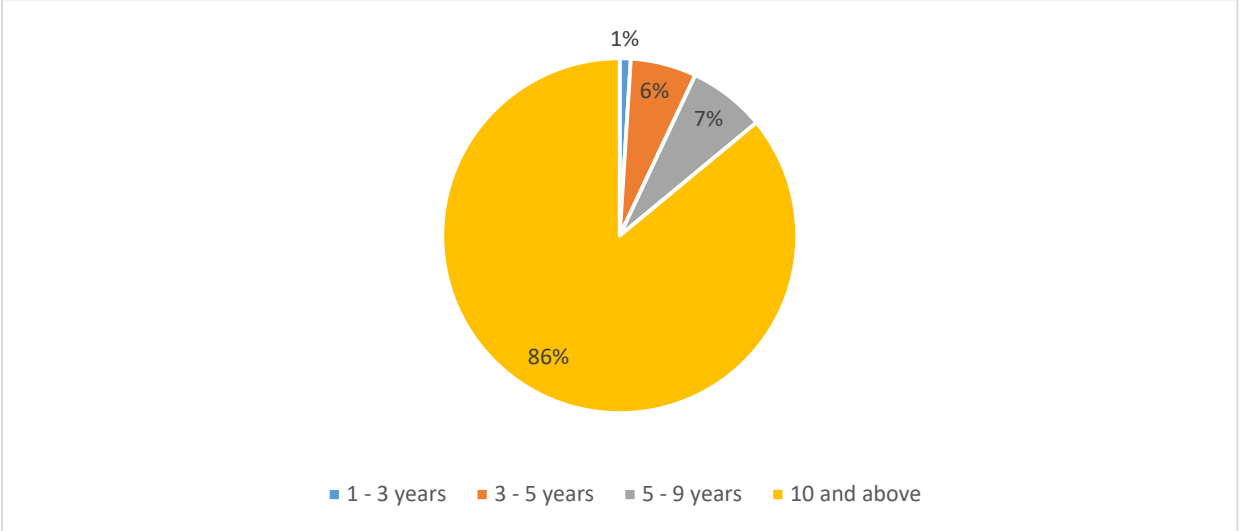


Figure 4: Company experience

Figure 4 shows results of companies` experience. Companies who were in business operation for ten and above years (86%) have participated more than other companies. While seven percent of entities participated were between 5 – 9 years old, six percent were between 3 – 5 years, and only one percent were between 1 – 3 years. Therefore the survey has captured experienced companies.

4.1.4 Question 5: How many people are employed within your company?

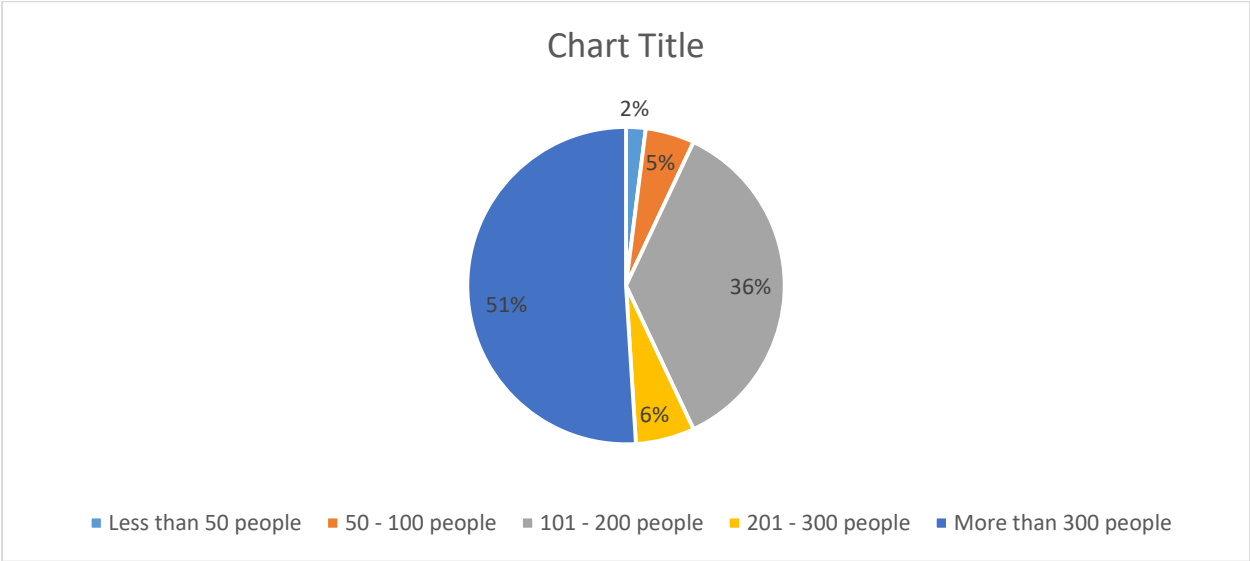


Figure 5: Number of employees in a company

This question was asked to evaluate the size of a company. As indicated in Figure 5, more than half of the companies had employed more than 300 employees (51%). Conversely, two percent of respondents who participated in the survey had less than fifty employees. According to Lesotho Ministry of Trade and Industry, a company employing more than 50 employees is considered a large company (Rantšo, 2016). Therefore it is evident that most of companies participated in this survey were large companies.

4.1.5 Question 6: What is the name of the ERP system package the company is using?

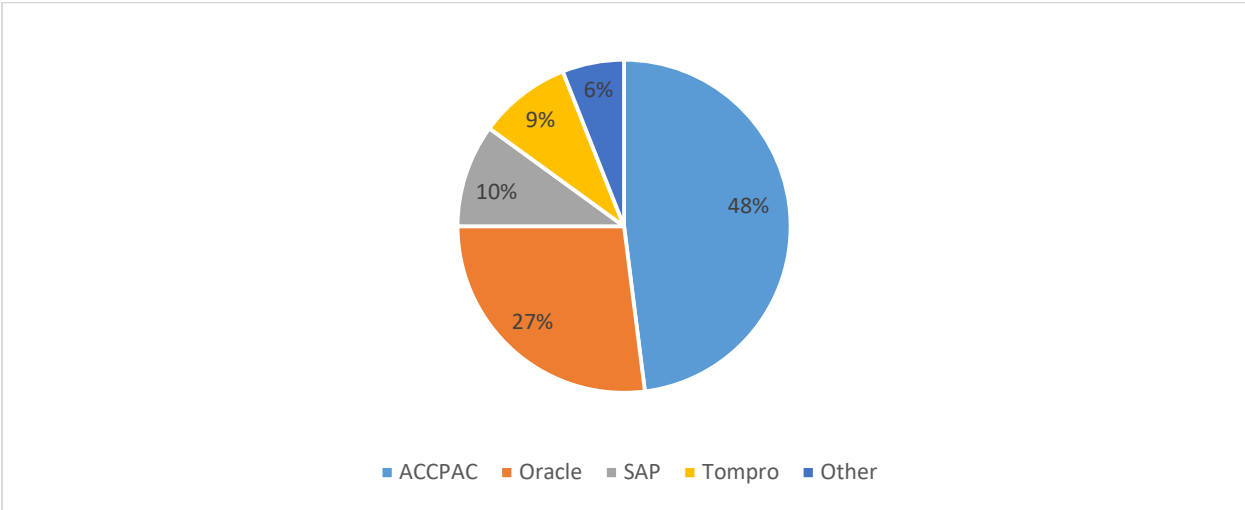


Figure 6: Type of ERP system package

This question was asked to determine the commonly used type of ERP system amongst participants. As shown in Figure 6, a Complete and Comprehensive Program for Accounting Control (ACCPAC) (48%) and Oracle (27%) were the most used ERPs amongst respondents. A small percentage (6%) of respondents were using other types of ERPs such as QuickBooks in their organisations. It can be concluded that ACCPAC is the most commonly used type of ERP in companies that took part in the survey.

4.1.6 Question 7: How many ERP modules, such as finance module, procurement module, etc., is your company using?

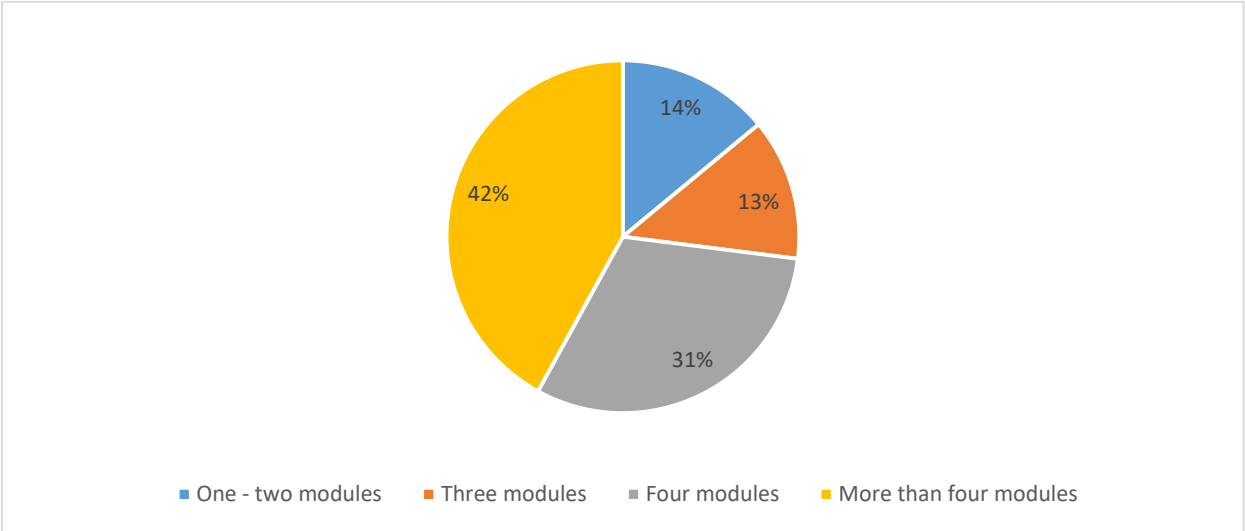


Figure 7: Number of modules installed in a company

This question was intended to establish the number of modules used by companies. While the findings from Figure 7 show that majority of the companies that participated in the survey were using more than four ERP modules, there were still a few companies (14%) that were using only two or less ERP modules.

