FRAMEWORK FOR ALIGNING INFORMATION SYSTEMS WITH BUSINESS STRATEGY IN SMALL MEDIUM ENTERPRISES IN GAUTENG, SOUTH AFRICA

Research Dissertation submitted for the degree

Magister Technologiae in Information Technology

In the Department of Information and Communication Technology,

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By

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DECLARATION

This Dissertation was written as a part of MTech in Information Technology at Vaal University of Technology. I declare that “Framework for aligning Information Systems with Business Strategy in Small Medium Enterprises” in Gauteng, South Africa is my own work and has not been submitted for any degree in any university.

Full Names: Rethabile Charlotte Kale

Date: ----------

Signature: ----------

DEDICATION

To my Lord and saviour who has given me the wisdom and strength to preserver throughout the cause of this research.

To my loving Mother and Father who instilled in me the benefits of hard work and patience which helped in shaping me into the woman I am today, I thank you. To my siblings, thank you for the love and support you given me throughout my dissertation, whenever things were not looking good you are reminding me that it might not be easy, but it will be worth it in the end.

ACKNOWLEDGEMENT

I would like to take this opportunity to give acknowledgment to those who supported me throughout this research project.

My sincere appreciation goes to my supervisor Prof Tranos Zuva, thank you for bearing with me and pushing me when I was very close to the edge. Your continuous guidance and advice through this thesis are not gone un-noticed. A special thank you to my respondents who spared their time out of their busy schedules to accommodate and support my research.

ABSTRACT

The alignment of Information Systems (IS) with business processes in organisations is a dynamic state whereby an organisation uses Information Technology in order to achieve business objectives. The alignment of IT exists when goals, activities and processes of a business are in harmony with the Information Systems which are supporting them. The lack of IT strategic alignment in organisations lead to poor IT Return on Investment (ROI), inefficient operations due to poor performance that impact the organization's competitive advantage.

Studies on Information Systems Alignment have merely focused on the alignment between Business and Information System Strategy. Very few studies have studied this alignment in Small and Medium Enterprises to investigate what impact the alignment has with the business performance.

The purpose of this study is to measure the alignment between Information system and the business strategy in Small and Medium Enterprises and to investigate the impact of this alignment on the business performance. A model was used to measure the alignment between Business and Information System Strategy and its impact on the business performance. Data was collected through the use of a questionnaire. A sample of ninety-nine (99) individuals from a variety of SMEs was used. SPSS was used to analyse the data.

The results showed the variables of the model were all positively correlated to one another. Therefore, alignment of Information Systems (IS) and Business Strategy was confirmed. The influence of the alignment was found to have a positive influence (0.459) on the overall performance of the business.

In conclusion, it is imperative for SMEs to align Information Systems (IS) and Business Strategy in order to increase the overall performance of their businesses.

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LIST OF ABBREVIATIONS

BA	Business Strategy and IT Infrastructure/Processes
BAc	IT Strategy and Business Infrastructure/Processes
BSA	Business Strategy and Business Infrastructure/Processes
BST	Bartlett's Sphericity Test
FPER	Firms Performance
IS	Information Systems
IT	Information Technology
ITA	IT Strategy and IT Infrastructure/Processes
KMO	Kaiser-Meyer-Olkin
PA	Business Infrastructure/Processes and IT Infrastructure/Processes
PCA	Principal Components Analysis
PCF	Process Classification Framework
SAM	Strategic Alignment Model
SME's	Small Medium Enterprises
TA	Business Strategy and IT Strategy

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CHAPTER 1: INTRODUCTION

1.1 Purpose of the Study

This first chapter discusses the research background, problem statement and presents the research objectives and the structure of the thesis.

1.2 Background Study

The alignment of Information Systems (IS) with business processes in organisations is a dynamic state whereby an organisation uses Information Technology in order to achieve business objectives. The alignment of IT exists when goals, activities and processes of a business are in harmony with the Information Systems which are supporting them. Several years ago, Information Technology had been a technological way of implementing business objectives. Information Technology (IT) and Information System (IS) is key to the process of business planning, design analysis, operations management and strategic decision making. (Y. E. H. Chan, Sid L. , 1993) stated that organisations achieve alignment of their IT with their corporate objectives through three levels of alignment which are; Awareness, Integration and Alignment.

Alignment is defined as being in correct relative position to something else. According to Alexandra Rodrigues (Consortium, 2001a) an effective IT alignment requires the analyses of business problems and changes across all levels, from market perspective to IT technological issues. The lack of IT strategic alignment in organisations lead to pure IT Return on Investment (ROI), inefficient operations due to pure performance (J. N. Luftman, & Kempaiah, R, 2007) and (R. C. Sabherwal, YE, 2001)that impact the organization's competitive advantage.

Information Systems (IS) is defined as a way of adopting information systems according to the organization's objectives for the information systems to support the business strategy. According to (R. C. Sabherwal, YE, 2001), an IS ties together the organization's goals, information needed to support the goals and the implementation of computer systems to provide information that will assist in meeting the organization's demands in supporting those goals. Organization will also need to have a business strategy in place of which the purpose is to help the business meet its objectives, therefore aligning of (IS) with the business strategy in an organization is the source to help maintain business values. For an organization to stay competitive in the business world they must make sure that they have an efficient and effective IS strategy aligned that supports their business strategy and processes.

Strategic alignment is the degree to which a company's mission, goals, and business plans are shared and supported by IT strategy (Y. E. R. Chan, B.H, 2007). For over 20 years business IT strategic alignment has been ranked as top management concern where business and IT managers are continuously looking for best management practice in helping them to align their business with the IT strategy (J. Luftman, 2004).

Alignment of IS/IT and business process is becoming the key issue in organisations. Within a successful organisation it is necessary to synchronize the IT business alignment (Grafin, 2008). The alignment of IS/IT with business strategies means that the goal of the IT department must be in line with that of the business; if that is not in line then there will be a misalignment which will contribute to the business not performing well. (H. a. G. Sabherwal, 2001) identified IT and Business strategic alignment as an important missing link between IT and the organisation's performance. (Y. E. H. Chan, Sid L. , 1993) state that organisations mostly

achieve alignment of their IT with their corporate objectives through three levels of alignment, which are Awareness, Integration and Alignment.

Information systems are the key components in defining the framework assuring the alignment between the information system and the business strategy. In order to achieve alignment, the sources of misalignment must first be identified. Alignment of IT with business process has been said to help the organisation compete and if the business has a poor IT alignment it will struggle to meet its objectives. (Consortium, 2001c) also states that an effective business-IT alignment requires the analyses of business problems and the changes that take place from market perspective to IT issues; the required interface between IT and business must be based on a clear and continuous translation of the business requirements into information. So therefore, the organisations business strategy must be in line with the IT strategy.

Furthermore, according to (Basir, 2009) alignment is crucial because it assists organisations in ensuring that the areas which are needed for improved organizational performance are targeted by information systems. One of the recurring issues within organisations is the lack of strategy in the strategic alignment. (J.N Luftman, 2000) suggests that the role of IT has changed over the past years; the assessment of IT strategy and business strategy alignment is vital in ensuring the appropriate use of IT in the organisation and to make sure that the organisations' objectives are met. This study seeks to propose the conceptual framework for the alignment of IS with business strategy within SME's in Gauteng, South Africa. The effectiveness of this conceptual framework will not only guide on how to align Business strategy with IS/IT Strategy but to also assist with firm's performance.

1.3 Problem Statement

There is a widespread acceptance that businesses and IS/IT Strategies should be linked and interdependent. Despite the alignment of IS/IT with business strategies which are put in place by organisations, for the organisations to achieve IS/IT and business alignment the business must integrate the IS/IT strategies in line with the business strategies. Both the business and IT must always be involved in the development life cycle (SDLC) to ensure that IT and business are completely aligned. Aligning of IS/IT strategy with the business' strategy is critical to the business' success and remains a challenge. Alignment leads to more focused and strategic use of IT which, in turn, leads to increased performance.

Challenges faced by organisations in the alignment of IS/IT and business strategy is the fact that IT strategic goals and objectives are not in line with the support of the business goals and objectives. The problem experienced with the alignment of IS/IT with business strategies that most organisations are still experiencing after all these years, is the lack of communication, lack of modern technology and lack of resources.

1.4 Research Questions

Based on the research objectives the following question and sub-questions can be outlined:

How does the alignment of IS/IT to business strategy affect the organization?

1.5 Sub questions.

- What frameworks are currently set in place for aligning IS/IT strategies with the business strategy?

- What impact does IS/IT have on the business strategy?

- Why should organisation align their business processes with IS/IT?

1.6 Research Objectives

The aim and objective of the study is:

- To study the current frameworks set in place for aligning IS/IT strategies with the business strategy in literature.
- To propose a framework for alignment of IS/IT strategies with the business strategy
- To evaluate the alignment of IS/IT strategies with the business strategy in organisations using the proposed model.
- To evaluate whether IS/IT and business strategy have an impact on the performance of an organisation

1.7 Limitations

The researcher is aware of some limitations that might arise during the research. The study will highlight the important aspect of addressing the importance of aligning IS/IT with business strategy in an organisation. The limitations that may arise are time and cost; the study will be conducted by analysing data gathered from one organisation.

Another limitation is the difficulties that might arise in the distribution of questionnaires and interviews, bearing in mind that some respondents will not entirely complete the questionnaire.

The proposed approach in this study will not be a step-by-step guide or process for achieving a successful alignment between IT strategy and business process but rather a guideline to help organisations in the right direction.

1.8 Research Design

The research approach that will be used in this study will be the quantitative research. (Collis, 2003), defines quantitative research as a process of gathering and analysing data to establish quantitative relationships amongst variables.

The proposed research design for this study to be used is the experimental approach whereby data will be collected from organisation to evaluate the strategic alignment between IT and business strategy and also looking at the alignment gaps between business and IS/IT strategy, the reason behind the alignment gap and to measure the strategic alignment in order to assist organisations to maintain their competitive objectives.

1.9 Assumptions

The following assumptions have been made regarding the study:

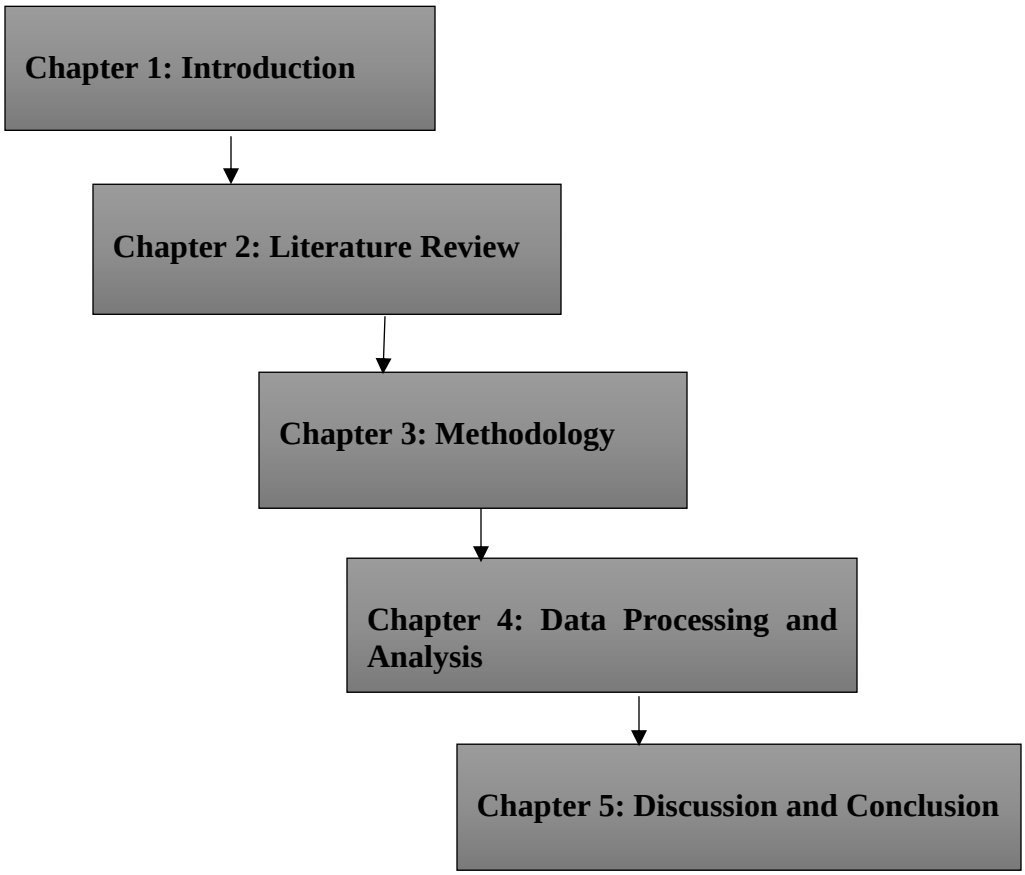
- The total number of respondents was enough to gain satisfactory data.
- Participants truthfully and honestly responded to the questionnaire.

1.10 Layout of the research study

The Thesis consists of five chapters as indicated in (Figure 1.1). Chapter 1 is the background of the study. Chapter 2 presents the literature review on various studies on alignment of IS with Business Processes in SME's the chapter provides a brief overview of the research backgrounds. Chapter 3 presents the research design, research approach, population, sampling size, sampling method, research instrument, procedure for data collection, the proposed research model as well as data processing and analysis, validity and reliability. Chapter 4 presents the processing and analysis of data. The results are investigated using a tool, i.e. the

Statistical Package for the Social Sciences (SPSS). The results are presented in figure and tabular format. Chapter 5. Presents the study findings and recommendations for further study in the alignment of IS with Business processes in Small Medium Enterprises.

Figure 1.1 Outline of the Thesis



1.11 Chapter Summary

Chapter 1 of the current research introduced the problem related to alignment of IS with business processes within Small Medium Enterprises. The background of the problem was discussed, and the problem statement expressed. The purpose and importance of the current research was stated, and the research questions were posed.

The theoretical framework upon which the current research is built was provided in addition to the studies assumptions and limitations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The contribution of this chapter is to highlight the understanding of the key concepts including SMEs, Business strategy, Information Systems, Information Technology. The SMEs concept involves the environment linked to the South African context. Then the definition of IS/IT was taken different research literatures based on their understanding from security culture were provided from different researchers based on their understanding of the concept. Frameworks Models relating to the alignment were also outlined.

2.2 Information Systems (IS) and Information Technology (IT)

It is important that there is a clear understanding of the difference between the terms information systems (IS) and information technology (IT) before continuing. While both terms can be used interchangeably, information can be defined as "data that have been organized so they have meaning and value to the recipient. While, Information technology refers specifically to technology, essentially hardware, software and telecommunications networks, (Turban E, 2010). IT helps with the acquisition, processing, storing, delivery and sharing of information and other digital content (Peppard, 2002).

The US Academy of Information Systems defines information systems as "the means by which people and organisations utilizes technology by means of gathering, processing, storing and the distribution of information".

2.3 Small Medium Enterprises (SME's)

According to the European (Commission, 2003), SMEs are "enterprises which employ people fewer than 250 and which have an annual turnover not exceeding 50 million euros, and/or an annual balance sheet total not exceeding 43 million euro". The United States definition of SMEs vary depending on industry, ownership structure, revenue, and number of employees. Generally, however, the number of employees must be less than 500. Furthermore, according to (Fernely, 2006) SMEs usually don't have a widely spread IT infrastructure.

In South Africa 'SME' is a term that is used interchangeably. The National Small Business Act 102 of 1996, p 17, defines SME as small business meaning a separate and distinct business entity, which includes corporative enterprises and non-governmental organisations, managed by a single owner or more including its branches or subsidiaries. If any it is predominately carried over to any sector or subsector of the economy. The economic growth and development of SME sector in SA continues to be affected by various challenging factors. The study by (Herrington, 2010) substantiates that the rate in which an SME can survive the economy is still one of the lowest in the world. Growth rates of small businesses in South Africa are showing as low with an average of 50% of fail to grow. A lot of factors increase their influence and causing a huge effect on the success of SMEs (Cacciotti, 2015).

Table 2.1 below illustrates how the National Small Business Act uses the number of employees combined with the annual turnover per enterprise size category to define SMEs.

Table 2.1: Broad Definition of SMEs in the National Small Business Act

Definitions of SMEs given in the National Small Business Act			
Enterprise size	**Number of employees**	**Annual turnover**	**Gross assets, excluding fixed property**
Medium	Fewer than 100 to 200, depending on industry	Less than R4 million to R50 million, depending upon industry	Less than R2 million to R18 million, depending on industry
Small	Fewer than 50	Less than R2 million to R25 million, depending on industry	Less than R2 million to R4,5 million, depending on industry
Very small	Fewer than 10 to 20, depending on industry	Less than R200 000 to R500 000, depending on industry	Less than R150 000 to R500 000, depending on industry
Micro	Fewer than 5	Less than R150 000	Less than R100 000

2.4 Factors affecting SME'S

According to (Delmar, 2008),factors in the business environment are defined in both inside and outside the organisation, which helps influence the continued, successful existence of the organization. The business environment is said to play a vital role in the growth of SME's. Factors which resides inside the business are known as internal environment and factors outside the business are known as the external environment. The growth of both internal and external environment is important for ME growth, (Beck, 2006). Below are the factors:

Internal Environmental Factors

The Internal environmental factors include factors within the business that can managed and controlled by the business (Fatoki, 2010). Challenges that might arise with the internal environment of a business includes management competency, skills and lack of business management training.

External Environmental Factors

The study by (Fatoki, 2010),highlights these factors as economic variable and markets, corruption, labour, infrastructure and regulations make up the external environment.

2.5 The importance of strategic alignment in SME'S

According to (Marcelino-Sádaba, 2014), many SMEs are still finding themselves in the middle of deciding whether to continue with obtaining software and software expansions while their business grow or to invest in more sophisticated IT infrastructure due to the limited financial and staff resources. SMEs are eager in investing in the development of their IS in order to add value as the financial resources required to invest in IS decrease.

A study conducted by (Kyobe, 2004) on SMEs in South Africa around the eastern Free State and part of the KwaZulu-Natal province showed that some SMEs are using IT to lower costs and improve their customer service. However, a lot of managers are still not using IT strategically in reaching business requirements. Furthermore, it has been seen that SMEs benefit from strategic alignment and the growth of IT provides SMEs with the ability to be more innovative and as a result benefit competitively from it,(Blili, 1993).