4.1.7 Question 8: How many years has your company been using an ERP system?

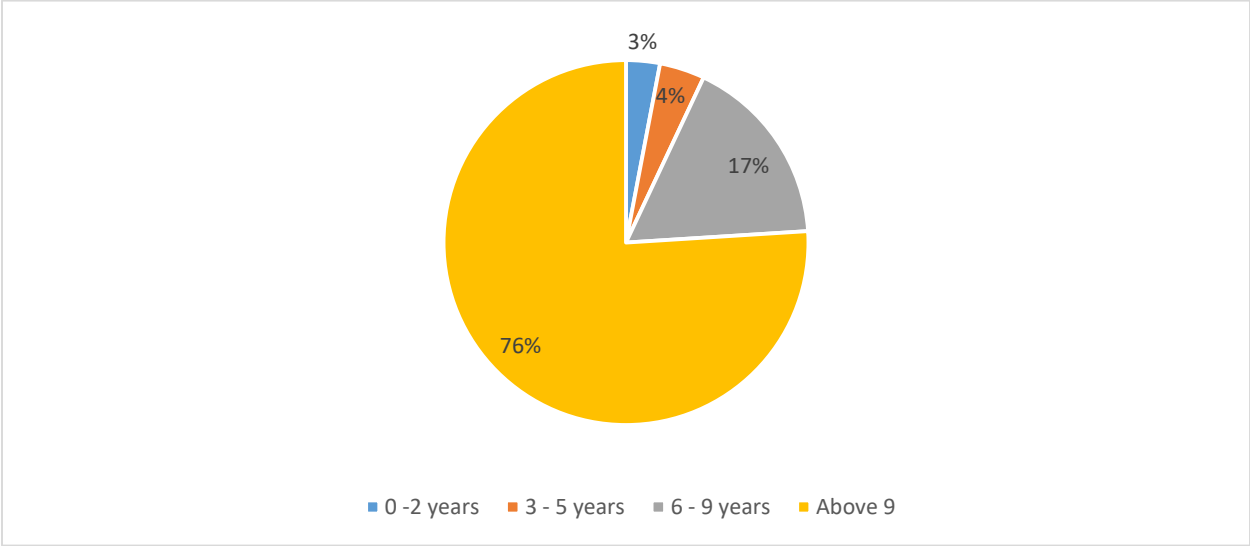


Figure 8: Company experience of using an ERP system

By asking this question, the intention was to establish companies' experience in using ERP system. As shown on Figure 8, most respondents (76%) were employed by companies with more than ten years of experience in the use of the ERPs. However, few participants (3%) were from companies that have adopted ERPs less than two years. Therefore companies who completed the survey were mostly ERP experienced. According to existing literature, experience plays a vital role in influencing ERP value (De Toni et al., 2015).

4.1.8 Question 9: How many additional modules were added after system implementation?

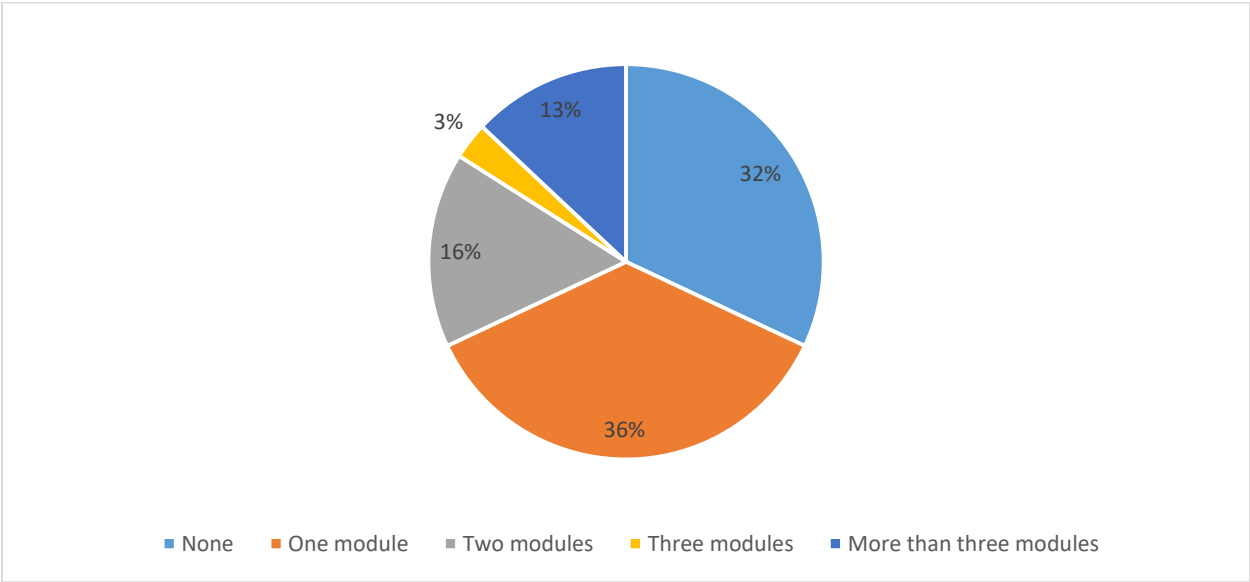


Figure 9: Modules added after implementation

By asking this question, the intention was to establish whether companies were adding more modules during the implementation of the ERP system. The results from Figure 9 show that 68 percent (combined) of companies participated in this survey have added at least one module after the system has been implemented, while 32 percent of participants have not added any module after the system has been implemented. This is the indication that companies that participated in the survey are attracted to add more modules after system go-live.

4.2 Coding

Table 3 shows constructs together with their labelling. The labelling was made to simplify data analysis

Construct number	Construct	Construct label
1	ERP Usage	ERPU
2	ERP Value	SV
3	Business Process Improvement	BPI
4	The organisational extent of ERP system implementation	OESI
5	Training	T
6	Business Process Fit	BPF
7	Complexity	Cox
8	IT Comparability	IC
9	Organisational Culture	OC
10	ERP functionality extension	FESI
11	Number of years since the introduction of the ERP system	NYEI

Table 3: Construct coding

4.3 Factor analysis

Table 4 summarises the factor analysis for construction. Factor analysis is used to measure convergent and discriminative validity (Bhattacharjee, 2012). Validity refers to the degree to which an instrument measures what it purports to measure (Bhattacharjee, 2012). A load of 0.5 is regarded as an acceptable limit (Straub 1989). Varimax, a standard factor analysis, was used in this study to analyse the validity of data (Bhattacharjee, 2012). While items T13, BPF22, BPF23, BPF25, BPI31, BPI32, BPI33 and SV39 were dropped for further analysis due to their low loading factors, OESI37 was also dropped for cross loading onto different factor group. There were some cross loadings between SV factor and OC factor, and cross loadings between BPF factor and BPI factor. A new factor called ERP functionality extension (FESI) was created after item ESI34 loaded onto new factor (column 7). Generally, most of the constructs have loaded above recommended threshold, hence data qualified for the next step of the analysis. Both business process fit and the organisational extent of ERP system implementation constructs loaded on the same factor (factor 6), and organisational culture and ERP value constructs also loaded onto same factor (factor 1). These results are due to a small sample size because of difficulty in data collection. However this abnormality of factors loading onto same factor is still acceptable according to previous studies (Csikszentmihalyi & LeFevre, 1989).

Variable	Factor Loadings (Varimax normalized) (Data set Value of Enterprise Resource Planning (ERP) 24.8.21) (Marked loadings are >.500000)							
	Factor	Factor	Factor	Factor	Factor	Factor	Factor	Factor
T10	0.1592	0.1444	0.2222	0.2826	0.3469	0.1391	0.0067	0.6345
T11	0.3629	0.2864	0.1098	-0.0723	0.2926	0.0696	0.0528	0.5432
T12	0.2646	0.2073	0.1098	0.1449	-0.0702	0.032	-0.0506	0.7353
T13	0.452	0.277	0.0189	0.0515	0.2326	0.2062	0.1147	0.3862
Cox14	-0.1704	0.3342	-0.616	-0.0713	-0.1634	-0.2398	-0.0387	0.2096
Cox15	-0.1375	-0.1072	-0.7535	-0.0437	0.0608	0.0951	0.0417	-0.0363
Cox16	-0.0004	-0.113	-0.5585	-0.1924	0.0142	-0.3223	-0.1785	-0.0981
Cox17	-0.0183	0.1666	-0.8053	0.0667	-0.0396	0.0843	-0.046	-0.224
IC18	-0.1614	0.5522	-0.198	0.0512	0.0677	0.1696	0.0149	0.2816
IC19	-0.0545	0.5714	-0.011	0.1345	-0.041	0.3228	0.0103	0.2323
IC20	0.1135	0.8058	0.0194	-0.02	0.0152	0.0793	0.1151	-0.0355
IC21	0.1437	0.5423	0.0269	0.2608	0.3967	-0.053	0.3018	0.1389
BPF22	0.0943	0.429	0.4844	0.2615	0.0965	0.3129	-0.0519	0.401
BPF23	0.0965	0.4649	-0.1192	-0.0594	-0.0562	0.3769	-0.239	0.516
BPF24	0.0347	0.4032	-0.0535	0.0628	-0.0529	0.6901	0.0177	-0.0057
BPF25	-0.0165	0.3752	0.3679	0.5131	0.2045	0.1053	-0.1714	0.1254
ERPU26	0.0483	0.1011	-0.0145	0.8562	0.0044	-0.0177	0.0882	0.1113
ERPU27	0.1346	-0.0487	0.0373	0.7147	0.0135	0.2289	-0.1552	0.1573
ERPU28	0.2947	0.1265	-0.1677	0.5012	0.1384	-0.037	0.3003	0.275
ERPU29	0.297	0.0029	0.1698	0.7577	-0.0095	0.1453	-0.0578	-0.0308
BPI30	0.2774	0.0047	0.1388	0.1657	0.5908	0.2713	0.1701	0.2966
BPI31	0.3405	0.2433	-0.0297	0.4096	0.332	0.0044	-0.0961	0.0137
BPI32	0.2072	0.1118	0.1295	0.2727	0.3184	0.4599	-0.1348	0.233
BPI33	0.2854	0.1708	-0.0593	0.2744	0.3359	0.5027	0.0752	-0.0162
FESI34	-0.0002	0.1232	0.1016	-0.1119	-0.0161	0.2172	0.794	-0.0625
OESI35	-0.0073	0.0528	-0.0184	0.1187	-0.184	0.7545	0.2987	0.2716
OESI36	0.3382	0.136	0.1981	-0.0246	0.0306	0.6492	0.0577	0.0717
OESI37	0.2756	-0.0036	0.0423	0.0589	-0.6297	0.259	0.1169	0.0788
SV38	0.5569	-0.064	0.1035	0.3447	-0.2216	0.3139	0.1735	0.4025
SV39	0.4738	-0.1545	0.0172	0.252	-0.1836	0.4248	0.0394	0.4281
SV40	0.6398	0.0809	0.1524	0.3217	0.0926	0.2237	0.1067	0.0396
SV41	0.5399	-0.0367	-0.0192	0.3431	-0.1592	0.128	0.0081	0.5098
OC42	0.823	0.0002	-0.0784	0.0476	0.0941	0.1084	-0.2629	0.0714
OC43	0.795	-0.0459	0.0787	0.0683	0.1165	0.1327	-0.046	0.2076
OC44	0.7464	0.0243	0.0704	0.1697	-0.1483	-0.0199	0.0088	0.1586
OC45	0.7685	0.0312	0.1406	0.0625	0.0248	0.0103	0.1536	0.0444
Expl.Var	4.9575	2.8699	2.4305	3.4733	1.8044	3.2079	1.3119	3.1165
Prp.Totl	0.1377	0.0797	0.0675	0.0965	0.0501	0.0891	0.0364	0.0866

Table 4: Factor analysis summary

4.4 Cronbach Alpha

Cronbach Alpha is the most used measure of internal consistency of items on a scale (Vaske et al., 2017). It measures the level at which item responses correlate with each other (Tavakol & Dennick, 2011). The statistical value of Alpha ranges between 0 and 1 (Vaske et al., 2017). The literature has suggested a range of 0.65 – 0.80 to be acceptable human dimensions studies (Vaske et al., 2017). Table 5 show the summary of Cronbach alpha for constructs. Dropping T13 has slightly decreased values of Cronbach Alpha for “Training” from 0.798 to 0.766 whereas dropping item SV39 has also decreased value of Cronbach Alpha from 0.860 to 0.849. While dropping of OESI37 and removal of FESI34 have increased Cronbach Alpha's value of “The Extent of ERP System Implementation functionality” factor from 0.585 to 0.708. Given that the overall Alpha score was above recommended thresholds, data was considered satisfactory for the internal consistency and reliability requirement and qualified the next analysis step (Tavakol & Dennick, 2011).

Factor	Questions	Cronbach Alpha	Revised Cronbach Alpha	Revised Cronbach Alpha
T	10,11,12,13	0.798	10,11,12	0.766
Cox	14,15,16,17	0.688	14,15,16,17	0.688
IC	18,19,20,21	0.695	18,19,20,21	0.695
BPF	22,23,24,25	0.677	24	
ERPU	26,27,28,29	0.789	26,27,28,29	0.789
BPI	30,31,32,33	0.697	30	
OESI	34,35,36,37	0.585	35,36	0.708
SV	38,39,40,41	0.860	38,40,41	0.815
OC	42,43,44,45	0.849	42,43,44,45	0.849
FESI			34	

Table 5: Cronbach alphas summary

4.5 Descriptive statistics

Table 6 shows descriptive statistics of the study, including mean, standard deviation, and Kolmogorov–Smirnov test of the variables. The Likert scale of the questions spread from 1 to 5, 1 representing strongly disagree and 5 representing strongly agree. The values are as follows for business process fit (M=3.80, SD=0.65, K-S test=0.35), for business process improvement (M=3.75, SD=0.56, K-S test=0.38), for ERP functionality extension (M=3.38, SD=0.62, K-S test=0.32), for complexity (M=2.17, SD=0.56, K-S test=0.16), training (M=3.69, SD=0.57, K-S test=0.20), IT comparability (M=3.74, SD=0.48, K-S

test=0.14), for ERP usage (M=4.48, SD=0.52, K-S test=0.21), for the organisational extent of ERP system implementation (M=3.82, SD=0.61, K-S test=0.24), for ERP value (M=4.40, SD=0.62, K-S test=0.27), for organisational culture (M=3.75, SD=0.68, K-S test=0.22). Descriptive statistics for ERP system value reveal a mean of 4.3.96. This shows a positive response of participants towards ERP value creation. ERP use had a mean value of 4.48, the highest value in the descriptive statistics, indicating that users were mandated to use the system. The complexity of the system had the lowest mean of 2.2 (disagree) in the descriptive statistics, suggesting that participants were negative towards agreeing with the statement that ERP is difficult to use. The results of Kolmogorov–Smirnov test indicate that all values are greater than 0.05 which conforms to normality of data (Mishra et al., 2019).

Descriptive Statistics (Data set Value of Enterprise Resource Planning (ERP) 6.10.21)						
	Valid N	Mean	Minimum	Maximum	Std.Dev.	K-S test with Lilliefors
BPF	111	3.80	2.00	5.00	0.65	0.35
BPI	111	3.75	2.00	5.00	0.56	0.38
FESI	111	3.40	2.00	5.00	0.62	0.32
Cox	111	2.17	1.00	4.25	0.56	0.16
T	111	3.69	1.00	5.00	0.57	0.20
IC	111	3.74	2.50	5.00	0.48	0.14
ERPU	111	4.48	1.75	5.00	0.52	0.21
OESI	111	3.82	2.00	5.00	0.61	0.24
SV	111	4.40	2.00	5.00	0.62	0.27
OC	111	3.75	1.25	5.00	0.68	0.22
NYEI	111	4.65	1.00	5.00	0.73	0.11

Table 6: Descriptive statistics

This section presents results of hypotheses tested using correlation and regression tests. A spearman rank order correlations matrix was used to measures the strength of the relationship between variables, while regression test was used to test the effect of independent variables on dependent variable.

4.6 Correlation test

Table 7 (Detailed paired correlations in Appendix 3) presents a summary of a spearman rank order correlations matrix. Correlations between variables are ranging from -0.1528

to 0.6121, indicating that there is no sign of multicollinearity. Most of variables have positive correlation with each other at significant level of 0.05.

Variable	Spearman Rank Order Correlations (Spreadsheet4_(Recovered))										
	MD pairwise deleted Marked correlations are significant at p <.05000										
	NYEI	BPF	BPI	FESI	T	Cox	IC	ERPU	OESI	SV	OC
NYEI	1.000										
BPF	0.030	1.000									
BPI	-0.051	0.151	1.000								
FESI	0.063	0.205	0.098	1.000							
T	0.200	0.252	0.468	0.056	1.000						
Cox	0.046	-0.023	-0.259	-0.161	-0.087	1.000					
IC	-0.125	0.296	0.247	0.116	0.378	0.085	1.000				
ERPU	-0.077	0.185	0.147	0.104	0.159	-0.095	0.152	1.000			
OESI	-0.077	0.433	0.219	0.206	0.221	-0.153	0.208	0.230	1.000		
SV	-0.006	0.142	0.327	0.148	0.314	-0.088	0.106	0.387	0.368	1.000	
OC	-0.023	0.045	0.268	0.021	0.105	-0.110	0.011	0.220	0.241	0.612	1.000

Table 7: Spearman Rank-Order Correlations

Table 8 present a summary of correlation analysis for proposed relationships. While some variables were correlating at a 95% significance level, other relationships were insignificantly correlated. While relationships showed moderate positive correlations, some showed weak positive correlations. The details of the results are explained in the next section.