2.6 Information System within SME'S

It is a common fact that the main object of any business is to maximize profit by means of an increase in business productivity or by means of rapid growth in market shares domination, to achieve this the business needs to look at the environment changes particularly in the Information Technology environment. Studies have shown that the most used Information System (IS) is the Accounting Information System (Marriot, 2000).

(Romney, 2000), defines an accounting information system as 'a system that processes data and transactions to provide users with information they need to plan, control and operate their businesses. Studies have also found that SMEs are still having ineffective information management, poor system control, and decision making regardless of having information systems in place. SMEs implement effective information and control through informal means and that decision-making process can be more sophisticated than anticipated. It was argued that these contradiction stems largely from the researchers' paradigm rather than any real contradiction.

2.7 Business Strategy

The business strategy refers to a detailed plan of an organization for achieving success in business. It represents the first component of the research model as depicted in Figure 3.1 in which the organisation competes and is concerned with decisions such as product-market offering and the distinctive strategy attributes that differentiate the organisation from its competitors, as well as the range of "make-versus-buy" decisions, including partnerships and alliances. The components that form the business strategy consist of three components that are represented in business scope, business competencies, and business governance (J. V. N. Henderson, 1993).

2.8 IS Strategy

Information systems strategy is of importance to the research of IS. IS strategy is concerned mainly with the alignment of IS development together with business needs. It is the scheduling process of the development of systems towards the long-term role of information systems in the organisation. It brings together the business aims of the organization, a clear understanding of the information required to support those goals and the implementation of the computer systems that need to be in place to provide that information.

With the rapid growth of IS technologies it opened new opportunities of the technology to be used to benefit the business and organisation (Galliers, 2003). The effective and efficient utilization of IS requires the alignment of IS with business processes, business plan and its implementations to improve the competitiveness and productivity of the organisation by means of improving its business processes.

2.9 Alignment

Alignment of IS/IT and business process is becoming the key issue in organisation. Within a successful organisation it is necessary to synchronize the IT business alignment (Grafin, 2008). The alignment of IS/IT with business strategies means that the goal of the IT department must be in line with that of the business; if that is not in line then there will be a misalignment which will contribute to the business not performing well. (R. C. Sabherwal, YE, 2001), states that IT and Business strategic alignment as an important missing link between IT and the organisation's performance.

(Y. E. H. Chan, Sid L. , 1993),states that organisation mostly achieve alignment of their IT with their corporate objectives through three levels of alignment, which are Awareness, Integration and Alignment.

Information systems are the key components in defining the framework assuring the alignment between the information system and the business strategy. In order to achieve alignment, the sources of misalignment must first be identified. Alignment of IT with business process has been said to help the organisation compete and if the business has a poor IT alignment it will struggle to meet its objectives. According to (Consortium, 2001a), an effective business-IT alignment requires the analyses of business problems and the changes that take place from market perspective to IT issues; the required interface between IT and business must be based on a clear and continuous translation of the business requirements into information. Thus, the organisation business strategy must be in line with the IT strategy.

Furthermore, according to (Basir, 2009), alignment is crucial because it assists organisation's in ensuring that the areas which are needed for improved organizational performance are targeted by information systems. One of the recurring issues within organisation is the lack of strategy in the strategic alignment. (J.N Luftman, 2000)suggests that the role of IT has changed over the past years; the assessment of IT strategy and business strategy alignment is vital in ensuring the appropriate use of IT in the organisation and to make sure that the organisation objectives are met.

Over the years several models have been proposed by researchers, addressing specific aspects of alignment which can be further analyzed and classified according to different aspects. (Cataldo, 2012), classifies them into two categories in line with the scope of alignment: strategic alignment and operational, or process alignment.

Table 2.2: Alignment Definitions

Author	Concept definition	Comments
Luftman 2004	Alignment refers to applying IT in an appropriate and timely way, in harmony with business strategies, goals and needs	Acknowledges that there are different levels of alignment for different need and times Emphasizes the functional fit inside the organization
Campbell 2005	Alignment is the process where business and IT work together to achieve a common business goal.	Emphasizes the cooperation of IT and business Focus on functional alignment Does not mention need for structural alignment
Silvius 2009	Alignment is the degree to which the IT applications, infrastructure and organization, enable and support the business strategy and processes, as well as the process to realize this.	Emphasizes the cooperation of IT and business - Takes to account the different levels of alignment. Acknowledges the different dimensions of alignment

There are several impacts that alignment has on performance of the business:

- Alignment leads to more focused and strategic use of IT which, in turn, leads to increased performance (Y. E. Chan, 2007).
- The better the fit, the better the business performance (P. Cragg, 2002).

According to (A. J. G. Silvius, 2006), many research‟ studies have shown that misalignment or lack of alignment between IT/IS and business strategies is one of the main reasons why enterprises fail to exploit the full potential of their IT investments. Furthermore, organisations that have accomplished a high degree of alignment are often associated with better business efficiency and effectiveness performance.

2.10 Challenges in attaining alignment

A recurring issue seen in previous alignment research is that often corporate strategy is unknown (Y. E. Chan, 2007). This poses a significant challenge because most models of alignment support an existing business strategy in which an organization can align itself. It is

said that managers in organization undergo doubt in the difference between espoused strategies, strategies in use and managerial actions, many of which could conflict with one another. The issue pertaining to comprehension can be divided into internal and external within the organization.

Internal comprehension can be affected by mental models and world views, relationships, shared domains of knowledge and shared systems. External comprehension can be influenced by education and training, the organizational structure and visibility of the IT staff within the structure and the IT environment. Whenever the managers are confronted with a business challenge, they should make decisions based on their understanding and authority to make decisions. Campbell also adds that strategic alignment be an array of bonded choices made in order to resolve strategic ambiguity (Campbell, 2004).

Alignment of IT and IS Strategy with business strategy has been classified as one of the most issues faced by business together with IT executives. (Riech, 2000), defines the term alignment as the extent in which the IT mission, objectives and plans support and are supported by their business counterparts. From the late 1980's alignment has been an important concern to the business community as it doesn't only help firms realize the potential benefits from investments in IT, it also improves business performance through aligning the organization and IS infrastructure (Tallon, 2000).

Major reasons for alignment failure includes the inability to maintain internal and external business and IT relationships, failure to implement change, lack of senior management support, and a culture that refuses to shift (Wiess, 2004). Organisations that have accomplished a high degree of alignment are often associated with better business efficiency and effectiveness performance (Silva, 2007). Within many organisations' information technology is no longer

regarded as just a support function for core business processes, It's also an enabler of internal efficiencies and competitive advantages. As the role of Information Technology continues to expand, enterprises increasingly require greater alignment between their business and IT strategies, as well as the means to continuously measure the value Information Technology provides. Table 2.3 illustrates a summary of some studies that were written about alignment.

Table 2.3 Review of Alignment Literature

Reference	Study title	Findings
Henderson and Venkatraman (1993)	Strategic alignment: Leveraging information technology for transforming organisations.	The fit of main 4 aspects namely business strategy, organizational infrastructure, IT strategy and IT infrastructure improve the business performance.
Bergeron & Raymond (2001)	Fit in strategic information technology management research: and empirical comparison of perspectives.	Business strategy-IT strategy alignment and IT structure-organization structure alignment increased the performance.
Sabherwal and Chan (2001)	Alignment between business and IS Strategies, a study of prospector's analysers and defenders	IT-Business alignment influences the business performance.
Crouteau et al., (2001)	Organizational and technological infrastructures alignment.	IT Infrastructure-organizational infrastructure alignment influences the business performance positively.
Cragg et al., (2002)	IT alignment and firm performance in small manufacturing firms.	IT-business alignment had positive effect on business performance.
Bergeron & Raymond (2004)	Ideal patterns of strategic alignment with business performance	Contradictory gestalts of business strategies, IT strategies, IT structures and organization structure alignment were found in organisations that had a low performance.
Tarigan (2005)	An Evaluation of the relationship between alignment of strategic priorities and manufacturing performance.	Alignments effect on performance is strengthen by high level of decentralization. Under certain levels of decentralization, formalization and the use of team's alignment will enhance performance.
Byrd et al, (2006)	The author-based business strategy on the STROBE typology and based IT strategy on the STROEPIS typology.	Strategic alignment moderates the link between IT investments and the firm's performances.

Chan, Sabherwal & Thatcher (2006)	Authors based the business strategy on the STROBE typology and the IT strategy on the STOEPIS typology.	The importance of alignment differs based on business strategy and industry, previous implementation success influences alignment.
Cragg et al., (2007)	Evaluating the Alignment of IT with Business Processes in SMEs.	Business process-IT process alignment results in the success of IT projects.
Iman and Hartono (2007)	Strategic alignment impacts on organizational performance in Indonesian banking industry.	Executives in the information technology/systems space should share responsibility with senior executives in other field, because strategic alignment has been proven to improve the organizational performance.
Iselin et al., (2008)	The effects of the balanced scorecard on performance. The impact of the alignment of strategic goals and performance reporting.	The strength of the alignment of the strategic goals and performance reporting measure was positively connected to 13 organizational performance dimensions (76.9%).
Raymond & Bergeron (2008)	E-business was based on one of the four types (e-commerce, e-intelligence, e-communication and e-collaboration).	Alignment between e-business capabilities and strategic orientation is related to high productivity and financial performance (centred on 107 manufacturing SME's).
Tallon (2008)	Business and IS strategy were based on the measurement of business activity and the use of IT in five areas of the value chain (supplier relations, production and operations, product & service enhancement, sales & marketing, and customer relations.	A positive correlation exists between alignment and I business value at the process level. The focus on alignment in the value chain differs based on the differences in business strategy.
Tallon and Pinsonneault (2011)	Competing perspectives on the link between strategic information technology alignment and organizational agility: insights from a mediation model.	Alignment can become a key part of how firms plan for and justify agility as part of an attempt to protect and improve their performance.

Source: International Journals, (Jamporazmey, 2011)

2.11 Measuring Alignment

A good measure of alignment must be replicable, feasible and consistent for different scales and levels of complexity.

A measure can be verified using the correlation of alignment and business performance.

2.12 IS/IT alignment with Business Strategy

The proposition of the evolution of technologies in the business underlines the need for Information Systems strategies to enable the real-time optimization of the value chain. Most of the firms have great expectations of their investments in Information Systems and IT for the benefits of the business, enhance productivity, improve workflow and communications, sustain repeatable service levels, Improve Risk control mechanisms, and Implement new business strategies. The overall benefits that the companies could get are improved business processes, enhanced effectiveness of the business processes and increased customer satisfaction (Issa-Salwe, 2010). Furthermore, the relationship between information systems and organisations results from the growing reach and scope of system projects and applications.

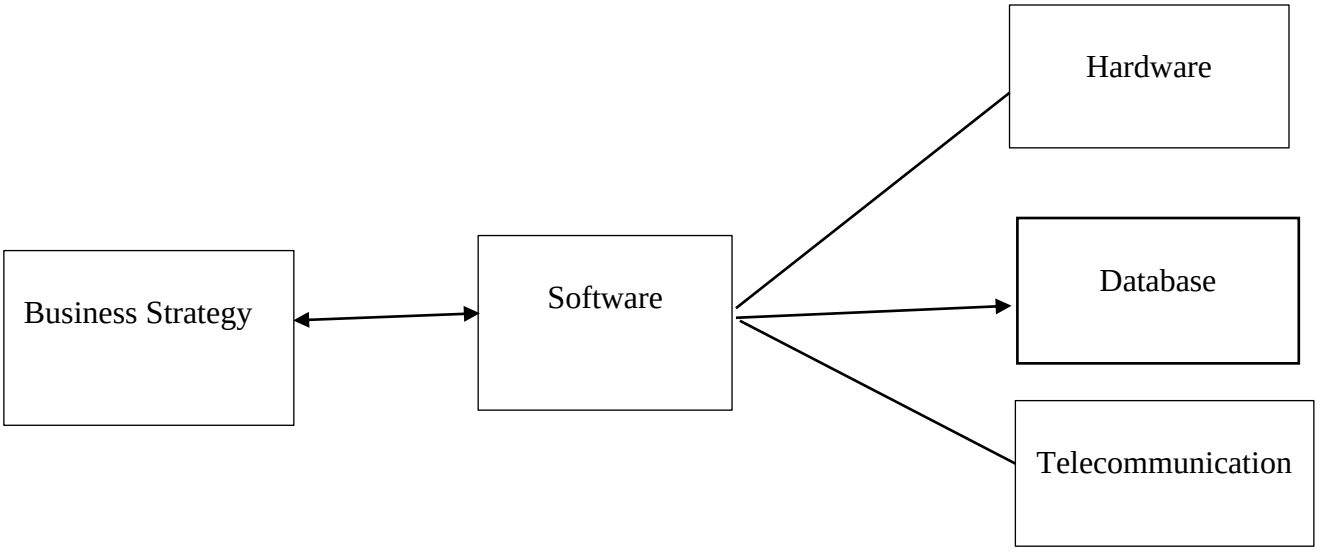


Figure 2.1: Relationship between information systems and organisations (Issa-Salwe, 2010).

The word alignment is described and used in many ways. Some associate it with the term integration, harmony, fusion and connection. However, alignment includes the integration of the business strategies together with its IT/IS Strategy. According to (Bharadwaj, 2000), IT alignment is a harmony between an organization's goals, activities and information systems that supports the alignment. Alignment can help the organisations in three different ways, firstly is by maximizing the return on IT investments; secondly is by enabling organisations to achieve competitive advantage through IS and thirdly is facilitating them to respond to new opportunities by means of direction and agility (Bharadwaj, 2000).

However, achieving IT/IS Strategic alignment with business requires commitment from both IT and the business. The alignment of IT/IS with the organization is not an easy task as it requires management to take a different method towards Information Technology in understanding the usage of IT and IS within the organization. According to (P. Cragg, 2002), many SME's have

achieved high levels of alignment between IS and business strategy and that firms which are aligned performed better. (J. P. P. Avison D., & Wilson D, 2004),identified a lack of IT alignment in their study and concluded that such firms didn't recognise a role for IT in supporting business strategy. It can be concluded that alignment at an operational level has received limited attention in studies pertaining to IT Alignment. The study by (Raymond, 1995) found a strong correlation between organizational infrastructures and IS infrastructure, they also found that partial support for operational integration being linked to higher firm performance.

(G. Silvius, 2009), definition is the one chosen among the options; Business and IT alignment is the degree to which the IT applications, infrastructure and organization, enable and support the business strategy and processes, as well as the process to realize this. Table 2.4 shows few selected definitions and presents some comments about the evolution of the definitions, (Ullah, 2013).

Table 2.4: Business and IT alignment definition evolution adapted from (Ullah, 2013)

Author	Concept definition	Comments
Luftman 2004	Alignment refers to applying IT in an appropriate and timely way, in harmony with business strategies, goals and needs	Acknowledges that there are different levels of alignment for different need and times Emphasizes the functional fit inside the organization
Campbell 2005	Alignment is the process where business and IT work together to achieve a common business goal.	Emphasizes the cooperation of IT and business Focus on functional alignment Does not mention need for structural alignment
Silvius 2009	Alignment is the degree to which the IT applications, infrastructure and organization, enable and support the business strategy and processes, as well as the process to realize this.	Emphasizes the cooperation of IT and business - Takes to account the different levels of alignment. Acknowledges the different dimensions of alignment

2.12.1 IS ALIGNMENT

Information systems are the key components in defining the framework assuring the alignment between the information system and the business strategy. In order to achieve alignment, the sources of misalignment must first be identified, an effective business-IT alignment requires the analyses of business problems and the changes that take place from market perspective to IT issues,

the required interface between IT and business must be based on a clear and continuous of the business requirements into information (Consortium, 2001b).

Recurring issue which organisations are facing is the issue of aligning IS with Business Processes which is caused by the increasing dynamics in markets and organisations resulting in a continuous adapting of change in their environment. The role of IT has changed over the past years, the assessment of IT strategy and business strategy alignment is vital in ensuring the appropriate use of IT in the organization and to make sure that the organisations objectives are met (J. Luftman, 2004).

Models have been proposed over the years which addressed specific aspects on alignment, the models can be analysed and classified according to different perspectives. Cataledo et al. classifies them into two main categories by means of following the scope of alignment: which are Strategic Alignment, Operational or Process Alignment (Cataldo, 2012).

The IS Alignment model by (J. V. N. Henderson, 1993) classifies four domains which are: business strategy, IS strategy, IT infrastructure and Organisational infrastructure. Their model shows that there are many aspects of alignment the organisations will need to achieve. Organisations will have to manage the fit between strategy and infrastructure and the fit between business and IS. The model has been the basis or many studies which have observed the alignment of IS and the business. Some studies have focused on looking at the whole IS alignment model (R. L. Bergeron F., 2004). Only a few studies looked at the alignment of operational integration which is the linkage between IS infrastructure and Organisational infrastructure within the IS Alignment Model. A study conducted by (Raymond, 1995) found a strong correlation between structural sophistication (as a point of organizational infrastructure) and IS sophistication (as a pointer of IS infrastructure), which meant that SME's that were structurally sophisticated had more

sophisticated IS, which also allowed them to find partial support for operational integration being linked to the firm's performance to be higher.

With the growing interest in IS alignment with small medium enterprises has led to studies that focused on evaluating the level of alignment as well as the factors that impact alignment. (P. Cragg, 2002),stated that numerous small firms achieved high levels of alignment between IS and business strategy, which resulted to a better performance.

(Hussin, 2002), in a study on IS alignment found that strategic alignment in small firms was not influenced by a single factor but many factors, mainly the CEO software knowledge and IS maturity.

2.12.2 Alignment Perspectives

(J. N. Luftman, Lewis, P.R., Oldach, S.H, 1993), differentiates four alignment perspectives which are strategy execution, technology potential, competitive potential and service level. These perspectives are quite interesting as they provide different approaches matching different performance criteria for managers to think about alignment using the strategic alignment model. The technology potential and competitive potential perspective needs the manager to think about improving the systems for future possibilities and looking at the possibility at responding to opportunities that might arise.

(Coleman, 2006), illustrates that the analysis of alignment perspectives shows that the most common perspectives are strategy execution, technology potential and IT infrastructure. Below is the definition of the common perspectives.

Table 2.5: Alignment perspectives (J. V. N. Henderson, 1993).

Business Strategy Driven	***IS/IT as the Enabler***
Strategy Execution	Competitive potential
Technology transformation	Service Level

(a) Strategy Execution

The first perspective looks at business strategy as the driver for both organization design choices and the logic of IS Infrastructure.