Hypothesis	Relationship	Correlation value (R)	Spearman p-Value	Relationship status
H1	ERPU vs. SV	0.39	0.000	Significant
H2	BPI vs. SV	0.33	0.000	Significant
H3	FESI vs. BPI	0.10	0.308	Non-significant
H4	FESI vs. SV	0.15	0.121	Non-significant
H5	T vs. ERPU	0.16	0.095	Non-significant
H6	T vs. BPI	0.47	0.000	Significant
H7	BPF vs. ERPU	0.18	0.052	Non-significant
H8	Cox vs. ERPU	-0.09	0.322	Non-significant
H9	IC vs. ERPU	0.15	0.110	Non-significant
H10	OC vs. ERPU	0.22	0.020	Significant

Hypothesis	Relationship	Correlation value (R)	Spearman p-Value	Relationship status
H11	OC vs. BPI	0.27	0.004	Significant
H12	NYEI vs. ERPU	-0.08	0.419	Non-significant
H13	OESI vs. ERPU	0.23	0.015	Significant

Table 8 : A summary of correlation results

4.7 Multiple Regression Analysis

Multiple Regression Analysis was used to predict value of dependent variable from independent variables. The results are discussed in the next section.

4.7.1 Multiple Regression Analysis for ERP Value

The results in Table 9 show that similar to correlation analysis test, the independent variables (ERP Usage and Business Process improvement), except one variable (Functional ERP Extension) significantly predict ERP Value, $F(3,107)=20.060$, $p<.00000$, which indicates that of three factors, two factors (ERP Usage and Business Process improvement) have a significant impact on ERP Value. With the value of $(B = 0.562)$, ERP usage has contributed more to the ERP value model. Moreover, the model explains 36% of the variance in the ERP value, indicating that some of the important and systematic factors have been omitted from the model. No doubt that the exclusion of FESI from the model could have resulted in increased R-Squared.

Regression Summary for Dependent Variable: SV R= .59997780 R ² = .35997336 Adjusted R ² = .34202869 F(3,107)=20.060 p<.00000 Std.Error of estimate: .50586			
Construct	Beta	B	Regression p-value
SV		0.657	0.218
FESI	0.046	0.046	0.560
BPI	0.257	0.284	0.002
ERPU	0.464	0.562	0.000

Table 9: Regression Summary for ERP Value

4.7.2 Multiple Regression Analysis for ERP Usage

The results shown in Table 10 indicate that the dependent variable (ERP Usage) is explained by 24 per cent of independent variables (NYEI, BPF, T, Cox, IC, OC and OESI). Moreover, only Organisational Culture has a significant impact ERP Usage whereas correlation test revealed that both Organisational Culture and the organisational extent of ERP system implementation are significantly correlating with ERP usage. Low R-Squared

(23.5%) is an indication of an omission of some critical factors and the inclusion of some variables that are contributing less to the model. Hence future studies could focus on adding those critical factors to dependent variable ERP use.

Regression Summary for Dependent Variable: ERPU (Spreadsheet4_(Recovered)) R= .48515683 R ² = .23537715 Adjusted R ² = .18341249 F(7,103)=4.5296 p<.00019 Std.Error of estimate: .46569			
Construct	Beta	B	Regression p-value
ERPU		2.580	0.000
NYEI	-0.030	-0.021	0.760
BPF	0.069	0.055	0.518
T	0.210	0.188	0.077
Cox	-0.058	-0.053	0.536
IC	0.097	0.105	0.360
OC	0.277	0.209	0.006
OESI	0.012	0.010	0.914

Table 10: Regression Summary for ERP Usage

4.7.3 Multiple Regression Analysis for Business Process Improvement

Multiple Regression Analysis shown in Table 8 indicates that the dependent variable (business process improvement) is explained by 27 per cent of independent variables (BPI, T, FESI and OC). Similar to the correlation test, the multiple regression finds the Training variable to play a significant role in shaping business process improvement. Adjusted R-Squared is 25%, showing that some of the independent variables added to the model were non-significant to the model, and some variables that affect the dependent variable (BPI) were omitted. Adding these variables in future studies is recommended.

Regression Summary for Dependent Variable: BPI (Spreadsheet4_(Recovered)) R= .52242060 R ² = .27292328 Adjusted R ² = .25253795 F(3,107)=13.388 p<.00000 Std.Error of estimate: .48724			
Construct	Beta	B	Regression p-value
BPI		1.370	0.001
T	0.410	0.402	0.000
FESI	0.118	0.107	0.155
OC	0.172	0.142	0.063

Table 11: Regression Summary for Business Process Improvement

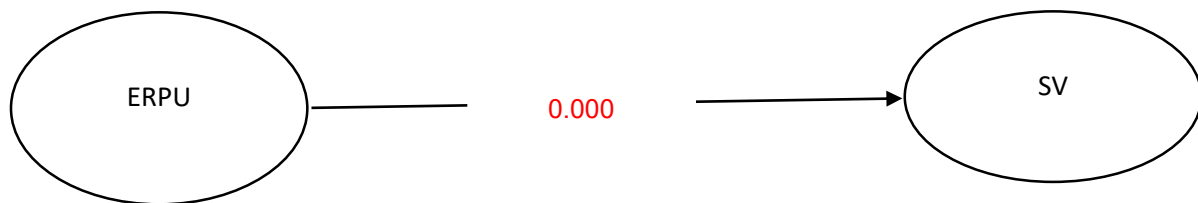
4.8 Hypotheses findings and discussion

HYPOTHESIS	RELATIONSHIP	CORRELATION VALUE (R)	SPEARMAN P	B	P-LEVEL	RELATIONSHIP STATUS
H1	ERPU vs. SV	0.39	0.000	0.464	0.000	Significant
H2	BPI vs. SV	0.33	0.000	0.257	0.002	Significant
H3	FESI vs. BPI	0.10	0.308	0.118	0.155	Non-significant
H4	FESI vs. SV	0.15	0.121	0.046	0.560	Non-significant
H5	T vs. ERPU	0.16	0.095	0.210	0.077	Non-significant
H6	T vs. BPI	0.47	0.000	0.410	0.000	Significant
H7	BPF vs. ERPU	0.18	0.052	0.069	0.518	Non-significant
H8	Cox vs. ERPU	-0.09	0.322	-0.058	0.536	Non-significant
H9	IC vs. ERPU	0.15	0.110	0.097	0.360	Non-significant
H10	OC vs. ERPU	0.22	0.020	0.277	0.006	Significant
H11	OC vs. BPI	0.27	0.004	0.172	0.063	Significant
H12	NYEI vs. ERPU	-0.08	0.419	-0.030	0.760	Non-significant
H13	OESI vs. ERPU	0.23	0.015	0.012	0.914	Significant

Table 12: A hypothesis summary

Table 12 presents a summary of hypotheses findings from both the correlation and the multiple regression tests. Six hypotheses (H1, H2, H6, H10, H11 and H13) are supported, but seven (H3, H4, H5, H7, H8, H9, H12) are not.

4.8.1 Hypothesis 1: ERP usage positively influences the ERP business value



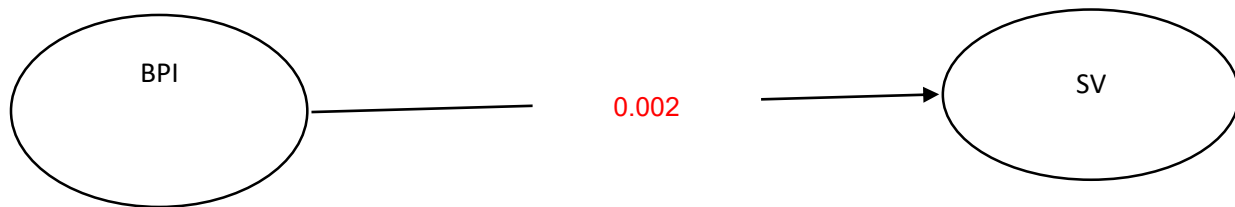
Findings

Descriptive statistics for ERP use with the mean of 4.48 indicate a mandatory ERP system that forced users to use the system. The result of the correlation test shown in Table 8 indicates that ERP usage is positively correlated with the ERP value. The correlation between these variables is moderate ($r = 0.39$). The regression test results (Table 9) also indicates ERP usage is significant in predicting ERP value. Therefore H1 was supported.

Discussion

Consistent with existing literature (Staeher et al., 2012, Xu et al., 2017), this dissertation has found a positive linkage between ERP use and ERP value. These findings, in particular, confirmed the evidence from the study of Staeher et al. (2012) that highlighted the importance of ERP use in determining ERP benefits. Even though the study of Staeher et al. (2012) has focused on western-based companies, this dissertation has also confirmed that companies in African countries like Lesotho are likely to get more ERP benefits if ERP is used more. Therefore these finding broadens the model of Staeher et al. (2012) for fitness in the African context.

4.8.2 Hypothesis 2: The extent of business process improvement is positively associated with ERP business value creation



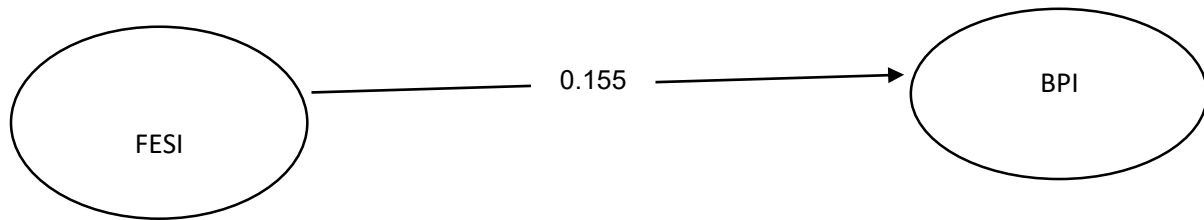
Findings

The correlation result shown in Table 8 indicates that the extent of business process improvement with moderate correlation ($r = 0.33$) is significantly correlated to the ERP value. The regression test (Table 9) also showed business process improvement is significantly associated with ERP value. Furthermore, descriptive statistics for business process improvement with 3.75 indicate a positive response from participants on improving business processes. Hence the acceptance of H2.