(b) Technology Potential

The second perspective also views the business strategy as the driver of alignment; however, this perspective adds the formulation of IT strategy in order to support the business strategy and the corresponding specification of the required IS infrastructure and processes. Top management must then provide the technical vision to help in communicating the choices pertaining to IT strategy which will be the best in supporting the business strategy.

(c) Competitive Potential

The third perspective doesn't look at the business strategy as such but rather the misuse of emerging IT abilities in impacting new products and services. Top management needs to focus on business visions to make this perspective successful, to communicate as to how the emerging IT competencies and functionality and the changes in the IT market will have an impact on the business strategy.

(d) Service Level

The fourth perspective focuses of ways to build a successful IS organization. This perspective also helps ensure the effective use of IT resources and be responsive to the growing and changing demands of the end-user population.

The theory can be depicted as shown in Figure 2.2

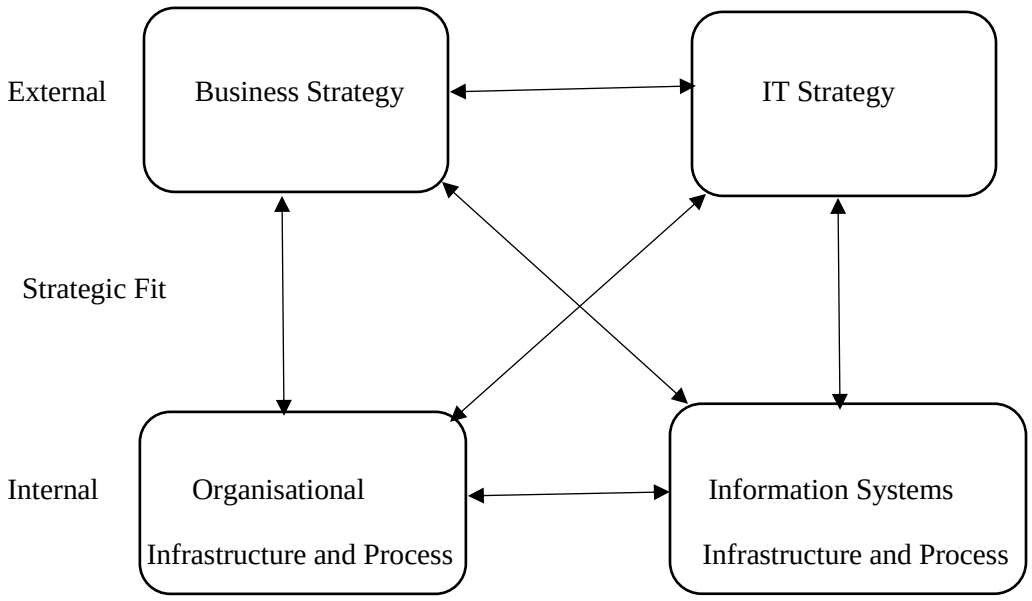


Figure 2.2: Alignment Perspectives (J. N. Luftman, Lewis, P.R., Oldach, S.H, 1993).

2.12.3 Alignment Models

Measuring alignment models have been articulated by various researchers in the past three decades. Regardless of the shift of attention to business and IT/IS alignment, the need for strategic fit between business domains was still there.

The fit between organizational alignment and performance was documented and addressed by various researchers (Mintzberg, 1987).

2.13 Strategic Alignment Model

The Strategic Alignment Mode by (J. C. Henderson, & Venkatraman, N., 1992), is composed of four components(see Figure 1). The model was intended to help support the integration of IT and business strategies by advocating alignment between the four domains illustrated in Figure 1, it also integrates the two pairs of domains between business and IT/IS by means of a connection between the external perspective of IT and the internal focus of IT. The first two integrations are done externally between Business Strategy and IT Strategy, the second part of the integration is internally between the Business infrastructures and processes and IS infrastructure and processes. Based on the four domains, four alignment perspectives of strategic choices are derived linking three domains in each case. (J. C. Henderson, & Venkatraman, N., 1992), argued that if there is a good fit between the business and IS, then IS will enable the firm to perform well. Numerous studies have examined this relationship, for example (R. L. Bergeron F., 2004) reviewed studies that examined the impact of performance on alignment. Looking at other studies by (Y. E. Chan, Sabherwal, R., Thatcher, J.B. , 2006); (R. C. Sabherwal, YE, 2001) and (L. R. Bergeron F., Rivard, 2004) found that there is a positive relationship between alignment and business success. Such studies help support the theory that IT/IS alignment is important for business success. The proposed model suggests that strategy and IT developments must be coherent. The strategic alignment between business strategy and IT strategy is derived from two main relations:

The strategic fit between the external and internal scopes of the firm and the functional integration of IT within the enterprise. These links are drawn between four elements: Business Strategy, Business Infrastructure and Processes, IT Strategy and IT Infrastructure and Processes.

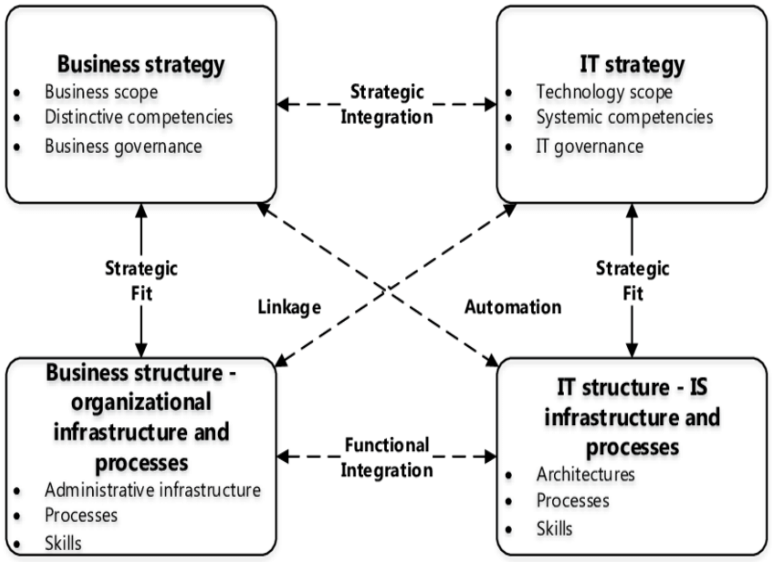


Figure 2.3: Strategic Alignment Model (SAM) derived from (J. Henderson & Venkatraman, 1992)

The strategic alignment model consists of twelve components which further define IS-business strategic alignment. These components are as follows:

Business Strategy: Includes scope, distinctive competencies and business governance. Business scope consists of the markets, products, services, customers/clients and location were the enterprise competes as well as its competitors (J.N. Luftman, 2000). The Distinctive competencies provides the enterprise with a possible competitive edge, which includes products, manufacturing and product branding, cost and pricing structure and sales.

Business governance involves how the organization establish the relationship between management, stakeholders, shareholders, board of directors as well as how the company is being affected by government regulations and how the company manages its relationship and alliances with strategic partners.

Organization Infrastructure and Processes: Is divided into administrative structure, processes and skills. Administrative structure is defined as a way in which the firm arranges its businesses. Processes involve the process and flow of the firm's business activities. Skills looks at the human resource, such as the process of hiring/firing, training/educate and culture, (J.N Luftman, 2000).

IT Strategy: IT strategy is categorized into technology scope, systematic competencies as well as IT governance. Technology scope looks at all the information applications and technologies used, and systematic competencies is the ability of the systems to access the information needed to achieve the company's strategy. IT governance defines the processes that ensure effective and efficient use of IT in enabling an organization to achieve its goals (J.N Luftman, 2000).

IS infrastructure and processes: Consists of architecture, processes and skills. Architecture involves technology priorities, policies and procedures that allow applications, software's, network and hardware to be integrated into a solid platform. Processes are steps or activities which are carried out to help develop and maintain applications. Skills looks at the human resource, such as the process of hiring/firing, training/educate and culture (J.N Luftman, 2000).

Based on these four domains, four alignment perspectives of strategic choice are derived linking three domains in each case. The validity of the Strategic Alignment Model has been tried on numerous studies. Research by (J. P. P. Avison D., & Wilson D. , 2004) supporting the conceptual and practical value of the SAM was performed on Financial Firms in order to demonstrate the

capability of the model in creating, assessing and sustaining strategic alignment in organisations. Another study by (P. Cragg, 2002) validated the SAM Model within small manufacturing firms, were data was analysed with the results showing that the significant proportion of small firms had attained high IT alignment which resulted in an increase in organizational performance.

2.13.1 Leavitt's Diamond Model

The Leavitt's Diamond model was the first alignment model which was developed by (J., 1965). In the model the researcher recognizes on the four equally related domains: Structure, Task, People and Technology. The main aim of the Leavitt Model is that it shows that every element in the organization affects the other domains. For example, if the structure of the business is changed, then the people will need to adapt to the new change as well as looking onto new technologies to fit the new structure. As depicted in figure 2.4 below.

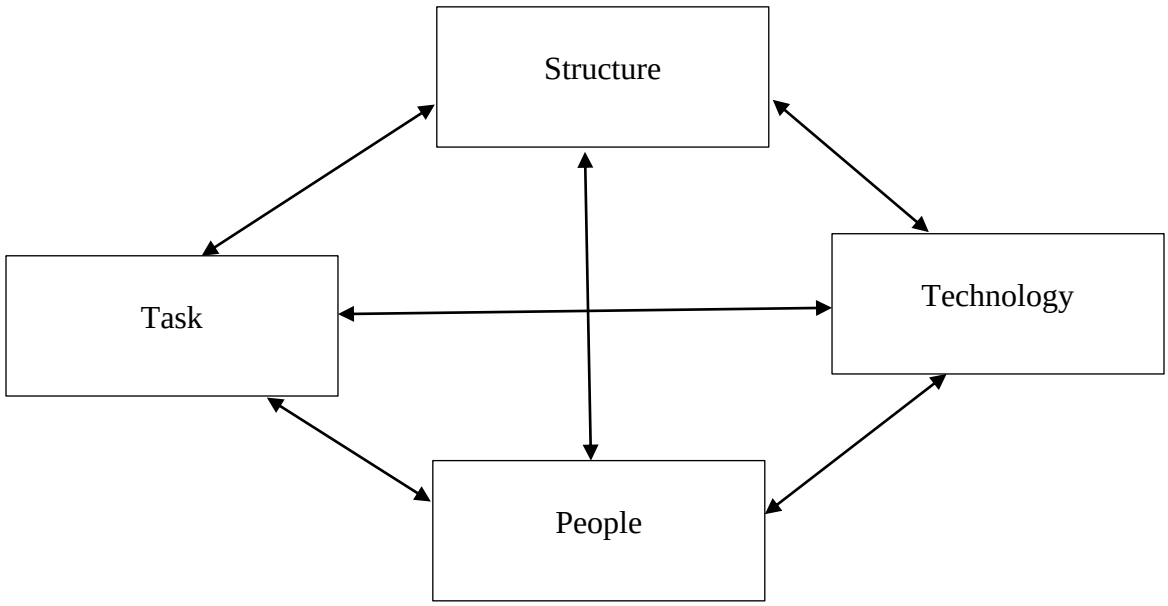


Figure 2.4: Leavitt's Diamond, (J., 1965)

2.13.2 MIT90s Model

The MIT90s Model was formulated by (Scott, 1991). It is one of the first business/IT alignment models that aimed at the fit between the business and IT. The model as shown below looks as 5 dimensions which are interrelated. The main theory behind the model is that, when the organisations manage to achieve a high level of fit between the dimensions, is will contribute to a high level of organizational performance. The horizontal lines on the model shows the domains which are involved in deciding on strategic IT planning while the vertical lines show the culture within the organization. In addition to the MIT90s Model, (Levy, 2001) focused on the applicability and the results of the model in Small Medium Enterprises (SMEs). From the results four different paths for obtaining and sustaining alignment were derived, which only three offer only partial alignment. As depicted in Figure 2.5 below.

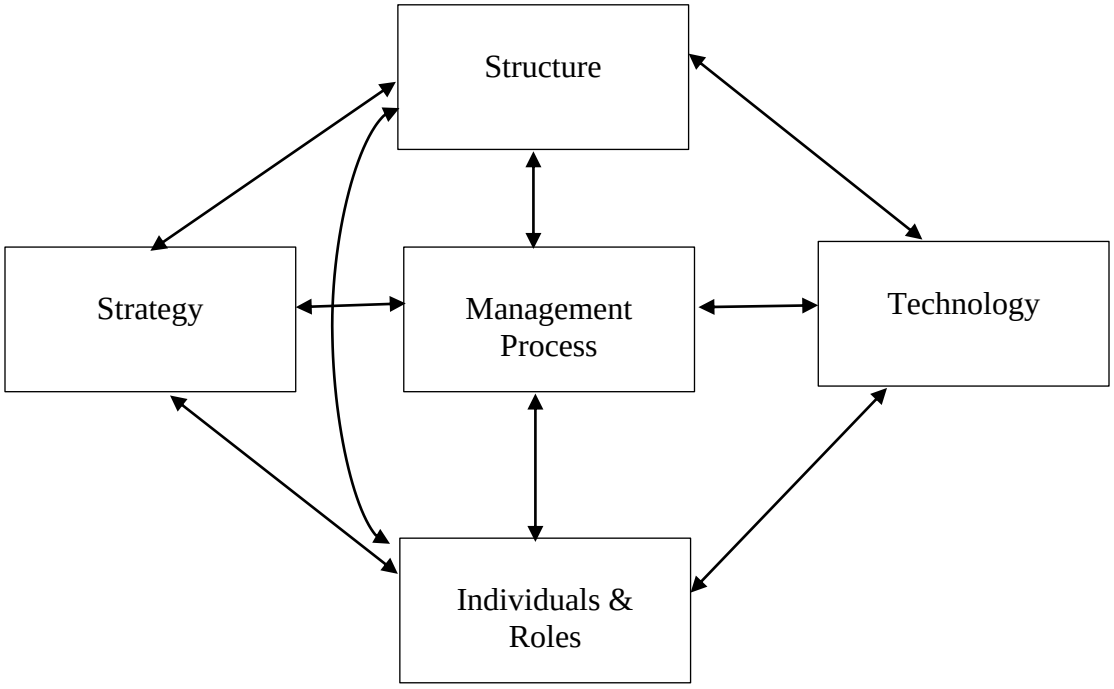


Figure 2.5: The MIT90s Model, (Scott, 1991).

2.13.3 Process Classification Framework

The Process classification Framework (PCF) is a model used to identify the business processes which was developed by (Anderson, 2005), it is an enterprise model which allows organisations to view and identify their activities from a horizontal cross industry process viewpoint. The model consists of business processes which are organized into four levels namely: categories, processes, process groups and activities.

The PCF Model is very detailed in a way that it includes a list of more than 700 items which are classified into twelve first-level categories, see table 2.6 below.

Many researchers define the PCF as a tool to successfully identify and manage business processes. According to (Kankanhalli, 2004), PCF can be used to assess and target the impact of business processes as the outcome of knowledge management initiatives. Furthermore (Davenport, 1993) ,talks about the PCF model by emphasising the importance of defining standard processes.

Table 2.6: The twelve enterprise-level categories of the APQC's Process Classification Framework (Anderson, 2005).

Operating Processes	**Management and Support Services**
Develop vision and strategy	Develop and manage human capital
Design and develop products and services	Mange information technology
Market and sell products and services	Manage financial resources
Deliver products and services	Acquire, construct and manage property
Mange customer services	Mange environmental health and safety

	Manage external relationships
	Manage knowledge, improvement and change

2.14 Alignment Components

Information Systems are regarded as the key components used in defining the infrastructure of the organization, assuring alignment between the information systems and the business process should be the Information Systems executive's top priority. Therefore, alignment amongst Business, systems and information is defined to quantify the coherency level in relation to the business necessity the systems offer. The below figure shows the relationship that exists amongst the components.

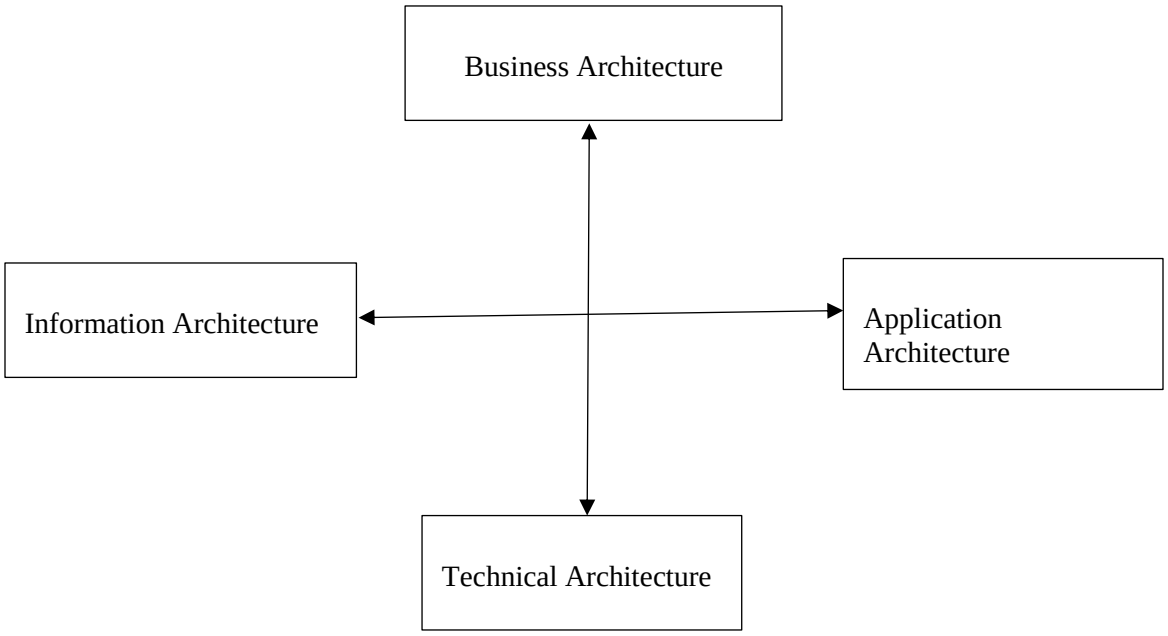


Figure 2.6: Alignment's Components (Lefebvre, 1992)

2.15 Business Strategy

A Business strategy is a collection of linked tasks which results in the delivery of a service or product to a client. A business strategy has also been defined as a set of activities and tasks which once completed will have accomplished the organization's goals.

Business strategy is a set of logically interrelated activities, which uses the firm's recourses to achieve a defined business outcome for internal and external customers. In this regard, the elements, which make business process up, are stated as activities, people, customer, and organization (Lindsay, 2003).

2.15.1 Typology of Business Strategy

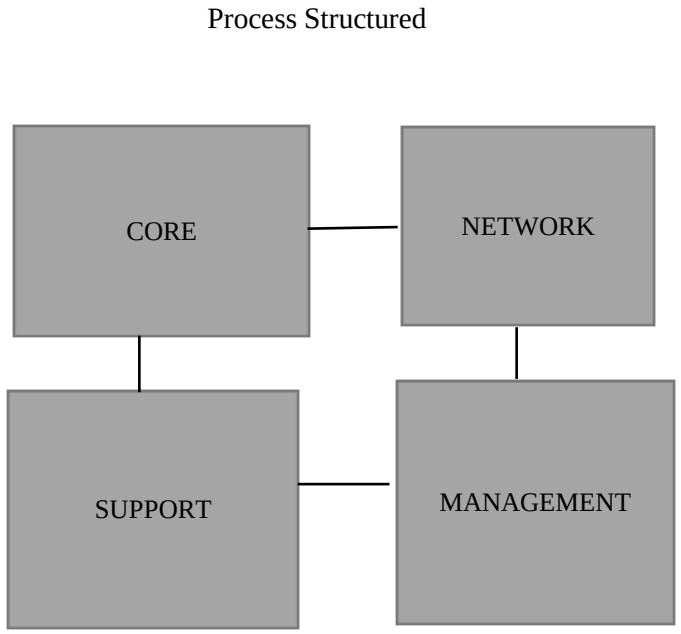


Figure 2.7: A framework for Typology of Business Strategy (Earl, 1994).

This framework introduces four types of business process:

Core processes: McKinsey defines a core process as an evolution of business system, which is divided in three central processes developing, delivering and marketing.

Network Processes: The main role in the network process is to emphasize on people and their role in the firms. Thereby, the attempt is on social and technical part of organization and to improve communication between and among stakeholders, people, and managers.

Support processes: Are processes which are essentially related to managing the business resources in the secondary activities and they have internal customers. Support processes assist the core process to enhance high performance. Support processes usually keep up with the core processes in order to enhance high performance. In this process managers need internal services including Information Technology, Human Resource, and facilities management. Information Technology, Human Resource, facilities management are the disciplines, which provide internal alignment of strategy with business processes (Lurie M., 2005).

Management Processes: This process looks at the management of the core and the support process in order to achieve competitive advantage. (Lurie, 2005), defines management processes as activities related to how the CEO runs the company, how management interacts with employees, how decisions get made, and how communication takes place. Thus, planning and control are the two disciplines in the management process.

2.16 Chapter Summary

In this chapter IS/IT alignment background and challenges in attaining alignment. The types of alignment models have been discussed with the purpose of coming up with a research framework which will be discussed in the next chapter. The technological models and their summaries were explained with the sole purpose of formulating the research framework in the subsequent chapter The next chapter will provide details on the research approach, method, research design for conducting the research, proposed research model and how data was collected and analysed.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The aim of this chapter is to outline the research methods and procedure that was used to assist with for filling the research objectives. The chapter also represents the research strategy, research design, population, sampling method, research instrument, data collection, data processing and analysis, study limitation, ethical considerations, questionnaire development and the validity and reliability associated with the research.

Furthermore, the research explains the software used to analyse the data reliability and validity based on alignment of IS with business strategy in SME's in Gauteng, South Africa. Multiple regression analysis and correlation was used to test the effect of the Strategic Alignment Model variables and the Firm Performance variable.

3.2 Research Strategy

According to (Laksham, 2000), quantitative methods observe the effects of specified circumstances (independent variable) to an outcome of interest (dependent variable) in ways that can be stated in a numerical form. Quantitative approach depends on numerical data and statistics to describe the phenomenon and explore the correlations between its variables. In a case were results are expressed in quantitative terms and represented in figures (Khan, 2009).

Quantitative research is significant and countable, and the designs are predetermined and structured, remaining consistent throughout the study; making them potentially reproducible. According to (Moonfaced, 2015), a quantitative data collection method includes different forms of surveys: online surveys, paper surveys, mobile surveys and kiosk surveys.

(Lueng, 2015), states that quantitative research deals primarily with numerical data and its statistical interpretations under a reductionist, logical and strictly objective paradigm. (Bwalya, 2016), state that quantitative research is helpful in testing and validating theories, testing hypotheses, replication of findings, allows quantitative predictions, are less time consuming and findings are independent of the researcher. In addition, in this study quantitative research approach facilitated numerical data for groups and extents of agreement or disagreement from respondents or participants.

Table 3.1: Comparison of quantitative and qualitative research approach, source (Mack, 2005)

	Quantitative	**Qualitative**
General Framework	Seek to confirm hypotheses about phenomena.	Seek to explore phenomena
	Instruments use more rigid style of eliciting and categorizing responses to questions.	Instruments use more flexible, iterative style of eliciting and categorizing responses to questions.
	Use highly structured methods such as questionnaires, surveys and structured observation.	Use semi-structured methods such as in-depth interviews, focus groups and participant observation.
Analytical objectives	To quantify variations.	To describe variation.
	To predict casual relationships.	To describe and explain relationships.
	To describe characteristics of a population.	To describe individual relationships.
Question format	Close-ended	Open-ended
	Numerical (obtain by assigning numerical values to responses)	Textual (obtained from audiotapes, videotapes and field notes)

Data format		
Flexibility in study design	Study design is stable from beginning to end	Some aspects of the study are flexible (for example, the addition or wording of interview questions)
	Participant responses do not influence or determine how, and which questions researchers ask next.	Participant responses affect how, and which questions researchers ask next.
	Study design is subject to statistical assumption and conditions.	Study design is iterative, that is data collection and research questions are adjusted according to what is learned.

3.3 Proposed Research Model

As debated in previous literature reviews, the Alignment of IS with business strategy literature associated with SMEs. When Information Systems is aligned with business strategy what are the factors that will lead to the firm's performance? Four factors are chosen from the strategic alignment model (SAM) to apply in this research. The research model used in this study was derived and adopted from the Strategic Alignment Model proposed by (J. V. N. Henderson, 1993) and (P. M. Cragg, A., 2007) See figure 3.1 below.

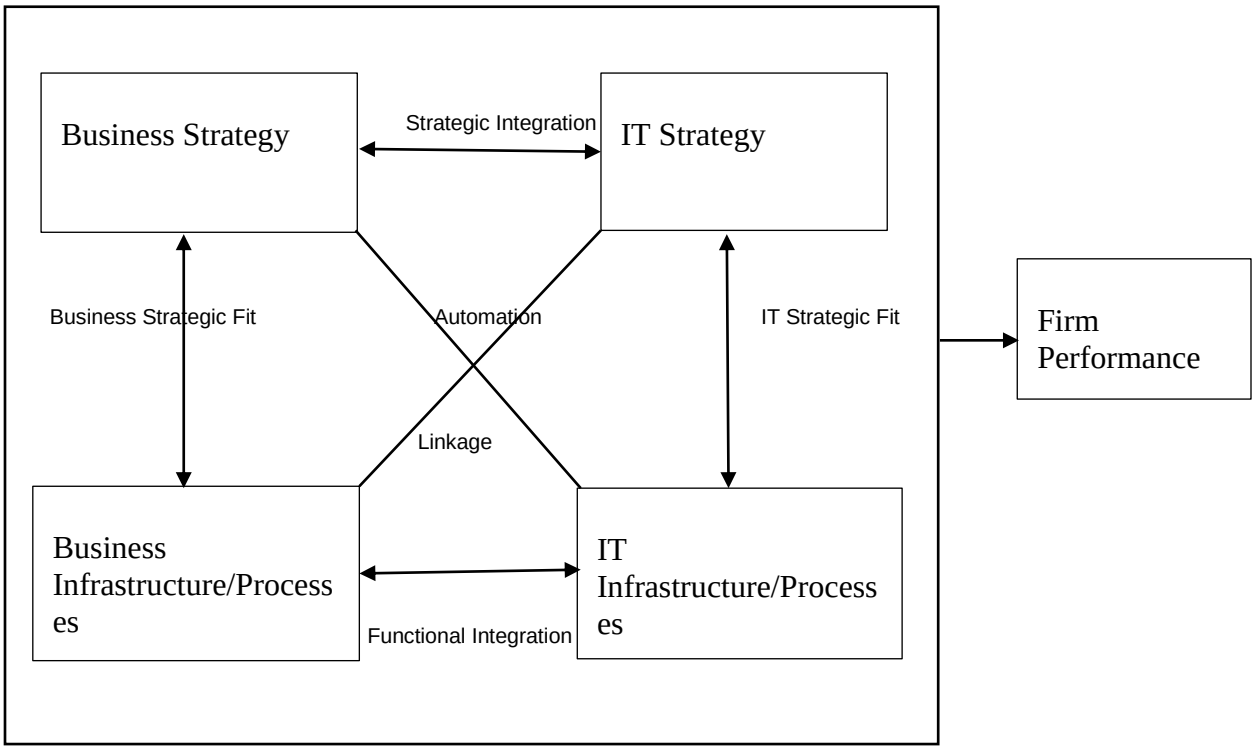


Figure 3.1: Proposed Research Model

3.4 Research Design

(Schindler, 2006), defines research design as an action and time-based plan that is always linked on the research questions. According to (H. Lin, 2015), research design is a plan for a study providing the overall framework for collecting data A descriptive research design was used to study a population of interests by choosing samples and analyse existence of occurrences at any given time (Orodho, 2008). This research study used a descriptive research design which assisted in gathering the feedback from the participants.

The designed questionnaire was used as a form of data collection. The questionnaire was designed to view the participant's insight toward the alignment of IS with Business Strategy

in SME's in Gauteng, South Africa. Furthermore, Regression analysis was used to determine the relation between variables in the research study. The collected data was then measured using the Statistical Software Package for Social Sciences (SPSS) version 25.

The beta value (β) was used as a measurement of how strong individual independent variable influences the dependent variable. Individual regression coefficient represents an approximation of the change in dependent variable, this will be established when all other independent variables are seized constant.

3.5 Data Collection

In the research a survey questionnaire was used for data collections from the SMEs employees based in Gauteng, South Africa. A Questionnaire is defined as a form of tool that can be used to gather data over a large sample. The significant characteristics of using a questionnaire as a form of data collection is it allows the researcher to collect information from a sample with a diverse background. The questionnaire consisted of close-ended questions which consisted of the alignment of IT/IS Strategy with business strategy in SME's in South Africa.

A Likert scales was used in the questionnaire as this proved to be most appropriate for the study. According to (Bougie, 2016), Likert scaling is one of the most frequently used numerical scales to measure attributes and behaviours in an organizational research. Furthermore, data confidentiality was mentioned in the written communications, participant's names were not collected with the data.

The items used in the survey instrument to measure the constructs were identified and adopted from previous research (V, 1999) and (Wiess, 2004).

3.6 Population and Sampling Design

3.6.1 Population

A population is defined as "the whole groups of individuals, phenomenon, or things that we aim to generalize our study's results on"(Alhamadni, 2006). Characteristics. The target population included a case on Small Medium Enterprises. (Choto, 2014) refers population to a group of individuals that has one or more characteristics in common that are of interest to the research.

3.6.2 Sampling Techniques

Sampling is a process by which values are randomly drawn from input probability distributions. Probability sampling method will be used in the study as through its sampling, errors can be calculated easily. The types of sampling techniques are; Probability and non-probability. The probability sampling is defined as a technique in which every sample in the population has a chance of being chosen to be part of the sample. Whereas a non-probability sampling technique is grounded on the basis that samples are selected based on the findings of the researcher, rather than random selection.

Type of probability sampling that will be used is the simple random sampling method whereby different people from the organization will be included in the sample.

3.6.3 Sampling Size

Sampling size is defined as a technique of selecting the number of observations to include in a sample. Furthermore, the sample size is an important feature of any study or investigation in which the aim is to make interpretations about the population from a sample (A. S. M. Singh, M. B, 2014).

According to (A. S. Singh & Masuku, 2014), a sampling size is a method which is used in selecting the number of observations to include in a sample. The sample size for this study is one hundred. The group is carefully selected to be representative of the whole population with the relevant characteristics. In this study random sampling was used for sampling the population. Below is the sampling equation.

Equation 3-1: Sampling Formula

$$n = N \frac{\frac{Z^2 * p * (1-p)}{e^2}}{N - 1 + \frac{Z^2 * p * (1-p)}{e^2}}$$

3.7 Research Instrument

The research instrument used in this study was in a form of a survey. Survey research is defined as "the collection of information from a sample of individuals through their responses to questions". The survey questionnaire method is regarded as the best method for gathering a large number of responses. (Ponto, 2015) noted that this method gathers information about people's attitudes, facts, behaviour, activities and responses to events, and usually consists of a list of written questions. A brief introduction to the research study was provided to participants before they completed the questionnaire.

An online based structured questionnaire was used, by distribution of questionnaires to gather information on the respondents' view on alignment of IS with business process in Small Medium Enterprises. The survey questionnaires covered two (2) sections namely:

Section A: **Demographic information:** Demographic information was gathered here such as gender, age, ethnic group and which department they work for. To ensure accuracy and honesty in the answers which were obtained, respondents were guaranteed anonymity. Respondents chose from a range of close-ended questions which ensured that they did not have to disclose specific details that will make them feel uncomfortable.

Section B: **IS/Business Process questionnaires:** Information was gathered in this section to find out the respondent's views on alignment of IT/IS Strategy with IT/Business Processes in Small Medium Enterprises. The 5-point Likert scale was used to determine the level of agreement in this regard. A Likert-type scale is usually linked to a number of statements to measure attitudes or perceptions and 5-point or 7-point scales are often used (Barua, 2013; Sullivan & Artino Jr, 2013). The questionnaires in the survey consisted of close-ended questions. Table 3.2 below shows where the questionnaires were adapted in the previous research papers.

Table 3.2: Sources of statements used to measure each construct.

Construct	**Items**	**Sources**
Business Strategy and IT Strategy (Strategic Integration)	TA1: The IT strategy supports the business strategy. TA2: The firm's IT strategy and business strategy match each other. TA3: The firm adapts its IT strategy to business strategic change. TA4: The firm's IT strategy is aligned to the business strategy plan. TA5: We access the strategic importance of emerging technologies.	(Armstrong, 2005); (Avison, 2004)

	TA6: We adapt our IT goals and objectives to our business goals and objectives. TA7: We identify the fit between out IT related strategic opportunities and our business strategic direction. TA8: The firm's IT strategy and business strategy correspond to each other.	
Business Infrastructure/Processes and IT Infrastructure/Processes (Functional Integration)	PA1: The firm's IT processes supports the business goals. PA2: We adapt or IT processes to our business processes. PA3: The firm's IT processes, and business processes match each other. PA4: The firm's IT infrastructure and business infrastructure match each other. PA5: The firm's IT infrastructure aligns with the business infrastructure. PA6: We identify the fit between our IT infrastructure and our business infrastructure.	(Armstrong, 2005); (Avison, 2004)
Business Strategy and IT Infrastructure/Processes (Automation)	BA1: The firm's IT processes supports the business strategies. BA2: We adapt our internal IT processes to our business strategies. BA3: The firm's IT processes, and business processes match each other. BA4: The firm's business strategies and internal IT processes match each other. BA5: We identify the fit between our business-related strategic opportunities and our IT infrastructure. BA6: Our IT infrastructure and business strategies correspond to each other.	(Armstrong, 2005); (Avison, 2004)

	BA7: The firm's business infrastructure aligns with our externally focused IT strategies.	
IT Strategy and Business Infrastructure/Processes (Linkage)	BAc1: The firm's IT strategies supports the business processes. BAc2: We adapt our IT strategies to our internal business processes. BAc3: The firm's externally focused IT strategies and internal business processes match each other. BAc4: We identify the fit between our IT-related strategic opportunities and our business infrastructure. BAc5: Our business infrastructure and IT strategies correspond to each other. BAc6: The firm's business infrastructure aligns with our externally focused IT strategies.	(Armstrong, 2005); (Avison, 2004)
IT Strategy and IT Infrastructure/Processes (IT Strategic Fit)	ITA1: The firm's IT strategies supports the firm's IT strategies. ITA2: We adapt our IT strategies to our internal IT processes. ITA3: The firm's IT strategies and internal IT processes match each other. ITA4: We identify the fit between our IT-related strategic opportunities and out IT infrastructure. ITA5: Out IT infrastructure and IT strategies correspond to each other. ITA6: The firm's IT infrastructure aligns with IT strategies.	(Armstrong, 2005); (Avison, 2004)
Business strategy and Business Infrastructure/Processes (Business Strategic Fit)	BSA1: The firm's business processes support the firm's business strategies. BSA2: We adapt our business strategies to our internal business processes.	(Armstrong, 2005); (Avison, 2004)

	BSA3: The firm's business strategies and internal business processes match each other. BSA4: We identify the fit between our business-related strategic opportunities and our business infrastructure. BSA5: Our business infrastructure and business strategies correspond to each other. BSA6: The firm's business infrastructure aligns with business strategies.	
Business Performance	FPER1: The executive team satisfaction with return on sale is. FPER2: The executive team satisfaction with the sales growth rate is. FPER3: The executive team satisfaction with return on corporate investment is. FPER4: The return on corporate investment options relative to the firm's principle competitors is. FPER5: The market share gains relative to the firm's principle competitors are. FPER6: The sales growth position relative to the firm's principle competitors is. FPER7: The net profit position relative to the firm's principle competitors is. FPER8: The financial liquidity position relative to the firm's principle competitors is.	(Armstrong, 2005); (Avison, 2004)

3.7.1 Variables and Functioning Definition

The below table 3.3 explains the study construct and their functional definition. It highlights the degree to which the participants see the variables having influence on the firm's performance.

Table 3.3: Study variables and definitions.