Discussion

This finding supports the relationship between the business process improvement and the ERP value. This finding complemented the previous study of Ha & Ahn (2014) for confirming the positive effect of the business process improvement on the ERP value. These findings suggest that improving business processes will result in more ERP benefits. Hence continuously working on business process improvement is encouraged for successful ERP outcomes.

4.8.3 Hypothesis 3: The functional extent of ERP system implementation is positively associated with improved business processes



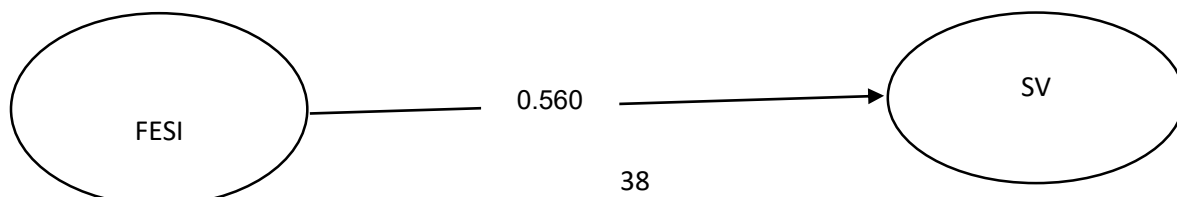
Findings

Descriptive statistics for functional extension of system implementation with a mean of 3.38 indicate a positive response from participants towards adding more ERP modules after the system go-live. The correlation results from Table 8 show that the association between the functional extent of the ERP system implementation and the business process improvement is not significant. The regression test also reveals that the relationship between these two variables is not significant. Therefore H3 is not supported.

Discussion

The implication of this finding suggests that there is not enough evidence linking the functional extent of the ERP system implementation to business process improvement. This result is in contraction with previous studies which confirmed the association of the functional extent of the ERP system implementation and business process improvement (Karimi et al., 2007) but in support of the study of Asamoah et al. (2015). While previous studies have found linkage between the extent of the ERP system implementation and business process improvement, similar to the current research, the Asamoah et al. (2015) study conducted in Ghana has found no linkage between those variables. One of the reasons behind this contradiction is the context in which the survey is conducted. Therefore more studies are recommended to confirm these results in the African context.

4.8.4 Hypothesis 4: The functional extent of ERP system implementation is positively associated with ERP value creation.



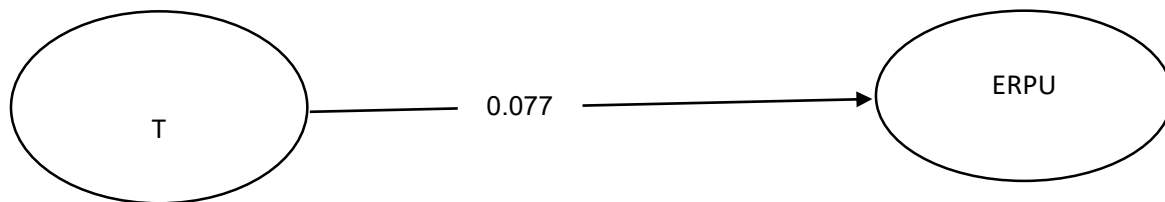
Findings

As indicated in Table 8, the correlation result shows that the functional extent of the ERP system is not correlated to ERP value. The regression test (Table 9) also reveals that the relationship between the functional extent of the ERP system and ERP value is not significant. Therefore, H4 was not supported.

Discussion

While the literature has revealed that the wider scope leads to more ERP benefits (Ha & Ahn, 2014), this research has found the insignificant effect of the functional extent of ERP system implementation on ERP value. The finding implied that the extent of ERP system implementation does not necessarily lead to ERP value creation.

4.8.5 Hypothesis 5: The quality of training provided to Employees will positively influence use the ERP system.



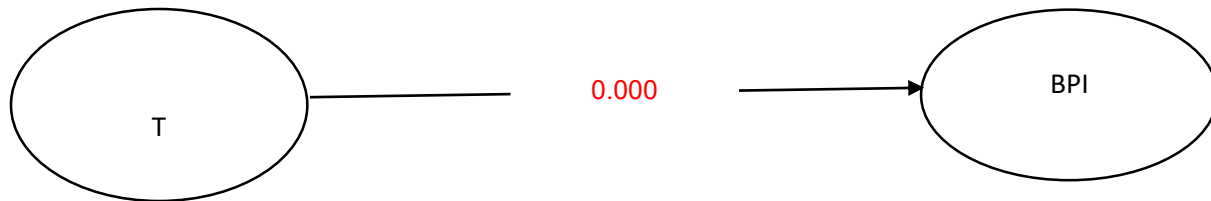
Findings

While descriptive statistics for training with a mean of 3.69, show a positive perception of participants towards the quality of training provided, the correlation test result from Table 8 shows that the correlation between training and ERP usage is not significant. The regression test (Table 10) also confirmed an insignificant impact between these variables. Hence the rejection of H5.

Discussion

Contrary to the hypothesized association, this finding does not support the effect of training on ERP use. This finding does not support the existing literature that emphasized the critical role played by training in ERP value creation (Dezdar, 2012). User training improves users' understanding of ERP (Dezdar, 2012). Because ERPs are mandatory, users are forced to use the system regularly.

4.8.6 Hypothesis 6: The quality of training provided to Employees will positively influence business processes improvement.



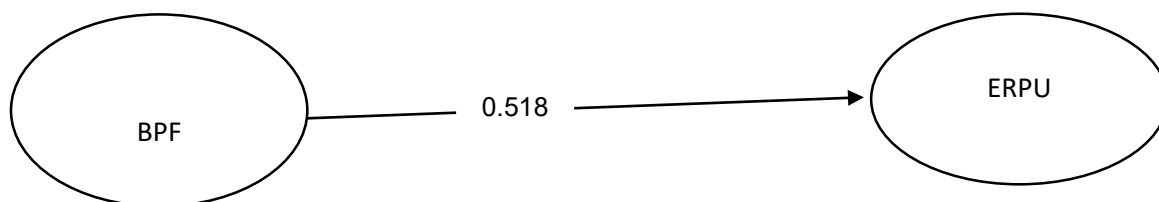
Findings

The correlation results in Table 8 show a positive association of Training construct and business processes improvement. The regression test (Table 10) also confirmed this significant impact on business processes improvement. Training is moderately correlated ($r = 0.47$) with business processes improvement. Hence H6 is supported.

Discussion

On the premise that training has a positive influence on business process improvement (Dezdar, 2012), this finding put forward reflection of previous literature that highlighted the importance of training users for improved business processes. Therefore management is encouraged to train employees frequently to keep abreast with the dynamic business environment.

4.8.7 Hypothesis 7: ERP systems which are not customised to fit African countries' business processes are likely to be used less.



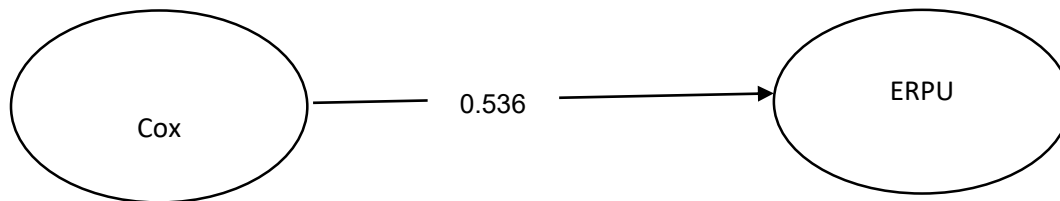
Findings

While descriptive statistics with a mean of 3.80 indicated a positive perception of respondents towards customising ERPs to fit organisational needs, the correlation test result shown in Table 8 indicates that the correlation between business process fit and ERP use is not significant. The regression test in Table 10 also confirmed that the relationship between these variables is not significant. Hence the H7 is not supported.

Discussion

This result suggests that there is not enough evidence that linked business process fit to ERP usage. This finding contradicts previous studies that have found the association between business process fit and ERP use (Bitsini, 2015; Nwankpa, 2015). This could be caused by the system mandatory, which forced users to use the system regularly.

4.8.8 Hypothesis 8: ERP systems which are believed to be complex are likely to be used less.



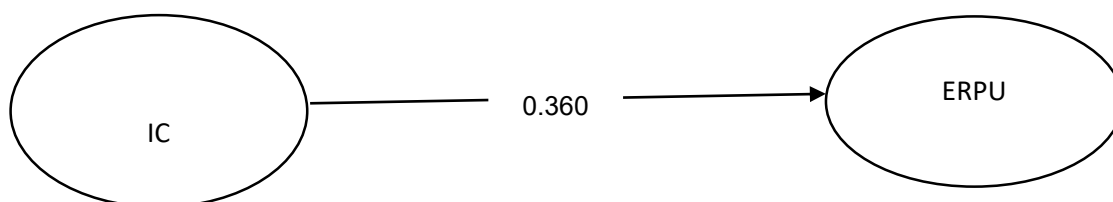
Findings

While the descriptive statistics for complexity with a mean of 2.22 show a negative perception of users towards the difficulty of ERP, the correlation result (Table 8) shows that the complexity is not correlating with ERP usage. The regression test also confirmed that the relationship between complexity and ERP use is not significant. Hence the H8 is rejected.