Variable	Definitions
Business Strategy and IT Strategy	The degree to which the IT strategy supports how the business competes in the market.
Business Infrastructure/Processes and IT Infrastructure	The degree to which participants believe that there are technical capabilities in place to support the business process.
Business Strategy and IT Infrastructure/Processes	The degree to which participants believe whether the technical capabilities in place help execute and develop the business strategy to compete in the market.
IT Strategy and Business Infrastructure/Processes	The degree to which participants believe whether the business processes help execute and develop the IT Strategy.
IT Strategy and IT Infrastructure /Processes	The degree to which participants believe whether the technical capabilities help execute and develop the IT Strategy.
Business Strategy and Business Infrastructure/Processes	The degree to which participants believe whether their business processes help execute and develop the strategy to compete in the market.
Firm Performance	The degree to which participants believe that the alignment of Business strategy, IT strategy, Business Infrastructure/Processes and IT Infrastructure/Processes assist with firm's performance.

3.8 Data Processing and Analysis

Data received from the participants was captured in excel and imported to IBM SPSS version 24.0 for analysis. Response rate was analysed to calculate the number of surveys distributed, number of surveys completed, and number of surveys filled out. Validity test was conducted to assess if the research instrument (survey) really measure what it was intended to be measured using the Kaiser-Meyer-Olkin (KMO), Bartlett's test of sphericity and the principal component analysis (PCA) using the varimax rotation, this was followed by factor analysis between the constructs to test and verify scale construction and operational. Following that the percentages of the demographic information (Section A of the questionnaire) results using figures were presented as well as the frequencies and percentages of alignment of IS with business strategy questions (Section B questionnaire) results were also presented. The alignment of IS with business strategy associated questionnaire (Section B questionnaire) consistency, the Cronbach's Alpha and Composite Reliability were analysed as discussed before to confirm that the variables are really measuring the same thing.

3.9 Reliability and Validity

Research must be "truth value"," applicability", "consistency" and "neutrality" in order to be considered meaningful, (Morse, 2002) .

3.9.1 Reliability

(Golafshani, 2003), the term Reliability is defined as a concept used for testing or evaluating quantitative research. To measure the questionnaire's Reliability the Cronbach's alpha, Cronbach's α efficient is commonly used in the measurement of reliability in social science studies where Reliability is used to ensure the consistency of the results for the various elements being tested within each factor (B. Sharma, 2014). It is normally evaluated by

assessing the internal consistency of the elements representing each variable using Cronbach's α.

3.9.2 Validity

Validity refers to the degree that an instrument actually measures what it is designed or intended to measure (Aila, 2015). It is also the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform. There are mainly three types of Validity namely: Content Validity, Criterion Validity and Construct Validity. Validity is foremost on the mind of those developing measures and that genuine scientific measurement is foremost in the minds of those who seek valid outcomes from assessment, it can be the core of any method of assessment that is trustworthy and accurate.

Bryman and Cramer (2008), states that the Cronbach's Alpha (α) is the statistic most widely used to measure the internal reliability of multiple -item scales. The coefficient varies between 0 and 1, whereby a value of 0.8 is considered as a good level of reliability. Table 3.4 shows the Cronbach's level of reliability.

Table 3.4: Reliability Levels

Reliability	**Range**
Unreliable	$\alpha \leq 0.30$
Barely reliable	$0.30 < \alpha \leq 0.40$
Slightly reliable	$0.40 < \alpha \leq 0.50$
Reliable (most common range)	$0.50 < \alpha \leq 0.70$
Very reliable (second most common range)	$0.70 < \alpha \leq 0.90$
Strongly reliable	$\alpha > 0.90$

Factor analysis is also regarded as a useful tool to use in a study that involve a few or hundreds of variables, it is used to summarize data so that the relationships and patterns can be easily understood.

Factor analysis operates on a perception that measurable and observable variables can be reduced to fewer latent variables that share a common variance and are unobservable, which is referred to as reducing dimensionality (Jiunn-Woei & Yen, 2014).

Furthermore, Factor analysis is regarded as a linear combination (variate) of the original variables. Factors also represents the underlying dimension (constructs) that summarizes the original set of observed variables, it is one of the best solutions to use for validity analysis (C. Lin, 2006).

Below Figure 3.2 which shows the representation of the types of factor within factor analysis, where numerical ability is an example of a common factor and communication ability is an example of a specific factor.

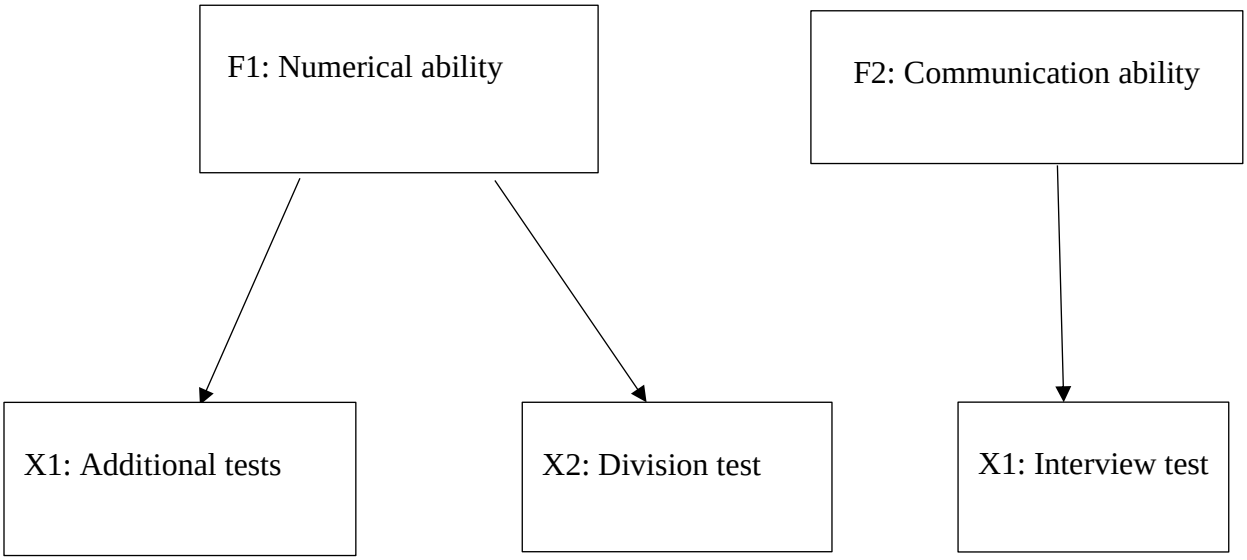


Figure 3.2: Factors in Factor Analysis

According to (Gajbhiye, 2015), Principal Component Analysis is a tool that explains the variance of a large dataset of inter-correlated variables with a smaller set of independent variables. PCA technique extracts the Eigen values and Eigen vectors from the covariance matrix of original variables. (R. M. Sharma, R. , 2014) indicate that since PCA is so dependent on the total variance of the original variables, it is most suitable when all the variables are measured in the same units.

According to (Karamizadeh, 2013), PCA manages the entire data for analysis without taking into consideration the fundamental class structure and examines the directions that have widest variations.

PCA is a bias transformation to diagnosis an estimate of the covariance matrix of the data. See below the PCA equation (Wang, 2014):

Equation 3-2: PCA Formula

$$\bar{y} = \frac{1}{n}\sum_{i=1}^{n} xi$$

Before the PCA (Principal Components Analysis) conducted, sampling adequacy was tested using Kaiser-Meyer-Olkin (KMO), along with data relationship strength using Bartlett's test. The purpose of principal analysis is to reduce a few observed variables into a relatively smaller number of components and thus identify factors that are significant for the study.

Kaiser-Meyer-Olkin (KMO) was used in testing the sampling adequacy. The adequacy of the sample is measured using KMO in SPSS. One of the rules that applies in using Kaiser Meyer Olkin (KMO) is, if KMO is larger than 0.5 then the sampling is viewed as suitable or enough; and if KMO is below 0.5 it is regarded as unacceptable and factor analysis shouldn't be performed. It was specified that KMO with minimum of 0.00 to 0.49 are unacceptable, 0.50 to 0.59 are miserable, 0.60 to 0.69 are mediocre, 0.70 to 0.79 middling, 0.80 to 0.89 meritorious and 0.90 to 1.00 marvellous as recommended by Kaizer. Below is the formula for the KMO test:

Equation 3-3: KMO Formula

$$KMO_j = \frac{\sum_{i \neq j} r^2{}_{ij}}{\sum_{i \neq j} r^2{}_{ij} + \sum_{i \neq j} u}$$

Bartlett's Test of Sphericity (BTS) is defined as a statistical test for the overall significance of all correlations within a correlation matrix (Pallant, 2016).

According to (Pallant, 2016), Bartlett's test of Sphericity should be less than 0.001. Bartlett's Test checks if the observed correlation matrix $R = (ri_j)(p \times p)$ diverges significantly from the identity matrix. In order to measure the overall relationship between the technology adoption variables, we computed the determinant of the correlation matrix |R|. Under H0, |R|=1: If the variables are highly correlated, we have $|R| \approx 0$. The Bartlett's Test static indicates to what extent we derivate from the reference situation $|R| = 1$ It uses the following formula:

Equation 3-4: Bartlett's Test of Sphericity Equation

$$x^2 = -\left(n - 1 - \frac{2p+5}{6}\right) \times 1n|R|$$

Furthermore, correlation was conducted to evaluate the proposed framework (see figure 3.3 below) and determine if there is any relationship between the Alignment factors on the proposed model. Pearson's correlation coefficient is a statistical measure of the strength of a linear relationship between paired data. Furthermore, Positive values denote positive linear correlation, Negative values denote negative linear correlation. A value of 0 denotes no linear correlation, the closer the value is to 1 or –1, the stronger the linear correlation. According (Cooper, 2006), Pearson's correlation varies over a range of +1 through 0 to -1. Correlation coefficient reveals the magnitude and direction of relationships, the magnitude which is the degree to which variables move in unison or opposition. Pearson's correlation coefficient (r) is a measure of the strength of the association between the two variables. See below formula to calculate the coefficient

Equation 3-5: Equation to calculate the Pearson correlation coefficient

$$r = \frac{n\left(\sum xy\right) - \left(\sum x\right)\left(\sum y\right)}{\sqrt{\left[n\sum x^2 - \left(\sum x\right)^2\right]\left[n\sum y^2 - \left(\sum y\right)^2\right]}}$$

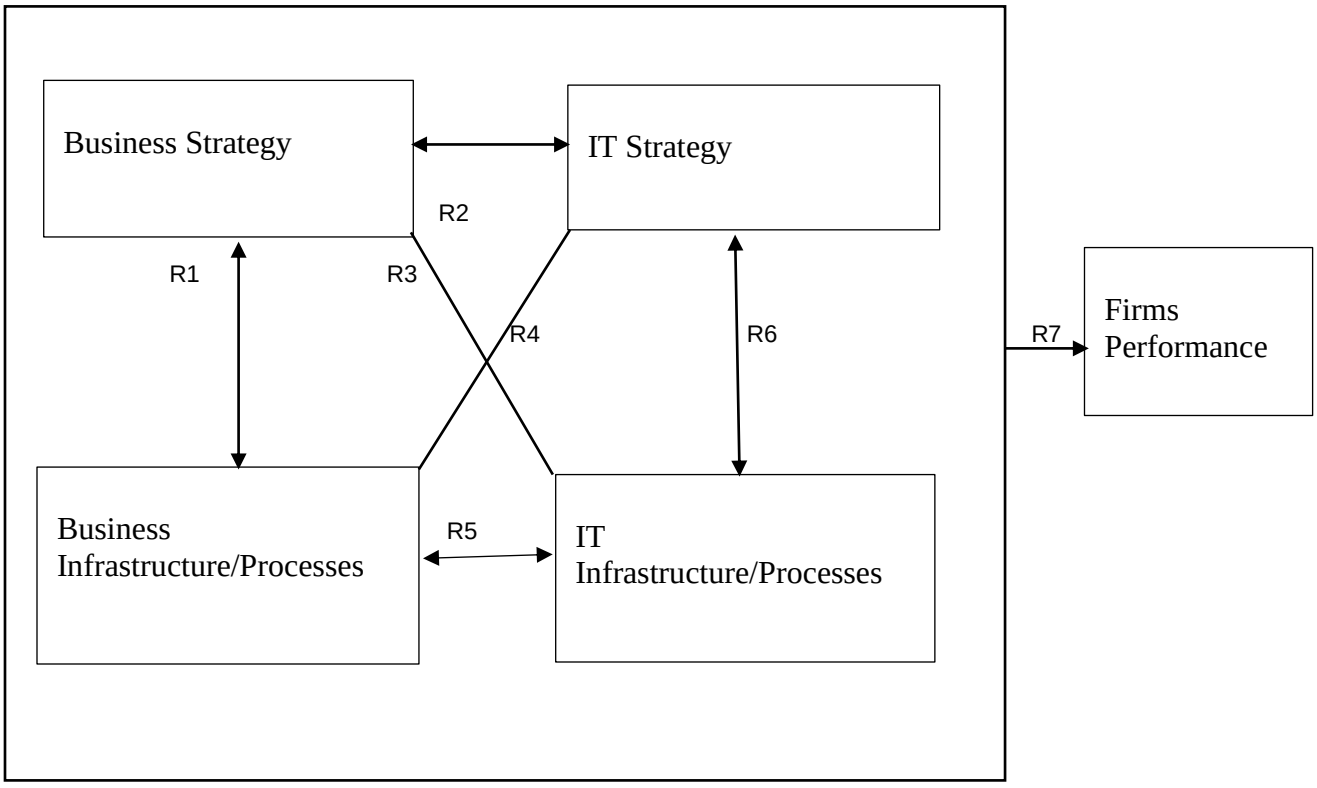


Figure 3.3: Relationship between variables (R1to R6) and R7 is the influence of the Firm Performance.

In this study, a dependent variable FPER (Firm Performance) variable is shown as a function of four independent variables (Business strategy, IT Strategy, Business Infrastructure/Processes and IT Infrastructure/Processes). According to (Angelache, 2016) Multiple linear regression is viewed as two or more independent variables utilised to predict the value of a dependent variable, in this research study its (alignment of IS with business strategy). In most cases, multiple linear

regressions are aimed at demonstrating the association between two or more elucidative constructs by finding a linear formula or equation between the experimental data.

Regression is an influential statistical method that examine the relationship between multiple variables of interests. The coefficient of correlation is used to measure the degree of relationship between variables (Kothari, 2004). In this study multiple regression coefficient of correlation analysis was used to analyse the relationship between the SAM factors (Independent Variables) and the Firm's Performance (dependent). The regression and correlation analyses of the model displays the understanding and confirmation of the suggested relationship between the SAM variables presented and their influence on firm's performance.

3.10 Study Limitations

The study was conducted on a Small Medium Enterprise in South Africa which only involved participants that work in the IT Department. The questionnaires were conducted in a common language which is English.

3.11 Ethical Consideration

Relates to moral standards that the researcher should always consider in all research methods. The proposal was submitted to the Vaal University of Technology committee, after approval was given to conduct the study, permission was then obtained from the Ethics Committee of the Higher Degree office. So ethical considerations have been adhered to in this study.

Participants were not at any stage forced to participate in the survey. Data that was gathered for this study was treated with confidentiality to ensure comfortability for all the participants.

Consent letters were provided to participants, all the participants were aware of the objectives and aim of the study, to ensure that they understand the outcomes of the study.

3.12 Chapter Summary

In this chapter the proposed research model was established based on literature relating to Alignment Models. The variables in the model were established from related IS and business alignment literature, which helped with the design of the questions in the questionnaire. This will assist the researcher in identifying the appropriate methods to apply the research in terms of study design, sample technique, sample size, questionnaire design and the related analysis required. The next chapter will present the study results including the sample profile and the security knowledge of both factors of the research model.

CHAPTER 4: DATA PROCESSING AND ANALYSIS

4.1 Introduction

This chapter of the study presents the data analysis, results of analysis of data that was collected in a form of a questionnaire and findings of the data. The data was then analysed using IBM Statistical Package for the Social Science (SPSS) version 24 for quantitative analysis. The chapter will show the results of descriptive statistics in order to find out if there is an impact of IS strategic alignment on Firm's Performance in Small Medium Enterprises in Gauteng, South Africa.

The structure of the survey consisted of two sections. Section A included the demographic information that entails respondents ages, gender, ethical group. The demographic information gathered from the participants responds was not used to answer the research questions but rather to highlight the response rate of the participants.

Section B was used for the research purpose to ensure that the research questions were answered, and objectives met. The 5 Likert scale was used for the participants to choose the correct statement ranging from 1 (strongly disagree) to 5 (strongly agree) in relation to the problems highlighted in the first chapter of this study.

4.2 Response Rate

A total of 300 respondents were received and a total of 99 were used for data analysis. Returned survey percentage is calculated as the number of returned surveys divided by sample size multiplied by 100 (Maveltova, 2013). A sample size of 300 individuals from different SMEs in Gauteng, South Africa was used to assess the factors that have a positive influence on the firm's performance in SME's. (Hardigan, 2016) stated that a response rate of between 30 and

40 percent is average for questionnaires completed electronically. (Petrovcic, 2016) agreed and stated that if the response rate is less than 30 percent the value and validity of the method and results are in question. Therefore, in this study this target was met with a response rate of 66%.

4.3 Reliability Test Results

In this study Cronbach's α was used to measure the internal consistency between all the constructs of the study. The rule for reliability test is that 0.70 or higher represents very reliable and consistent. Reliability tests ranges in value from 0 to 1; the closer the value towards 1.0 will be regarded as better results. Any values that is below baseline of 0.7 towards 0 are regarded as poor (Bougie, 2016). Any numbers in the range of 0.7 results are acceptable and numbers in the brackets of 0.8 are good while any number in the ranges of over 0.9 results are Excellent and shows the high level of internal reliability. Based on the results in table 4.1, the Cronbach's α for all constructs in this study are very reliable as the values exceed 0.70.

Table 4.1: Reliability levels for study variables.

Variable	No of items	Cronbach's α
Business Strategy & IT Strategy	8	0.924
Business Infrastructure/Process& IT Infrastructure/Processes	6	0.893
IT Strategy & Business Infrastructure/Processes	7	0.843
IT Strategy & IT Infrastructure/Processes	6	0.944
Business Strategy & Business Infrastructure/Processes	6	0.942
Business Success	8	0.723

4.4 Validity Test Results

Factor analysis was used through principal component analysis (PCA) for validity test where varimax rotation was shown to determine the underlying constructs of the study items (34 items). Prior to this, the sampling adequacy and Sphericity were tested by Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity respectively to examine the appropriateness of factor analysis. Taking a 95% level of significance α=0.05, the p value (sig.) of .000, therefore the factor analysis is valid. As shown in table 4.2, the approximate chi-square is 172.809 with 10 degrees of freedom that is significant at 0.000 level of significance, with the Kaiser-Meyer-Olkin statistic of 0.715 that is greater than 0.50. Therefore, the factor analysis for framework for aligning Information Systems with Business Processes in Small Medium Enterprises questionnaire is regarded as an appropriate method to use for further analysis of the data.