Discussion

The implication of the result suggested that the complexity of ERPs does not influence the use of ERPs even though the ERP system is considered one of the most complex information systems (Rajan & Baral, 2015). These findings are in contradiction with existing literature which linked complexity to the use of ERP (Rajan & Baral, 2015). The study of Rajan and Baral (2015) has found that the complexity of ERPs has a negative effect on the use of ERPs. This result implied that because ERP is mandatory, users are forced to use the system regardless of its complexity.

4.8.9 Hypothesis 9: The degree of compatibility of ERP systems with existing hardware and software will positively influence ERP system usage.



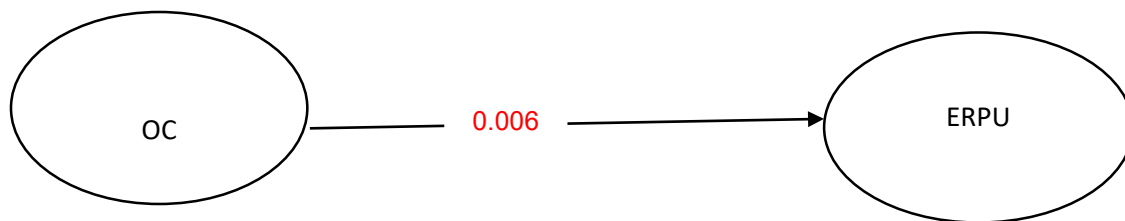
Findings

While descriptive statistics for IT comparability with a mean of 3.74, show a positive perception of respondents towards the alignment of ERP with existing technologies, the correlation result (Table 8) indicates that the correlation between compatibility and ERP usage is not significant. The regression test (Table 20) also confirmed the insignificant impact of these variables. Hence the rejection of H9.

Discussion

The finding is in contradiction with previous studies which have found the relationship between compatibility and ERP use (Rajan & Baral, 2015). The implication of these results suggested that the degree of compatibility of ERP systems with existing technologies will not have any impact on ERP use. Because ERP is a mandatory system, users are forced to use the system regardless of ERP compatibility with the existing technologies.

4.8.10 Hypothesis 10: Organisations with an adhocracy culture are likely to use ERP systems more.



Findings

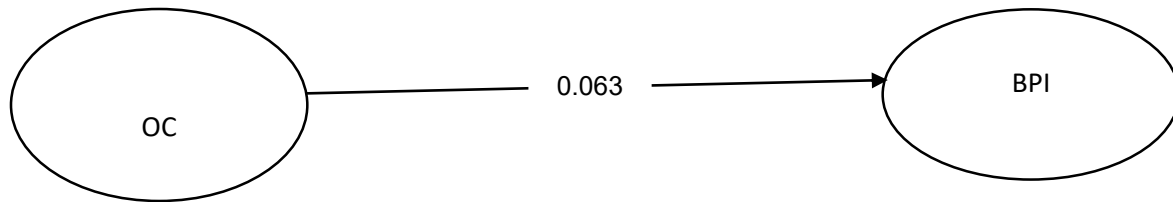
Descriptive statistics for organisational culture reveal a mean of 3.75. These statistics indicate that 85.6% of organisations surveyed had an adhocracy culture, indicating positive perception of users towards flexibility and adaptability of the ERP system. The correlation results shown in Table 8 show a positive association between an adhocracy culture and ERP usage. This significance is confirmed by regression test analysis. Therefore, H10 was accepted.

Discussion

The positive relationship between adhocracy culture and ERP use suggests that adhocracy culture plays a critical role in ERP success. These findings confirmed the results of previous studies that emphasized the importance of organisational culture

(Bitsini, 2015; Eytayo, 2014; Guo, Feng, & Wang, 2014). Organisations exhibiting flexibility in structure and externally orientated are predicted to use ERP more. According to Gregory et al. (2009) adhocracy culture is characterised by change and adaptation with the hope that it will lead to organisational growth. While the world is shifting from the Industrial Age to the Information and Knowledge Age (Kokt & Van der Merwe, 2009), organisations are finding the way of surviving in these dynamic business environment. Basotho shifted from socialist culture to a mixture of capitalist and socialist cultures with the introduction of textile industries owned and managed by foreigners (Rantšo, 2016).

4.8.11 Hypothesis 11: Organisations with an adhocracy culture are positively associated with the business process improvement.



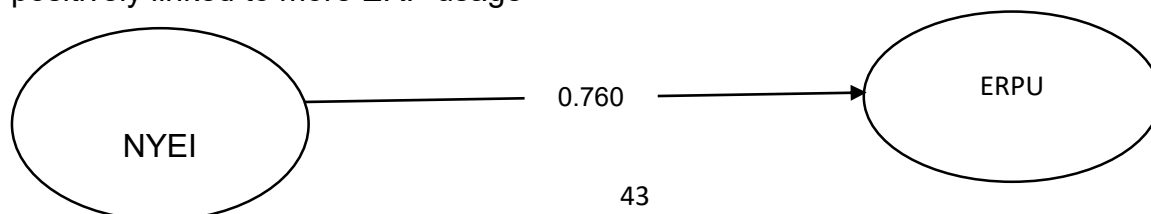
Findings

The correlation result shown in Table 8 indicates a positive correlation between organisational culture and business process improvement. The regression test analysis on the other hand revealed that organizational culture has insignificant effect on business process improvement. Because of significant correlation between these variables, H11 was supported.

Discussion

Consistent with previous studies, these findings have confirmed the relationship between organisational culture and business process improvement (Bitsini, 2015; Elhuni, 2016). This suggest that organisations with an adhocracy culture are likely to improve their business process. The more an adhocracy culture is practised in organisations, the more business will improve their business processes.

4.8.12 Hypothesis 12: Number of years since the introduction of the ERP system is positively linked to more ERP usage



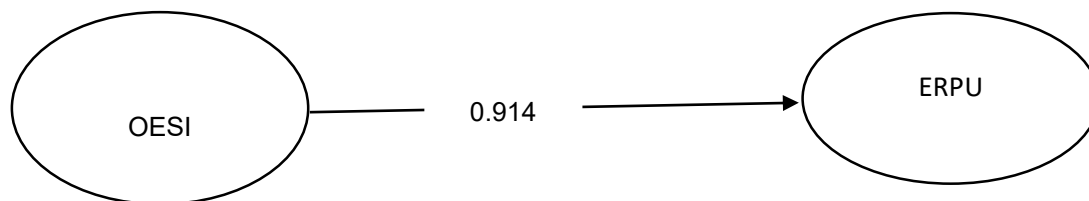
Findings

While descriptive statistics for a number of years since ERP introduction with a mean of 4.60, show a positive perception of respondents on experience in ERP use, the correlation test results presented in Table 8 indicate that the number of years since the introduction of the ERP system is not correlated to ERP usage. The regression test in Table 10 also confirmed that the relationship between these two variables is not significant. Therefore, H12 was not supported.

Discussion

Despite the importance of time factor on ERP implementation put forward by many researchers (Ortiz de Guinea & Webster, 2014; Staehr et al., 2012; Uwiseyemungu & Raymond, 2012), these findings have not confirmed the relationship between these two variables. Users are not considering the experience of using ERP as an important factor because ERP system is a mandatory system.

4.8.13 Hypothesis 13: Organisational ERP extension has a positive influence on ERP usage



Findings

While descriptive statistics for organisational extension of system implementation with a mean of 3.824 showed a positive response of participants towards ERP extension within company geographical areas, correlation test analysis in Table 8 showed a weak correlation (0.23) between organisational ERP system extension and ERP usage. However the regression test results revealed the relationship between the organisational ERP system extension and ERP usage is not significant. This is due to correlation between variables. Therefore H13 was accepted.

Discussion

Consistent with the previous studies, these findings have confirmed the positive relationship between the organisational ERP system extension and ERP usage (Bitsini,

2015; Eytayo, 2014). This implied that extending the ERP system to cover all organisational departments and geographical company areas will increase the use of the ERP system.

4.9 Final Model

Figure 10 illustrates the overall results of the research model. Contrary to existing literature, most of the hypotheses were not significant. Only organisational culture was significantly influential on ERP usage and accounted for 23.5% of the variation in ERP usage. The training was also found critical in determining business process improvement and accounted for 27.2% of the variation in business process improvement. Furthermore, ERP usage and business process improvement were found significantly influential in determining ERP value and counted 36% of the variation in ERP value. Despite the influence of mandatory system that impacted on ERP usage dependent variable, the overall model pointed out the importance of ERP use and business process improvement in predicting ERP value

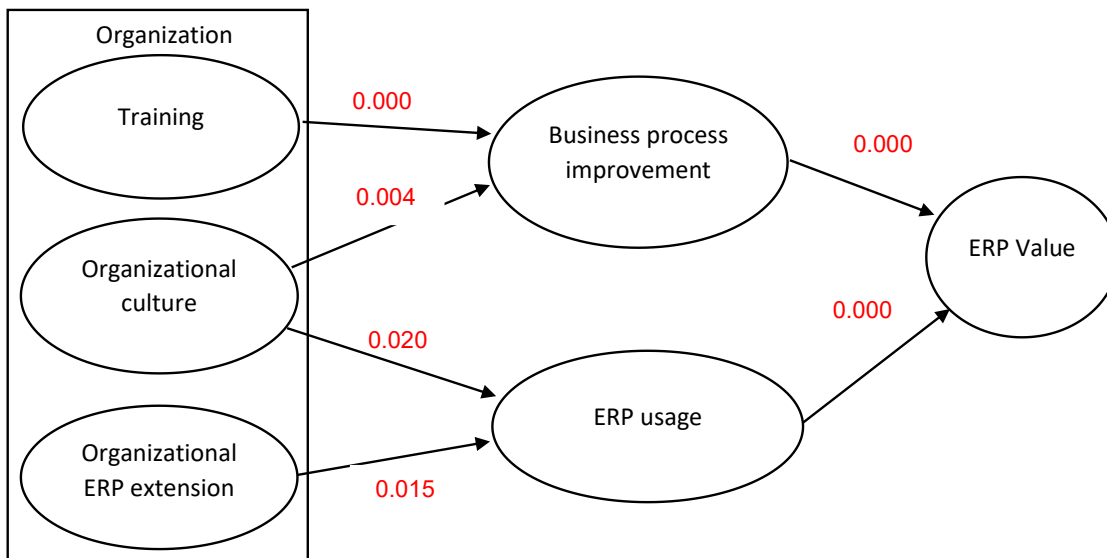


Figure 10: Over model Regression test results

4.10 Chapter summary

This chapter presented findings using different statistical tools. Factor analysis was used to validate data validity and Cronbach Alpha was used to test data reliability. The data was found to be reliable and valid for further analysis. Spearman Rank Order Correlations test was used to investigate relationships between variables, while regression test was used to predict value of dependent variable from independent variables. Four hypotheses

were supported, while nine were rejected. The results confirmed the importance of ERP use and business process improvement in determining ERP value. The results also emphasized critical role played by organizational culture and training.

5. Conclusion

This chapter entails a summary of the study by drawing some conclusions and providing limitations and recommendations for future research.

5.1 Research summary

The purpose of this study was to explain how ERP systems provide value to companies. In chapter one, the research context was introduced and the problem statement was provided, leading to research questions and research objectives. In chapter two, the previous literature was reviewed to set the groundwork for conceptual model development. A conceptual model was developed based on TOE, CVF, and previous literature. The highlight of the model was that ERP value creation is achievable through an interactive process of interconnected factors. From the model, hypotheses were formulated to explain ERP value creation empirically. Chapter three provides a road map for conducting this research, discussing in detail methodological choices, procedures, and techniques used to carry out this research. An online survey strategy was used to collect data from Lesotho companies. In chapter four, the findings of this research were presented. Firstly data validity and reliability was checked using the factor analysis test and the Cronbach Alpha test respectfully. Thereafter, the normality of data was checked before carrying out correlation and regression analysis tests.

In light of research objectives, the findings of this study have revealed that ERP usage and business processes improvement were the main factors affecting ERP value. The findings also identified the ERP usage to be the strongest determiner of ERP value than other factors. Furthermore, organizational culture was also confirmed to play a vital role in the use of ERPs. Moreover, training was found influential in determining business process improvement as well.

5.2 Implication of the study

The significance of this research lies in the description of Lesotho context. Descriptive statistics suggest that Lesotho companies are positive towards ERP value creation. They showed a positive perception of using ERP systems, despite the complexity of the ERP systems. They also valued the importance of the quality of training and alignment of ERPs with existing technologies. The research was further motivated by the importance of context, which provided empirical evidence of influential factors in the context of Lesotho. This study has empirically confirmed the relevance of organizational culture in ERP value creation. The influence of unique contextual conditions by Lesotho organizations has been revealed. African organizations have their way of doing business different from western organizations. Likewise, Lesotho has a unique organizational culture that influences the use of ERP systems. The valuable opinion raised by Bitsini (2015) and Eytayo (2014) but lacking empirical evidence was reinforced by this study. This study has extended the generalizability of organizational culture influence on ERP value. The findings of this research could be used as a basis for studying the relationship between organizational culture and the ERP value in Sub-Saharan African countries contexts. The findings could also be used by managers to develop strategies suitable to minimise risks that could reduce ERP benefits. In addition, based on the results, Lesotho could develop an ERP policy that will improve ERP implementation and use.

5.3 Limitation and future work

Due to time frame constraints and difficulty of collecting data because of the unpleasant climate brought by the Covid-19 pandemic, the sample size was small. As a result, the study focused on companies operating in Maseru, the capital town of Lesotho. Hence, the generalisation of these findings was limited. Despite the statistical relevance of the results, more studies with a broader scope and large sample size are needed to increase the generalisation of the study. Even though an online survey reached many respondents with fewer costs (Creswell, 2003), only people with access to the internet had a chance to participate. Mixing delivery and collection questionnaires with online questionnaires could minimize this limitation. Survey instruments are not changeable during research process, as a result important findings could be overlooked (Wu, 2011). The correlation testing method used to test the relationship between variables is criticised for its accuracy

compared to other correlation testing methods such as structural equation modelling (SEM) (Gefen, Straub, & Boudreau, 2000). SEM is the preferred technique known for its rigorous analysis that imputes relationships between unobserved constructs from observable variables (Gefen et al., 2000). Future studies could use the SEM technique to analyse similar results. The study has explained how ERP systems provide value to companies. Comparative studies for different contexts understanding influential factors determining ERP value could also be interesting studies.

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Appendix 1: CONSENT FORM

INFORMATION SHEET & CONSENT FORM – This questionnaire should be completed by Lower, middle and top managers from companies in Lesotho using ERP systems

Value of ERP systems in companies: Case study of Lesotho

Hello, my name is Teboho Talasi from the University of Cape Town and I am conducting research towards a Masters degree. I am researching on how ERP systems provide value to organisations and would like to invite you to participate in the project.

Some companies have successfully implemented ERP systems whereas others have failed to achieve potential benefits of ERP systems. Yet companies are investing a huge amount of money into these systems expecting the return on investment. I want to understand how ERP systems provide value to organisations in developing countries like Lesotho.

This research has been approved by the Commerce Ethics in Research Committee. Please understand that participation is voluntary. The choice to participate is yours alone. If you choose not to participate, there will be no negative consequence. If you choose to participate, but later decide you want to withdraw, you are free to do so at any time, without negative consequence. However, I would be grateful if you would assist me by participating in this survey.

There are no known risks or danger associated with this study. The researchers will not attempt to identify you with the responses to your questionnaire, or to name you as a participant in this study, nor will they facilitate anyone else`s doing so.

There are no costs involved in a survey, however, it is projected that a survey will take approximately 20 minutes to complete. Your replies will be anonymous, no need to put company name or respondent`s name anywhere on the form. Data will be stored only on

a password-protected computer. You will have the opportunity to get feedback on the result of the study.

By completing this survey, I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this consent form.

For any enquiry concerning this survey you may contact the following:

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Prof. Lisa Seymour +27 21650 4259 Lisa.Seymour@uct.za – Supervisor

Appendix 2: Questionnaire

Value of ERP systems in companies: Case study of Lesotho

This questionnaire is to be completed by lower and middle managers from different industries in Lesotho using ERP systems.

- 1) **ERP system:** An ERP system is an application system used to integrate most business functions such as planning, finance, sales, inventory, procurement, human resource, marketing, Billing etc. for business improvement. Such software includes Tompro, SAP, Oracle, ACCPAC, etc.)

1. Section 1: Demographic data

1. Is your company using any Enterprise Resource Planning (ERP) system, system that automates business functions such as finance, procurement, billing, etc. for improvement of business performance)?
 - 1) Yes
 - 2) No
2. What type of the industry is your company operating in?
 - 1) Manufacturing

- 2) Services
 - 3) Public sector
 - 4) Private sector
 - 5) Other
3. What position do hold in your company?
 - 1) Low level manager
 - 2) Middle manager
 - 3) Top manager
 - 4) Chief executive manager
 - 5) Other
 4. How old is your company?
 - 1) Less than one year
 - 2) 1 -3 years
 - 3) 3 - 5 years
 - 4) 5 - 9 years
 - 5) 10 years and above
 5. How many people are employed within your company?
 - 1) Less than 50
 - 2) 50 -100 people
 - 3) 101 - 200 people
 - 4) 201 - 300 people
 - 5) Above 300
 6. What is the name of ERP system package the company is using?
 - 2) SAP
 - 3) Oracle
 - 4) Tompro
 - 5) ACCPAC
 - 6) Other
 7. How many ERP modules such as finance module, procurement module, etc. is your company using?
 - 1) One module

- 2) Two modules
 - 3) Three modules
 - 4) Four modules
 - 5) More than four modules
8. How many years has your company been using an ERP system?
- 7) Less than one year
 - 8) 1 -2 years
 - 9) 3 - 5 years
 - 6) 6 - 9 years
 - 7) 10 and above
9. How many additional modules were added after system implementation?
- 1) None
 - 2) One module
 - 3) Two modules
 - 4) Three modules
 - 5) More than three modules

2. Section 2: Main questions

Questions	References	1. Strongly disagree 2.Disagree 3.Neutral 4. Agree 5.Strongly agree
ERP Training		
The kind of training on the system provided to staff was adequate and detailed	Rajan & Baral, 2015	1 2 3 4 5
Users were satisfied with the training provided to them	Rajan & Baral, 2015	1 2 3 4 5
Staff level of understanding was substantially improved after going through the training programme	Rajan & Baral, 2015	1 2 3 4 5