Table 4.2*:* Kaiser-Meyer-Olkin and Bartlett’s test

Kaiser-Meyer-Olkin and Bartlett's test	**Results**
KMO measure of sampling adequacy	0.716
Bartlett's Test of sphericity: Approximately Chi-Square	172.809
: Df	10
: Sig.	0.000

Based on table 4.3 below, based on Varimax Rotation with Kaiser Normalization, 7 factors have been extracted. Each factor is constituted of all those variables that have factor loadings greater than 0.50. 34 items were clubbed into 7 factors, 7 factors with Eigen values greater than 1 were extracted from the 34 items used; these factors explained for 75.26% of the variability of the Framework for aligning information systems with business processes in small medium enterprises.

Table 4.3 Eigen values-total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14,247	34,748	34,748	14,247	34,748	34,748
2	6,481	15,808	50,556	6,481	15,808	50,556
3	2,792	6,81	57,366	2,792	6,81	57,366
4	2,416	5,893	63,259	2,416	5,893	63,259
5	1,921	4,684	67,943	1,921	4,684	67,943
6	1,535	3,744	71,686	1,535	3,744	71,686
7	1,468	3,582	75,268	1,468	3,582	75,268
8	1,212	2,955	78,223			
9	0,988	2,411	80,634			
10	0,93	2,269	82,903			
11	0,844	2,059	84,962			
12	0,755	1,842	86,804			
13	0,605	1,476	88,279			
14	0,578	1,41	89,689			
15	0,561	1,368	91,058			
16	0,464	1,132	92,189			
17	0,394	0,961	93,151			
18	0,38	0,926	94,076			
19	0,34	0,828	94,905			
20	0,298	0,726	95,63			
21	0,264	0,643	96,274			
22	0,231	0,563	96,837			
23	0,189	0,461	97,298			
24	0,181	0,441	97,739			
25	0,164	0,399	98,139			
26	0,16	0,39	98,529			
27	0,143	0,349	98,878			
28	0,128	0,312	99,19			
29	0,099	0,241	99,431			
30	0,077	0,187	99,618			
31	0,063	0,154	99,772			
32	0,053	0,129	99,901			
33	0,036	0,089	99,989			
34	0,004	0,011	100			
Extraction Method: Principal Component Analysis.						

The above matrix shows the correlation of the variables with each of the extracted factors, identified variables included in each factor; the variable with the value maximum in each row is selected to be part of the respective factor. The values in each of the 34 items are grouped into 7 core factors.

4.4.1 Factor Analysis

Factor Analysis is defined as a linear combination of the original variables. It represents the underlying dimension (constructs) that summarizes the original set of observed variables. According to (C. Lin, 2006), factor analysis is one of the best solutions for validity analysis. Therefore, this study analysed validity of variable data collected through questionnaires using factor analysis.

As depicted in table 4.4, the factor loadings greater than 0.50, those factors can confirm that the items are measured; just one construct is satisfied and valid. See Table 4.4 below.

Table 4.4 Principal Components Analysis (Factor loading)

	TA	**PA**	**BA**	**BAc**	**ITA**	**BSA**	**FPER**
TA1	0.499	0.100	0.34	-0.306	-0.002	-0.002	-0.16
TA2	0.626	0.305	0.348	0.255	0.253	0.281	0.006
TA3	0.797	0.429	0.453	0.292	0.292	0.273	0.174
TA4	0.829	0.449	0.348	0.175	0.175	0.175	0.077
TA5	0,849	0,446	0,383	0.188	0,188	0,176	0.089
TA6	0,858	0.396	0.308	0.161	0.161	0.161	0.022
TA7	0,86	0,342	0,255	0.193	0,193	0,151	0.015
TA8	0.769	0.314	0.379	0.307	0.307	0.319	0.173

PA1	0.393	0.689	0.100	0.329	0.329	0.329	0.137
PA2	0.396	0.691	0.342	0.270	0.270	0.300	0.077
PA3	0.352	0.639	0.440	0.248	0.248	0.229	0.095
PA4	0.266	0.814	0.100	0.149	0.149	0.149	0.018
PA5	0.450	0.810	0.319	0.121	0.121	0.132	0.108
PA6	0.410	0.648	0.444	0.328	0.328	0.328	0.001
BA1	0.284	0.357	0.509	0.343	0.509	0.395	0.323
BA2	0.279	0.528	0.681	0.347	0.410	0.396	0.343
BA3	0.232	0.351	0.512	0.318	0.388	0.315	0.076
BA4	0.192	0.394	0.594	0.245	0.245	0.404	0.207
BA5	0.188	0.325	0.550	0.309	0.209	0.313	0.230
BA6	0.262	0.195	0.706	0.130	0.130	0.100	0.048
BA7	0.255	0.366	0.613	0.196	0.196	0.100	-0,120
BAc1	0.457	0.329	0.509	0.765	0.100	0.100	0.432
BAc2	0.528	0.270	0.231	0.901	0.750	0.210	0.517
BAc3	0.966	0.248	0.341	0.969	0.100	0.350	0.259
BAc4	0.966	0.149	0.267	0.750	0.100	0.250	0.259
BAc5	0.944	0.121	0.209	0.982	0.100	0.100	0.199
BAc6	0.966	0.328	0.130	0.966	0.310	0.100	0.198
ITA1	0.100	0.329	0.509	0.765	0.457	0.100	0.432
ITA2	0.750	0.270	0.231	0.594	0.528	0.901	0.517
ITA3	0.100	0.248	0.341	0.100	0.966	0.341	0.259
ITA4	0.100	0.149	0.267	0.100	0.966	0.100	0.259
ITA5	0.100	0.121	0.209	0.100	0.944	0.982	0.199
ITA6	0.100	0.328	0.130	0.100	0.966	0.100	0.198
BSA1	0.100	0.329	0.509	0.765	0.100	0.457	0.432

BSA2	0.100	0.300	0.188	0.901	0.664	0.579	0.465
BSA3	0.100	0.229	0.356	0.213	0.969	0.951	0.247
BSA4	0.100	0.149	0.269	0.100	0.100	0.966	0.259
BSA5	0.100	0.132	0.211	0.982	0.982	0.937	0.212
BSA6	0.100	0.328	0.130	0.100	0.100	0.966	0.198
FPER1	-0,026	0.137	0.311	0.432	0.466	0.432	0.527
FPER2	0.405	0.077	0.255	0.343	0.100	0.465	0.486
FPER3	0.174	0.095	0.066	0.259	0.295	0.247	0.912
FPER4	0.077	0.018	0.099	0.259	0.259	0.259	0.912
FPER5	0.089	0.108	0.230	-0.316	0.199	0.212	0.486
FPER6	0.302	0.001	0.048	0.100	-0,426	-0,312	0.664
FPER7	0.015	-0,030	-0,120	-0,008	-0,008	-0,008	0.969
FPER8	0.173	0.088	0.207	0.100	0.288	0.288	0.466

Legends: TA = Business Strategy & IT Strategy(Strategic Integration), **PA**= Business Infrastructure/Processes & IT Infrastructure/Processes(Functional Integration), **BA** = Business Strategy & IT Infrastructure/Processes(Automation), **BAc** = IT Strategy & Business Infrastructure/Processes(Linkage), **ITA** = IT Strategy & IT Infrastructure/Processes(IT Strategic Fit), **BSA**= Business Strategy & Business Infrastructure/Processes(Business Strategic Fit), **FPER**= Firms Performance.

4.5 Quantitative Analysis

In order to achieve the observed objectives of the study, the results were analysed and presented as they appear in the different sections of the questionnaire (refer to Appendix B). According to (Simpson, 2015) a useful first step in the analysis of quantitative data is to examine the frequency distribution for each variable to establish the numerical value that represents the total number of responses for a variable under study. Frequency distribution was undertaken throughout the analysis of the questionnaire findings.

4.6 GENERAL INFORMATION

4.6.1 Section A: Participants Demographic Information

Table 4.5: Demographic Information: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	54	54.5	54.5	54.5
	Male	45	45.5	45.5	100.0
	Total	99	100.0	100.0	

In relation to age, the respondents were asked in the questionnaire to select the age category which they fall in. 1.0% of the respondents were between the ages 22-25, 26, 3% are between the ages 26-30, 42, 4% were between the ages 31-35, 23, 2% are between ages 36-40 and 7, 1% are between the ages 41-50. It can be said that the higher percentages were associated with the ages between 26-30 and 31-35. Table 2 shows the age results.

Table 4.6: Demographic Information: Respondents Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	22-25	1	1.0	1.0	1.0
	26-30	26	26.3	26.3	27.3
	31-35	42	42.4	42.4	69.7
	36-40	23	23.2	23.2	92.9
	41-50	7	7.1	7.1	100.0
	Total	99	100.0	100.0	

Ethic Group

In terms of ethnic groups, 39 (39.4%) of the respondents were black, 50 (50.5%) were white, 5 (5.1%) of the respondents were Indian and 5 (5.1%) of the respondents were coloured. It can be

concluded that the higher percentages from the demographic questions were associated with white people who are dominant in the department from the organization where the study was conducted.

Table 4.7: Demographic Information: Ethic Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Black	39	39,4	39,4	39,4
	White	50	50,5	50,5	89,9
	Indian	5	5,1	5,1	94,9
	Coloured	5	5,1	5,1	100,0
	Total	99	100,0	100,0	

4.6.2 Section B: Alignment of IT/IS with Business Processes in an Organization

The questions referring to section b of the questionnaire can be found in Appendix B.

The questions aim is to determine the small medium enterprise participants view on: whether the firms IT Strategy supports the Business Strategy, if the firms IT processes supports the business processes, whether the firms business processes supports the firms business strategies and the if the firms IT processes supports the IT Strategies. A quantitative analysis was used in this section were the participants responses are shown in a form of frequency tables. This was followed by an interpretation of the results. The items in section B were checked for reliability and validity (see table 4.8 to table 4.54).

1. **Business strategy and IT strategy in an organization (Strategic Integration)**

(TA1) The IT strategy supports the business strategy

As shown in table 4.8, 9 (9.1%) of the respondents disagree that thee IT strategy supports the business strategy, 7 (7.1%) of the respondents says Neutral that they don't agree or disagree

whether or not the IT strategy supports the business strategy, 59 (59.6%) of the respondents agree that IT strategy does support the business strategy and 24 (24.2%) of the respondents strongly agree that IT strategy does support the business strategy.

Table 4.8: The IT strategy supports the business strategy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	9,1	9,1	9,1
	Neutral	7	7,1	7,1	16,2
	Agree	59	59,6	59,6	75,8
	Strongly Agree	24	24,2	24,2	100,0
	Total	99	100,0	100,0	

(TA2) The firm's IT strategy and Business strategy match each other.

3 (3.0%) of the respondents strongly disagree that the firm's IT and Business strategy match each other, 7 (7.1%) of the respondents disagree that the firm's IT and Business strategy match each other, 15 (15.2%) of the respondents says neutral that they don't agree or disagree that the firm's IT and Business strategy match each other, 70 (70.7%) of the respondents agree that the firm's IT and Business strategy match each other and 4 (4.0%) of the respondents strongly agree that the firm's IT and Business strategy match each other. See Table 4.9 below.

Table 4.9: The firm's IT strategy and Business strategy match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3,0	3,0	3,0
	Disagree	7	7,1	7,1	10,1
	Neutral	15	15,2	15,2	25,3
	Agree	70	70,7	70,7	96,0
	Strongly Agree	4	4,0	4,0	100,0
	Total	99	100,0	100,0	

(TA3) The firm adapts its IT strategy to the business strategic change.

10 (10.1%) of the respondents disagree that the firm adapts its IT strategy to its business strategic change, 30 (30.3%) of the respondents says neutral that they don't agree or disagree that the firm adapts its IT strategy to its business strategic change and 59 (59.6%) of the respondents agree that firm adapts its IT strategy to its business strategic change. See table 4.10 below.

Table 4.10: Firm adapts its IT strategy to business strategic change

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	10	10,1	10,1	10,1
	Neutral	30	30,3	30,3	40,4
	Agree	59	59,6	59,6	100,0
	Total	99	100,0	100,0	

(TA4) The firm's IT strategy is aligned to the business strategy plan.

3 (3.0%) of the respondents disagree that the firms IT strategy is aligned to the business strategy plan, 39 (39.4%) of the respondents says neutral that they don't agree or disagree that the firms IT strategy is aligned to the business strategy plan, 47 (47.5%) of the respondents agree that the firms IT strategy is aligned to the business strategy plan and 10 (10.1%) of the respondents strongly agree that the firms IT strategy is aligned to the business strategy plan. See table 4.11 below.

Table 4.11: Firm's IT strategy is aligned to the business strategy plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	3,0	3,0	3,0
	Neutral	39	39,4	39,4	42,4
	Agree	47	47,5	47,5	89,9
	Strongly Agree	10	10,1	10,1	100,0
	Total	99	100,0	100,0	

(TA5) We access the strategic importance of emerging technologies.

5 (5.1%) of the respondents disagree that they (firm) access the strategic importance of emerging technologies, 44 (44.4%) of the respondents says neutral that they don't agree or disagree that they access the strategic importance of emerging technologies and 50 (50.5%) of the respondents agree that they access the strategic importance of emerging technologies. See table 4.12 below.

Table 4.12: We access the strategic importance of emerging technologies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	5,1	5,1	5,1
	Neutral	44	44,4	44,4	49,5
	Agree	50	50,5	50,5	100,0
	Total	99	100,0	100,0	

(TA6) We adapt our IT goals and objectives to our business goals and objectives.

(5.1%) of the respondents disagree that they (firm) adapts its IT goals and objectives to its business goals and objectives, 36 (36.4%) of the respondents says neutral that they don't agree or disagree that they adapt the IT goals and objectives to the business goals and objectives, 42 (42.4%) of the respondents agree that they adapt the IT goals and objectives to the business goals and objectives and 16 (16.2%) of the respondents strongly agree that they adapt the IT goals and objectives to the business goals and objectives. See table 4.13 below.

Table 4.13: We adapt our IT goals and objectives to our business goals and objectives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	5,1	5,1	5,1
	Neutral	36	36,4	36,4	41,4
	Agree	42	42,4	42,4	83,8
	Strongly Agree	16	16,2	16,2	100,0
	Total	99	100,0	100,0	

(TA7) We identify the fit between our IT related strategic opportunities and our business strategic direction.

(3.0%) of the respondents disagree that they (firm) identifies the fit between the IT related strategic opportunities and the business strategic direction, 43 (43.4%) of the respondents says neutral that they don't agree or disagree that they identify the fit between the IT related strategic opportunities and the business strategic direction, and 53 (53.5%) of the respondents agree that they identify the fit between the IT related strategic opportunities and the business strategic direction. See table 4.14 below.

Table 4.14: We identify the fit between our IT related strategic opportunities and our business strategic direction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	3,0	3,0	3,0
	Neutral	43	43,4	43,4	46,5
	Agree	53	53,5	53,5	100,0
	Total	99	100,0	100,0	

(TA8) The firm's IT strategy and business strategy correspond to each other.

3 (3.0%) of the respondents disagree that the firm's IT strategy and business strategy correspond to each other, 47 (47.5%) of the respondents says neutral that they don't agree or disagree that the firm's IT strategy and business strategy correspond to each other, 38 (38.4%) of the respondents agree that the firm's IT strategy and business strategy correspond to each other and 11 (11.1%) of the respondents strongly agree that the firm's IT strategy and business strategy correspond to each other. See table 4.15 below.

Table 4.15: The firm's IT strategy and business strategy correspond to each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	3,0	3,0	3,0
	Neutral	47	47,5	47,5	50,5
	Agree	38	38,4	38,4	88,9
	Strongly Agree	11	11,1	11,1	100,0
	Total	99	100,0	100,0	

2. **Business Infrastructure/Processes and IT Infrastructure/Processes (Functional Integration)**

(PA1) The firm's IT processes supports the business process.

26 (26.3%) of the respondents says neutral that they don't agree or disagree that the firm's IT processes supports the business process, 56 (56.6%) of the respondents agree that the IT processes supports the business process and 17 (17.2%) of the respondents strongly agree that the firm's IT processes supports the business process. See table 4.16 below.

Table 4.16: The firm's IT processes supports the business process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	26	26,3	26,3	26,3
	Agree	56	56,6	56,6	82,8
	Strongly Agree	17	17,2	17,2	100,0
	Total	99	100,0	100,0	

(PA2) We adapt our IT processes to our business process.

3 (3.0%) of the respondents disagree that the firm adapts the IT processes to the business process, 18 (18.2%) of the respondents says neutral that they don't agree or disagree that the firm adapts the IT processes to the business process and 78 (78.8%) of the respondents agree that the firm adapts the IT processes to the business process. See table 4.17 below

Table 4.17: We adapt our IT processes to our business process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	3,0	3,0	3,0
	Neutral	18	18,2	18,2	21,2
	Agree	78	78,8	78,8	100,0
	Total	99	100,0	100,0	

(PA3) The firm's IT processes and business process match each other.

1 (1.0%) of the respondents disagree that the firm IT processes and business process match each other, 19 (19.2%) of the respondents says neutral that they don't agree or disagree that the firm IT processes and business process match each other, 63 (63.6%) of the respondents agree that the firm IT processes and business process match each other and 16 (16.2%) of the respondents strongly agree that the firm IT processes and business process match each other. See table 4.18 below.

Table 4.18: The firm's IT processes, and business process match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	19	19,2	19,2	20,2
	Agree	63	63,6	63,6	83,8
	Strongly Agree	16	16,2	16,2	100,0
	Total	99	100,0	100,0	

(PA4) The firm's IT Infrastructure and Business Infrastructure match each other.

2 (2.0%) of the respondents disagree that the firm's IT Infrastructure and Business Infrastructure match each other, 38 (38.4%) of the respondents says neutral that they don't agree or disagree that the firm firm's IT Infrastructure and Business Infrastructure match each other and 59 (59.6%) of the respondents agree that the firm's IT Infrastructure and Business Infrastructure match each other. See table 4.19 below

Table 4.19: The firm's IT Infrastructure and Business Infrastructure match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2,0	2,0	2,0
	Neutral	38	38,4	38,4	40,4
	Agree	59	59,6	59,6	100,0
	Total	99	100,0	100,0	

(PA5) The firm's IT infrastructure aligns with the business infrastructure.