Management has invested in continuous training of employees in the post-implementation stage	Ha & Ahn, 2014	1	2	3	4	5
Complexity						
Using the system takes much time of employees than the traditional way of doing things	Rajan & Baral, 2015	1	2	3	4	5
Working with ERP is so complicated, it is difficult to understand what is going on	Rajan & Baral, 2015	1	2	3	4	5
Learning to use the system has been difficult for employees	Xu et al., 2017	1	2	3	4	5
The system is difficult to operate compared to a traditional system	Xu et al., 2017	1	2	3	4	5
IT Compatibility						
The system is compatible with existing technologies	Awa et al., 2016	1	2	3	4	5
The system is compatible with existing IT infrastructure	Rajan & Baral, 2015	1	2	3	4	5
The system is compatible with the firm's existing software	Rajan & Baral, 2015	1	2	3	4	5
The system is compatible with existing ICT policy		1	2	3	4	5
Business process fit (ERP system aligned to business needs)						
The built-in ERP functionality meets the needs required from our company	Nwankpa, 2015	1	2	3	4	5
ERP software is customised to fit company business processes	Hsu, 2013	1	2	3	4	5

Business processes have been re-engineered to accommodate ERP use	Hsu, 2013	1	2	3	4	5
The system matches employees' existing operational practices	Cheng, 2018	1	2	3	4	5
ERP usage						
Employees use the system daily	Nwankpa, 2015	1	2	3	4	5
Employees spend much time working with the system	Nwankpa, 2015	1	2	3	4	5
Staff use the system very intensively	Nwankpa, 2015	1	2	3	4	5
Many reports are generated by the system per day	Ruivo, 2015	1	2	3	4	5
Business process improvements						
Business processes are controlled carefully to ensure correctness in the post-implementation stage	Ha & Ahn, 2014	1	2	3	4	5
Business processes are checked continuously to prevent defects in product/services in the post-implementation stage	Ha & Ahn, 2014	1	2	3	4	5
Business processes are evaluated continually for improvement in the post-implementation stage	Ha & Ahn, 2014	1	2	3	4	5
Process improvement standards are raised continuously in the post-implementation stage	Ha & Ahn, 2014	1	2	3	4	5
The extent of ERP system implementation						
After system go-live, more modules were installed	Nwankpa, 2015	1	2	3	4	5

The system has been extended to cover most of our geographical company areas	Nwankpa & Roumani, 2014	1	2	3	4	5
The system implementation has been extended to cover most of our departments/divisions	Nwankpa, 2015	1	2	3	4	5
The system has been extended to our customers for ease of communication	Nwankpa, 2015	1	2	3	4	5
ERP value						
With the implementation of the system, organisational operations have improved	Staehr et al., 2012	1	2	3	4	5
With the implementation of the system, organisational management has improved	Staehr et al., 2012	1	2	3	4	5
With the implementation of the system, organisational strategies have improved	Staehr et al., 2012	1	2	3	4	5
With the implementation of the system, Customer service has improved	Maldonado & Sierra, 2013	1	2	3	4	5
Organisational culture						
The organisation is very flexible toward change and encourages innovation	Aier, S. 2014	1	2	3	4	5
The glue that holds the company I work in together is commitment to innovation and development	Aier, S. 2014	1	2	3	4	5
The management style in the organisation is characterised by individual risk-taking, innovation, freedom and uniqueness	Aier, S. 2014	1	2	3	4	5

Our firm emphasises on growth and acquiring new resources	Aier, S. 2014	1	2	3	4	5
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Appendix 3: Spearman Rank Order Correlations

Pair of Variables	Spearman Rank Order Correlations (Spreadsheet4_(Recovered)) MD pairwise deleted Marked correlations are significant at p <.05000			
	Valid	Spearman	t(N-2)	p-value
BPF & BPF				
BPF & BPI	111	0.150760	1.59218	0.114240
BPF & FESI	111	0.204901	2.18560	0.030985
BPF & T	111	0.251535	2.71334	0.007744
BPF & Cox	111	-0.023047	0.24068	0.810256
BPF & IC	111	0.296233	3.23810	0.001595
BPF & ERPU	111	0.184642	1.96145	0.052377
BPF & ESI	111	0.432853	5.01308	0.000002
BPF & SV	111	0.141583	1.49321	0.138270
BPF & OC	111	0.045115	0.47149	0.638233
BPI & BPF	111	0.150760	1.59218	0.114240
BPI & BPI				
BPI & FESI	111	0.097647	1.02436	0.307935
BPI & T	111	0.467687	5.52418	0.000000
BPI & Cox	111	-0.258779	2.79701	0.006099
BPI & IC	111	0.246858	2.65959	0.009003
BPI & ERPU	111	0.146713	1.54848	0.124404
BPI & ESI	111	0.218955	2.34281	0.020954
BPI & SV	111	0.327140	3.61431	0.000457
BPI & OC	111	0.267853	2.90252	0.004481
FESI & BPF	111	0.204901	2.18560	0.030985
FESI & BPI	111	0.097647	1.02436	0.307935
FESI & FESI				
FESI & T	111	0.056012	0.58570	0.559285

FESI & Cox	111	-0.160814	- 1.70108	0.091778
FESI & IC	111	0.115871	1.21793	0.225879
FESI & ERPU	111	0.103880	1.09043	0.277927
FESI & ESI	111	0.206484	2.20324	0.029682
FESI & SV	111	0.147944	1.56177	0.121242
FESI & OC	111	0.020902	0.21827	0.827624
T & BPF	111	0.251535	2.71334	0.007744
T & BPI	111	0.467687	5.52418	0.000000
T & FESI	111	0.056012	0.58570	0.559285
T & T				
T & Cox	111	-0.086802	- 0.90968	0.364999
T & IC	111	0.377847	4.26069	0.000043
T & ERPU	111	0.159033	1.68176	0.095478
T & ESI	111	0.220742	2.36290	0.019905
T & SV	111	0.314365	3.45735	0.000779
T & OC	111	0.105018	1.10252	0.272664
Cox & BPF	111	-0.023047	- 0.24068	0.810256
Cox & BPI	111	-0.258779	- 2.79701	0.006099
Cox & FESI	111	-0.160814	- 1.70108	0.091778
Cox & T	111	-0.086802	- 0.90968	0.364999
Cox & Cox				
Cox & IC	111	0.085279	0.89359	0.373510
Cox & ERPU	111	-0.094901	- 0.99529	0.321801
Cox & ESI	111	-0.152845	- 1.61472	0.109263
Cox & SV	111	-0.087941	- 0.92170	0.358718
Cox & OC	111	-0.110458	- 1.16032	0.248455
IC & BPF	111	0.296233	3.23810	0.001595
IC & BPI	111	0.246858	2.65959	0.009003
IC & FESI	111	0.115871	1.21793	0.225879
IC & T	111	0.377847	4.26069	0.000043
IC & Cox	111	0.085279	0.89359	0.373510
IC & IC				

IC & ERPU	111	0.152385	1.60974	0.110347
IC & ESI	111	0.207822	2.21816	0.028618
IC & SV	111	0.106241	1.11551	0.267087
IC & OC	111	0.011136	0.11627	0.907654
ERPU & BPF	111	0.184642	1.96145	0.052377
ERPU & BPI	111	0.146713	1.54848	0.124404
ERPU & FESI	111	0.103880	1.09043	0.277927
ERPU & T	111	0.159033	1.68176	0.095478
ERPU & Cox	111	-0.094901	0.99529 ⁻	0.321801
ERPU & IC	111	0.152385	1.60974	0.110347
ERPU & ERPU				
ERPU & ESI	111	0.229614	2.46304	0.015341
ERPU & SV	111	0.386620	4.37677	0.000028
ERPU & OC	111	0.219727	2.35148	0.020495
ESI & BPF	111	0.432853	5.01308	0.000002
ESI & BPI	111	0.218955	2.34281	0.020954
ESI & FESI	111	0.206484	2.20324	0.029682
ESI & T	111	0.220742	2.36290	0.019905
ESI & Cox	111	-0.152845	1.61472 ⁻	0.109263
ESI & IC	111	0.207822	2.21816	0.028618
ESI & ERPU	111	0.229614	2.46304	0.015341
ESI & ESI				
ESI & SV	111	0.368068	4.13288	0.000071
ESI & OC	111	0.240990	2.59241	0.010837
SV & BPF	111	0.141583	1.49321	0.138270
SV & BPI	111	0.327140	3.61431	0.000457
SV & FESI	111	0.147944	1.56177	0.121242
SV & T	111	0.314365	3.45735	0.000779
SV & Cox	111	-0.087941	0.92170 ⁻	0.358718
SV & IC	111	0.106241	1.11551	0.267087
SV & ERPU	111	0.386620	4.37677	0.000028
SV & ESI	111	0.368068	4.13288	0.000071
SV & SV				
SV & OC	111	0.612110	8.08148	0.000000
OC & BPF	111	0.045115	0.47149	0.638233

OC & BPI	111	0.267853	2.90252	0.004481
OC & FESI	111	0.020902	0.21827	0.827624
OC & T	111	0.105018	1.10252	0.272664
OC & Cox	111	-0.110458	1.16032	0.248455
OC & IC	111	0.011136	0.11627	0.907654
OC & ERPU	111	0.219727	2.35148	0.020495
OC & ESI	111	0.240990	2.59241	0.010837
OC & SV	111	0.612110	8.08148	0.000000
OC & OC				