7 (7.1%) of the respondents disagree that the firm's IT infrastructure aligns with the business infrastructure, 28 (28.3%) of the respondents says neutral that they don't agree or disagree that the firm's IT infrastructure aligns with the business infrastructure, 56 (56.6%) of the respondents agree that the firm's IT infrastructure aligns with the business infrastructure and 8 (8.1%) of the respondents strongly agree that the firm's IT infrastructure aligns with the business infrastructure. See table 4.20 below.

Table 4.20: The firm's IT infrastructure aligns with the business infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	7,1	7,1	7,1
	Neutral	28	28,3	28,3	35,4
	Agree	56	56,6	56,6	91,9
	Strongly Agree	8	8,1	8,1	100,0
	Total	99	100,0	100,0	

(PA6) We identify the fit between our IT infrastructure and our business infrastructure.

34 (34.3%) of the respondents says neutral that they don't agree or disagree that they identify the fit between the IT infrastructure and the business infrastructure, 54 (54.5%) of the respondents

agree that they identify the fit between the IT infrastructure and the business infrastructure and 11 (11.1%) of the respondents strongly agree that they identify the fit between the IT infrastructure and the business infrastructure. See table 4.21 below.

Table 4.21: We identify the fit between our IT infrastructure and our business infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	34	34,3	34,3	34,3
	Agree	54	54,5	54,5	88,9
	Strongly Agree	11	11,1	11,1	100,0
	Total	99	100,0	100,0	

3. **Business Strategy and IT Infrastructure/Processes (Automation)**

(BA1) The firm's IT processes supports the business strategies.

11 (11.1%) of the respondents disagree that the firm's IT processes supports the business strategies, 31 (31.3%) of the respondents says neutral that they don't agree or disagree that the firm's IT processes supports the business strategies, 52 (52.5%) of the respondents agree that the firm's IT processes supports the business strategies and 5 (5.1%) of the respondents strongly agree that the firm's IT processes supports the business strategies. See table 4.22 below.

Table 4.22: The firm's IT processes supports the business strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	11	11,1	11,1	11,1
	Neutral	31	31,3	31,3	42,4
	Agree	52	52,5	52,5	94,9
	Strongly Agree	5	5,1	5,1	100,0
	Total	99	100,0	100,0	

(BA2) We adapt our internal IT processes to our business strategies.

12 (12.1%) of the respondents disagree that they adapt their internal IT processes to the business strategies, 28 (28.3%) of the respondents says neutral that they don't agree or disagree that they adapt their internal IT processes to the business strategies, 46 (46.5%) of the respondents agree that they adapt their internal IT processes to the business strategies and 13 (13.1%) of the respondents strongly agree that they adapt their internal IT processes to the business strategies. See table 4.23 below.

Table 4.23: We adapt our internal IT processes to our business strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	12	12,1	12,1	12,1
	Neutral	28	28,3	28,3	40,4
	Agree	46	46,5	46,5	86,9
	Strongly Agree	13	13,1	13,1	100,0
	Total	99	100,0	100,0	

(BA3) The firm's IT processes and business processes match each other.

12 (12.1%) of the respondents disagree that they adapt their internal IT processes to the business strategies, 28 (28.3%) of the respondents says neutral that they don't agree or disagree that they adapt their internal IT processes to the business strategies, 46 (46.5%) of the respondents agree that they adapt their internal IT processes to the business strategies and 13 (13.1%) of the respondents strongly agree that they adapt their internal IT processes to the business strategies. See table 4.24 below.

Table 4.24: The firm's IT processes, and business processes match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	6	6,1	6,1	6,1
	Neutral	45	45,5	45,5	51,5
	Agree	48	48,5	48,5	100,0
	Total	99	100,0	100,0	

(BA4) The firm's business strategies and internal IT processes match each other.

9 (9.1%) of the respondents disagree that the firm's business strategies and internal IT processes match each other, 52 (52.5%) of the respondents says neutral that they don't agree or disagree that the firm's business strategies and internal IT processes match each other, 36 (36.4%) of the respondents agree that the firm's business strategies and internal IT processes match each other and 2 (2.0%) of the respondents strongly agree that the firm's business strategies and internal IT processes match each other. See table 4.25 below.

Table 4.25: The firm's business strategies and internal IT processes match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	9	9,1	9,1	9,1
	Neutral	52	52,5	52,5	61,6
	Agree	36	36,4	36,4	98,0
	Strongly Agree	2	2,0	2,0	100,0
	Total	99	100,0	100,0	

(BA5) We identify the fit between our business-related strategic opportunities and our IT infrastructure.

2 (2.0%) of the respondents strongly disagree that they identify the fit between the business-related strategic opportunities and the IT infrastructure, 13 (13.1%) of the respondents disagree that they

identify the fit between the business-related strategic opportunities and the IT infrastructure , 62 (62.6%) of the respondents says neutral that they don't agree or disagree that they identify the fit between the business-related strategic opportunities and the IT infrastructure and 22 (22.2%) of the respondents agree that they identify the fit between the business-related strategic opportunities and the IT infrastructure. See table 4.26 below.

Table 4.26: We identify the fit between our business-related strategic opportunities and our IT infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	2,0	2,0	2,0
	Disagree	13	13,1	13,1	15,2
	Neutral	62	62,6	62,6	77,8
	Agree	22	22,2	22,2	100,0
	Total	99	100,0	100,0	

(BA6) Our IT infrastructure and business strategies correspond to each other.

3 (3.0%) of the respondents strongly disagree that the IT infrastructure and business strategies correspond to each other, 23 (23.2%) of the respondents disagree that the IT infrastructure and business strategies correspond to each other, 52 (52.5%) of the respondents says neutral that they don't agree or disagree that the IT infrastructure and business strategies correspond to each other, 20 (20.2%) of the respondents agree that the IT infrastructure and business strategies correspond to each other and 1 (1.0%) of the respondents strongly agree that the IT infrastructure and business strategies correspond to each other. See table 4.27 below.

Table 4.27: Our IT infrastructure and business strategies correspond to each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	3,0	3,0	3,0
	Disagree	23	23,2	23,2	26,3
	Neutral	52	52,5	52,5	78,8
	Agree	20	20,2	20,2	99,0
	Strongly Agree	1	1,0	1,0	100,0
	Total	99	100,0	100,0	

(BA7) The firm's IT infrastructure aligns with the business strategies.

21 (21.2%) of the respondents disagree that the firm's IT infrastructure aligns with the business strategies, 65 (65.7%) of the respondents says neutral that they don't agree or disagree that the firm's IT infrastructure aligns with the business strategies, 12 (12.1%) of the respondents agree that the firm's IT infrastructure aligns with the business strategies and 1 (1.0%) of the respondents strongly agree that the firm's IT infrastructure aligns with the business strategies. See table 4.28 below Table 4.28: The firm's IT infrastructure aligns with the business strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	21	21,2	21,2	21,2
	Neutral	65	65,7	65,7	86,9
	Agree	12	12,1	12,1	99,0
	Strongly Agree	1	1,0	1,0	100,0
	Total	99	100,0	100,0	

4. **IT Strategy and Business Infrastructure/Processes (Linkage)**

(BAc1) The firm's IT strategies supports the business processes.

25 (25.3%) of the respondents says neutral that they don't agree or disagree that the firm's IT strategies supports the business processes, 61 (61.6%) of the respondents agree that the firm's IT

strategies supports the business processes and 13 (13.1%) of the respondents strongly agree that the firm's IT strategies supports the business processes. See table 4.29 below.

Table 4.29: The firm's IT strategies supports the business processes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	25	25,3	25,3	25,3
	Agree	61	61,6	61,6	86,9
	Strongly Agree	13	13,1	13,1	100,0
	Total	99	100,0	100,0	

(BAc2) We adapt our IT strategies to our internal business processes.

17 (17.2%) of the respondents says neutral that they don't agree or disagree that they adapt the IT strategies to the internal business processes, 67 (67.7%) of the respondents agree that they adapt the IT strategies to the internal business processes and 15 (15.2%) of the respondents strongly agree that they adapt the IT strategies to the internal business processes. See table 4.30 below

Table 4.30: We adapt our IT strategies to our internal business processes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	17	17,2	17,2	17,2
	Agree	67	67,7	67,7	84,8
	Strongly Agree	15	15,2	15,2	100,0
	Total	99	100,0	100,0	

(BAc3) The firm's externally focused IT strategies and internal business processes match each other.

1 (1.0%) of the respondents disagree that the firm's externally focused IT strategies and internal business processes match each other, 16 (16.2%) of the respondents says neutral that they don't

agree or disagree that the firm's externally focused IT strategies and internal business processes match each other, 70 (70.7%) of the respondents agree that the firm's externally focused IT strategies and internal business processes match each other and 12 (12.1%) of the respondents strongly agree that the firm's externally focused IT strategies and internal business processes match each other. See table 4.31 below.

Table 4.31: The firm's externally focused IT strategies and internal business processes match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(BAc4) We identify the fit between our IT-related strategic opportunities and our business infrastructure.

1 (1.0%) of the respondents disagree that they identify the fit between IT-related strategic opportunities and the business infrastructure, 16 (16.2%) of the respondents says neutral that they don't agree or disagree that they identify the fit between IT-related strategic opportunities and the business infrastructure, 70 (70.7%) of the respondents agree that they identify the fit between IT-related strategic opportunities and the business infrastructure and 12 (12.1%) of the respondents strongly agree that they identify the fit between IT-related strategic opportunities and the business infrastructure. See table 4.32 below.

Table 4.32: We identify the fit between our IT-related strategic opportunities and our business infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(BAc5) Our business infrastructure and IT strategies correspond to each other.

16 (16.2%) of the respondents says neutral that they don't agree or disagree that the business infrastructure and IT strategies correspond to each other, 71 (71.7%) of the respondents agree that they identify the business infrastructure and IT strategies correspond to each other and 12 (12.1%) of the respondents strongly agree that business infrastructure and IT strategies correspond to each other. See table 4.33 below.

Table 4.33: Our business infrastructure and IT strategies correspond to each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	16	16,2	16,2	16,2
	Agree	71	71,7	71,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(BAc6) The firm's business infrastructure aligns with our externally focused IT strategies.

1 (1.0%) of the respondents disagree that the firm's business infrastructure aligns with the externally focused IT strategies, 16 (16.2%) of the respondents says neutral that they don't agree

or disagree that the firm's business infrastructure aligns with the externally focused IT strategies, 70 (70.7%) of the respondents agree that the firm's business infrastructure aligns with the externally focused IT strategies and 12 (12.1%) of the respondents strongly agree v. See table 4.34 below.

Table 4.34: The firm's business infrastructure aligns with our externally focused IT strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

5. **IT Strategy and IT Infrastructure/Processes (IT Strategic Fit)**

(ITA1) The firm's IT processes supports the firm's IT strategies.

25 (25.3%) of the respondents says neutral that they don't agree or disagree that the firm's IT processes supports the firm's IT strategies, 61 (61.6%) of the respondents agree that the firm's IT processes supports the firm's IT strategies and 13 (13.1%) of the respondents strongly agree that the firm's IT processes supports the firm's IT strategies. See table 4.35 below.

Table 4.35: The firm's business infrastructure aligns with our externally focused IT strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	25	25,3	25,3	25,3
	Agree	61	61,6	61,6	86,9
	Strongly Agree	13	13,1	13,1	100,0
	Total	99	100,0	100,0	

(ITA2) We adapt our IT strategies to our internal IT processes.

17 (17.2%) of the respondents says neutral that they don't agree or disagree that they adapt IT strategies to the internal IT processes, 67 (67.7%) of the respondents agree that they adapt IT strategies to the internal IT processes and 15 (15.2%) of the respondents strongly agree that they adapt IT strategies to the internal IT processes. See table 4.36 below.

Table 4.36: We adapt our IT strategies to our internal IT processes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	17	17,2	17,2	17,2
	Agree	67	67,7	67,7	84,8
	Strongly Agree	15	15,2	15,2	100,0
	Total	99	100,0	100,0	

(ITA3) The firm's IT strategies and internal IT processes match each other.

1 (1.0%) of the respondents disagree that the firm's IT strategies and internal IT processes match each other, 16 (16.2%) of the respondents says neutral that they don't agree or disagree that the firm's IT strategies and internal IT processes match each other, 70 (70.7%) of the respondents agree that the firm's IT strategies and internal IT processes match each other and 12 (12.1%) of the respondents strongly agree that the firm's IT strategies and internal IT processes match each other. See table 4.37 below.

Table 4.37: The firm's IT strategies and internal IT processes match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(ITA4) We identify the fit between our IT-related strategic opportunities and our IT infrastructure.

1 (1.0%) of the respondents disagree that they identify the fit between IT-related strategic opportunities and the IT infrastructure, 16 (16.2%) of the respondents says neutral that they don't agree or disagree that they identify the fit between IT-related strategic opportunities and the IT infrastructure, 70 (70.7%) of the respondents agree that they identify the fit between IT-related strategic opportunities and the IT infrastructure and 12 (12.1%) of the respondents strongly agree they identify the fit between IT-related strategic opportunities and the IT infrastructure. See table 4.38 below.

Table 4.38: We identify the fit between our IT-related strategic opportunities and our IT infrastructure.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(ITA5) Our IT infrastructure and IT strategies correspond to each other.

16 (16.2%) of the respondents says neutral that they don't agree or disagree that the IT infrastructure and IT strategies correspond to each other, 71 (71.7%) of the respondents agree that the IT infrastructure and IT strategies correspond to each other and 12 (12.1%) of the respondents strongly agree that the IT infrastructure and IT strategies correspond to each other. See table 4.39 below.

Table 4.39: Our IT infrastructure and IT strategies correspond to each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	16	16,2	16,2	16,2
	Agree	71	71,7	71,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(ITA6) The firm's IT infrastructure aligns with IT strategies.

1 (1.0%) of the respondents disagree that the firm's IT infrastructure aligns with IT strategies, 16 (16.2%) of the respondents says neutral that they don't agree or disagree that the firm's IT infrastructure aligns with IT strategies, 70 (70.7%) of the respondents agree that the firm's IT infrastructure aligns with IT strategies and 12 (12.1%) of the respondents strongly agree that the firm's IT infrastructure aligns with IT strategies. See table 4.40 below.

Table 4.40: The firm's IT infrastructure aligns with IT strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

6. **Business strategy and Business Infrastructure/Processes (Business Strategic Fit)**

(BSA1) The firm's IT business processes support the firm's business strategies.

25 (25.3%) of the respondents says neutral that they don't agree or disagree that the firm's IT business processes support the firm's business strategies, 61 (61.6%) of the respondents agree that the firm's IT business processes support the firm's business strategies and 13 (13.1%) of the respondents strongly agree that the firm's IT business processes support the firm's business strategies. See table 4.41 below.

Table 4.41: The firm's IT business processes support the firm's business strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	25	25,3	25,3	25,3
	Agree	61	61,6	61,6	86,9
	Strongly Agree	13	13,1	13,1	100,0
	Total	99	100,0	100,0	

(BSA2) We adapt our business strategies to our internal business processes.

14 (14.1%) of the respondents says neutral that they don't agree or disagree that they adapt the business strategies to the internal business processes, 73 (73.7%) of the respondents agree that they adapt the business strategies to the internal business processes and 12 (12.1%) of the respondents strongly agree that they adapt the business strategies to the internal business processes. See table 4.42 below.

Table 4.42: We adapt our business strategies to our internal business processes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	14	14,1	14,1	14,1
	Agree	73	73,7	73,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(BSA3) The firm's business strategies and internal business processes match each other.

1 (1.0%) of the respondents disagree that the firm's business strategies and internal business processes match each other, 14 (14.1%) of the respondents says neutral that they don't agree or disagree that the firm's business strategies and internal business processes match each other, 72 (72.7%) of the respondents agree the firm's business strategies and internal business processes match each other and 12 (12.1%) of the respondents strongly agree that the firm's business strategies and internal business processes match each other. See table 4.43 below.

Table 4.43: The firm's business strategies and internal business processes match each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	14	14,1	14,1	15,2
	Agree	72	72,7	72,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(BSA4) We identify the fit between our business-related strategic opportunities and our business infrastructure.

1 (1.0%) of the respondents disagree that they identify the fit between business-related strategic opportunities and the business infrastructure, 16 (16.2%) of the respondents says neutral that they don't agree or disagree that they identify the fit between business-related strategic opportunities and the business infrastructure, 70 (70.7%) of the respondents agree that they identify the fit between business-related strategic opportunities and the business infrastructure and 12 (12.1%) of the respondents strongly agree that they identify the fit between business-related strategic opportunities and the business infrastructure. See table 4.44 below.

Table 4.44: We identify the fit between our business-related strategic opportunities and our business infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(BSA5) Our business infrastructure and business strategies correspond to each other.

15 (15.2%) of the respondents says neutral that they don't agree or disagree that the business infrastructure and business strategies correspond to each other, 72 (72.7%) of the respondents agree that the business infrastructure and business strategies correspond to each other and 12 (12.1%) of the respondents strongly agree that the business infrastructure and business strategies correspond to each other. See table 4.45 below.

Table 4.45: Our business infrastructure and business strategies correspond to each other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	15	15,2	15,2	15,2
	Agree	72	72,7	72,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(BSA6) The firm's business infrastructure aligns with business strategies.

1 (1.0%) of the respondents disagree that the firm's business infrastructure aligns with business strategies, 16 (16.2%) of the respondents says neutral that they don't agree or disagree that the firm's business infrastructure aligns with business strategies, 70 (70.7%) of the respondents agree that the firm's business infrastructure aligns with business strategies and 12 (12.1%) of the respondents strongly agree that the firm's business infrastructure aligns with business strategies. See table 4.46 below.

Table 4.46: The firm's business infrastructure aligns with business strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1,0	1,0	1,0
	Neutral	16	16,2	16,2	17,2
	Agree	70	70,7	70,7	87,9
	Strongly Agree	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

7. **Firm Performance**

(FPER1) The executive team satisfaction with return on sales is.

10 (10.1%) of the respondents believe that in an average of the executive teams satisfaction with return on sales is neither high or low, 77 (77.8%) of the respondents believe that the executive

teams satisfaction with return on sales is high and 12 (12.1%) of the respondents believe that the executive teams satisfaction with return on sales is very high. See table 4.47 below.

Table 4.47: The executive team satisfaction with return on sales is

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average	10	10,1	10,1	10,1
	High	77	77,8	77,8	87,9
	Very High	12	12,1	12,1	100,0
	Total	99	100,0	100,0	

(FPER2) The executive team satisfaction with sales growth rate is.

3 (3.0%) of the respondents believe that the executive teams satisfaction with the sales is low, 10 (10.1%) of the respondents believe that in an average of the executive teams satisfaction with sales growth rate is neither high or low, 78 (78.8%) of the respondents believe that the executive teams satisfaction with the sales is high and 8 (8.1%) of the respondents believe that the executive teams satisfaction with the sales is very high. See table 4.48 below.

Table 4.48: The executive team satisfaction with sales growth is

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	3	3,0	3,0	3,0
	Average	10	10,1	10,1	13,1
	High	78	78,8	78,8	91,9
	Very High	8	8,1	8,1	100,0
	Total	99	100,0	100,0	

(FPER3) The executive team satisfaction with return on corporate investment is.

8 (8.1%) of the respondents believe that the executive teams satisfaction with return on corporate investment is low, 51 (51.1%) of the respondents believe that in an average of the executive teams

satisfaction with return on corporate investment is neither high or low and 40 (40.4%) of the respondents believe that the executive teams satisfaction with return on corporate investment is high. See table 4.49 below.

Table 4.49: The executive team satisfaction with return on corporate investment is

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	8	8,1	8,1	8,1
	Average	51	51,5	51,5	59,6
	High	40	40,4	40,4	100,0
	Total	99	100,0	100,0	

(FPER4) The return on corporate investment options relative to the firm's principle competitors.

8 (8.1%) of the respondents believe that the return on corporate investment options relative to the firm's principle competitors is low, 51 (51.1%) of the respondents believe that in an average of the return on corporate investment options relative to the firm's principle competitors is neither high or low and 40 (40.4%) of the respondents believe that the return on corporate investment options relative to the firm's principle competitors is high. See table 4.50 below.

Table 4.50: The return on corporate investment options relative to the firm's principle competitors.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	8	8,1	8,1	8,1
	Average	51	51,5	51,5	59,6
	High	40	40,4	40,4	100,0
	Total	99	100,0	100,0	

(FPER5) The market share gains relative to the firm's principle competitors.

20 (20.2%) of the respondents believe that the market share gains relative to the firm's principle competitors are low and 79 (79.9%) of the respondents believe that in an average of the market share gains relative to the firm's principle competitors are neither high nor low. See table 4.51 below.

Table 4.51: The market share gains relative to the firm's principle competitors are

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	20	20,2	20,2	20,2
	Average	79	79,8	79,8	100,0
	Total	99	100,0	100,0	

(FPER6) The sales growth position relative to the firm's principle competitors.

3 (3.0%) of the respondents believe that the sales growth position relative to the firm's principle competitors is low, 67 (67.7%) of the respondents believe that in an average of the sales growth position relative to the firm's principle competitors is neither high or low and 29 (29.3%) of the respondents believe that the sales growth position relative to the firm's principle competitors is high. See table 4.52 below.

Table 4.52: The sales growth position relative to the firm's principle competitors.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	3	3,0	3,0	3,0
	Average	67	67,7	67,7	70,7
	High	29	29,3	29,3	100,0
	Total	99	100,0	100,0	

(FPER7) The net profit position relative to the firm's principle competitors is.

78 (78.8%) of the respondents believe that the net profit position relative to the firm's principle competitors is high, 19 (19.2%) of the respondents believe that the net profit position relative to the firm's principle competitors is high and 2 (2.0%) of the respondents believe that the net profit position relative to the firm's principle competitors is very high See table 4.53 below.

Table 4.53: The net profit position relative to the firm's principle competitors is

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average	78	78,8	78,8	78,8
	High	19	19,2	19,2	98,0
	Very High	2	2,0	2,0	100,0
	Total	99	100,0	100,0	

(FPER8) The financial liquidity position relative to the firm's principle competitors is.

7 (7.1%) of the respondents believe that the financial liquidity position relative to the firm's principle competitors is low, 79 (79.8%) of the respondents believe that in an average the financial liquidity position relative to the firm's principle competitors is neither high or low and 13 (13.1%) of the respondents believe that he financial liquidity position relative to the firm's principle competitors is high See table 4.54 below.

Table 4.54: The financial liquidity position relative to the firm's principle competitors is

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	7	7,1	7,1	7,1
	Average	79	79,8	79,8	86,9
	High	13	13,1	13,1	100,0
	Total	99	100,0	100,0	

4.7 Relation between the variables

In evaluating the proposed framework model and to find if there is any relationship between the technology adoption factors, the statistical significance of the relationship between the variables was determined using the Pearson's Correlation. The level of significance was set at 0.01

Pearson's Correlation Coefficient shows the intensity of linear relationships between variables when the variables are ordinal type. Pearson's Correlation tested for the variables which have been mentioned in the study. Findings in Table 4.55 shows that there was a significant positive correlation between all factors for Framework for aligning Information Systems with Business Processes in Small Medium Enterprise.

Table 4.55: Correlation Coefficient between the Alignment Lines

Correlations

		Strategic Integration	Functional Integration	Automation	Linkage	IT Stratgic Fit	Business Strategic Fit
Strategic Integration	Pearson Correlation	1	.669**	.561**	.289**	.289**	.287**
	Sig. (2-tailed)		0,000	0,000	0,000	0,000	0,000
	N	99	99	99	99	99	99
Functional Integration	Pearson Correlation	.669**	1	.655**	.365**	.365**	.366**
	Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000	0,000
	N	99	99	99	99	99	99
Automation	Pearson Correlation	.561**	.655**	1	.379**	.379**	.383**
	Sig. (2-tailed)	0,000	0,000		0,000	0,000	0,000
	N	99	99	99	99	99	99
Linkage	Pearson Correlation	.289**	.365**	.379**	1	1.000**	.994**
	Sig. (2-tailed)	0,000	0,000	0,000		0,000	0,000
	N	99	99	99	99	99	99
IT Stratgic Fit	Pearson Correlation	.289**	.365**	.379**	1.000**	1	.994**
	Sig. (2-tailed)	0,000	0,000	0,000	0,000		0,000
	N	99	99	99	99	99	99
Business Strategic Fit	Pearson Correlation	.287**	.366**	.383**	.994**	.994**	1
	Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000	
	N	99	99	99	99	99	99

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

The above results show that Functional Integration between Businesses with a correlation coefficient of .220 is confirmed and with a significance level of .000 is supported. This means that Functional Integration influences Firms performance.

Linkage with a correlation coefficient of .561 is confirmed and with a significance level of .000 is supported. This means that Linkage between IT strategy and Business Infrastructure/Processes influences Firms performance.

IT strategic Fit with a correlation coefficient of .561 is confirmed with a significance level of .000 is supported. This means that the strategic fit between IT strategy and IT Infrastructure/Processes influences Firms performance.

Business Strategic Fit with a correlation coefficient of .553 is confirmed with a significance level of .000 is supported. This means that strategic fit between Business strategy and Business Infrastructure/Processes influences Firms performance.

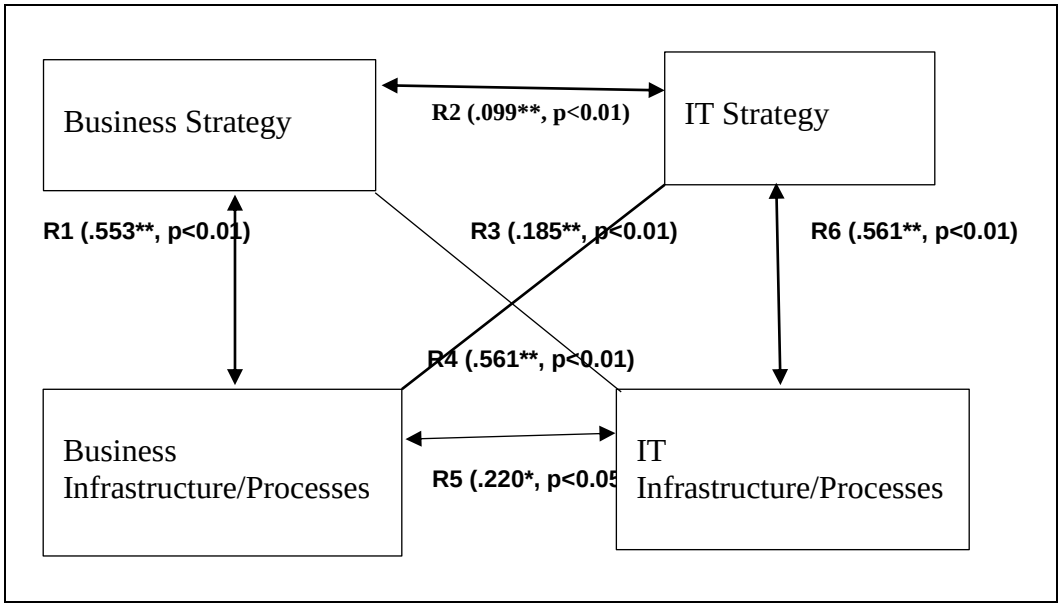


Figure 4.1: Correlation Coefficient of the variables

The results show the relationship between Strategic Integration (r=.099**, p<0.01), Functional Integration (r=.220*, p<0.01), Automation (r=.185**, p<0.01) and Linkage (r=.561**, p<0.01) were positive and statistically correlated. Additionally, the relationship between IT Strategic Fit (r=.561**, p<0.01) and Linkage were positively correlated. Furthermore, results showed the relationship between Functional Integration (r=.220*, p<0.05) and Automation (r=.185**, p<0.01)

were positively correlated. In addition the results show relationships between IT Strategic Fit (r=.561**, p<0.01), Linkage (r=.561**, p<0.01), Business Strategic Fit (r=.553**, p<0.01), Automation (r=.185**, p<0.01 and Functional Integration were positive and statistically moderately correlated. The results also showed that relationship between Strategic Integration (r=.099**, p<0.01), IT Strategic Fit (r=.561, p<0.01**), Functional Integration (r=.220**, p<0.01) and Strategic Integration were positive and correlated. Additionally, the relationship between IT Strategic Fit (r=.561**, p<0.01), Automation (r=.185**, p<0.01), Strategic Integration (r=.099**, p<0.01) and Functional Integration were positive and correlated.

4.6.1 Regression Coefficient

This section presents the results of the regression coefficient of the alignment of Information Systems with Business Strategy in Small Medium Enterprises in Gauteng, South Africa. The obtained regression results show the effect the components of strategic alignment and the component that formed by multiplying the variables on performance. The below table (Table 4.56) shows the regression estimation and model testing results of the predictors that are applicable for the R and R ^ 2. The predictor of firm performance in the model include: Business Strategic Fit, Strategic Integration, Functional Integration, IT Strategic Fit. Where R ^ 2 = 0.326 and F = 11.390 in significance level 0.000. According to the results below it can be said that the identified four factors significantly affect the firm's performance.

Table 4.56: Regression estimation and model testing results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.571[a]	.326	.298	.22979	.326	11.390	4	94	.000

a. Predictors: (Constant), Business Strategic Fit, Strategic Integration, Functional Integration, IT Strategic Fit

b. Dependent: Firm Performance

The above table shows the R value which represents the correlation which is 0.571 and the R Square value of 0.326 which represents how much of the total in the dependent variable (Firm Performance) can be explained by the independent variables.

Table 4.57: Anova

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.406	4	.601	11.390	.000[b]
	Residual	4.964	94	.053		
	Total	7.369	98			

a. Dependent Variable: Firms Performance

b. Predictors: (Constant), Business Strategic Fit, Strategic Integration, Functional Integration, IT Strategic Fit

This table shows a Sig value of .000 which is less than 0.05. This means that the regression model predicts the dependent variable significantly well.

Table 4.58 Regression Coefficients for alignment and performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,21	0,227		9,741	0,001
	Total A	0,521	0,426	0,958	1,222	0,001

a. Dependent Variable: Firms Performance

4.8 Chapter Summary

In this chapter, data analysis methods, study results and discussion of the findings have been presented. This was followed also buy the Reliability and Validity testing that was done of the study. It shows from the results that 54% of the respondents consisted of Female and fall with the ages of 31-35. Looking at the IT strategy supports the business strategy participants agree that the IT strategy does support the business strategy. In addition to the firm's business infrastructure alignment with business strategies, the participants agree that the business infrastructure is aligned to business strategy which should lead to increase in the firm's performance.

Pearson correlation analysis was done to show the relationships between the alignments of IS with business processes variables which showed that there is a significant correlation between the variables. In the next chapter, summary, conclusions and recommendations are drawn based on the results discussed in this chapter.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study focused on the alignment of Information Systems with business processes within SME's (Small Medium Enterprises). Information system has been commonly used by many companies to automate and integrate their business operations. Prior researches have shown that information system adoption does increases firm's performance and operations efficiency. This study contributed in examining the connection between Business Strategy, IT Strategy, Business infrastructure/Processes and IT Infrastructure/Processes. The study was conducted on SME within South Africa, it also covered the participants with various age group, race and background on alignment of IS with business processes. The results concluded that the four variables influence an increase in Firm's Performance. (Thong, 1996) evaluated the impact of three independent variables using a sample which consisted of 114 SME's. Their study reported an R Square value of 0.10. The findings of the study indicate that IT and Strategic alignment are an important influence of IT success and Business success in SME's.

The tool used is also an important contribution to the study. Measuring of IT alignment and Strategic alignment was proposed based on the fit between IT Success and Firm's Performance guided by the Strategic Alignment Model (SAM). The instrument strength is that it can be used by firms to align at both strategic level and functional level. Thus, the instrument can be used to identify whether the firm is aligned on both the strategic and functional level and the fit between the strategies.

From the finding on this study, the positive relationships established between the different methods of alignment and the firm's performance show's that attaining alignment between IT and the business is important for firm's success.

The researcher found that from the questionnaire that was distributed that the minority of the participants agree that the firm's IT Processes do support the business processes. This means that IT and Business talk to each other and are aligned. Furthermore, the object results show that the construct on the proposed research model have been tested using linear multiple regression. The results showed that Business Strategic Fit, Strategic Integration, Functional Integration and IT Strategic Fit combined are significant predictors of firm performance.

It was also revelled from the results that there is significant correlation between the factors at a significant level of 0.01. The findings are also constant with existing studies that confirmed the role of IT/IS alignment with business process in a firm's performance (Ahmed, 2016); (P. Cragg, 2002) and (Y. E. Chan, 2007). From the findings in this study the researcher concluded based on the research questions.

Question 1: What frameworks are currently set in place for aligning IS/IT strategies with the business strategy?

Various alignment models and frameworks were reviewed in this study. From the models that were reviewed the research decided on the SAM Framework as the model for aligning Information Systems with business processes. The SAM has theoretical and practical feasibility in the measurement of IT/IS Business alignment and measuring the effect it has on the firm's performance. Furthermore, the research has drawn a conclusion that if the 4

components of the SAM framework are aligned it will result in an increase in the firm's performance.

Question 2: What impact does IT have on the business strategy?

Based on the results from the survey questions, the findings indicated that the majority of the respondents agree that the firm's IT and Business strategy match each other, which means that IT supports business strategy

Question 3: Why should organisations align their information systems with the business processes?

The results were tested using linear regression based on the proposed research framework.

The results discovered that Business Strategy, IT Strategy, Business Infrastructure/Processes and IT Infrastructure/Processes when aligned influences the firm's performance.

Prior researches have shown that information system adoption does increases firm's performance and operations efficiency.

The alignment of business processes with IS very important to SMEs because it improves customer satisfaction, enhances product quality and increases profits in overall. In order to sustain alignment between business processes and strategy, SMEs give importance to factors such as IT, people, culture and management. Business processes are successfully supported by a decent information system, which will assist with information flow, enables process automation, increase process efficiency. Therefore, IT has a vital role in sustaining business processes and strategy alignment.

Research Objectives were outlined below together with the conclusion reached based on the research results.

Objective 1: To study the current frameworks set in place for aligning IS/IT strategies with the business strategy in literature.

Literature review indicated that there are a few framework models that have been used in the alignment of IS/IT with business strategy in organisations. Most of the research Strategic Alignment Model (SAM) developed by (J. V. N. Henderson, 1993) is a framework that combines various alignment perspectives to provide a view on IT-business alignment.

According to (Baets, 1992), their research study was based on a model that considers alignment as a process, IS Infrastructure and processes and IT Strategy. Another model was proposed by (Peppard, 2002), based on business performance is derived which IT impacts together with other organizational dimensions namely: IS/IT Strategy, IT operations and services and business strategy.

Objective 2: To propose a framework for alignment of IS/IT strategies with the business strategy

The proposed framework model was adapted from (J. V. N. Henderson, 1993) as depicted in figure 3.1. The proposed model consisted of the Business Strategy, IT Strategy, Business Infrastructure/Processes and IT Infrastructure/Processes and Firm's Performance. The relationship between the of the factors were determined to confirm the relationship and influence of the firm's performance. Based on the above set outcomes the research study achieved the objective.

Objective 3: To evaluate the alignment of IS/IT strategies with the business strategy in organisations using the proposed model.

To achieve this objective, Pearson correlation coefficients was used to measure the correlation between the factors to align IS/IT Strategy with business strategies. adopt ICT security culture and intention to adopt. The results revealed a link between the factors, which confirmed that there is a positive relationship between the factors that influences firm's performance. As a result of the framework model was fit for the study.

Objective 4: To evaluate whether IS/IT and business strategy have an impact on the performance of an organisation

To achieve this objective, Pearson correlation coefficients and Regression was used to measure the correlation or relationships between the alignments of IS/IT with business strategy variables which showed that there is a significant correlation between the variables. This means that Linkage between the factor's IT strategy and Business strategy influences Firms performance. The research study concluded that if there is a strong relationship between the factors and if there are aligned, they will have an influence the firm's performance.

5.2 Limitation and Assumptions of the study

Limitations which were pickup in this study was that during the process of data collection it was not possible to get 100% focus of the stuff in terms of answering the questionnaires. This somehow compromised the results of the research as on some of the questionnaires you can see the respondents was guessing. Other limitation includes the time factor as the participants took their time in answering the questionnaires and sending it back.

It was assumed that the selected population is willing to answer the questions truthfully. The research also assumes all participants are free from bias and have adequately taken the time to read each question and answer appropriately.

5.3 Suggestions for future research

The analysis of previous studies done on alignment Information Systems (IS) and business processes showed that issues pertaining alignment within SME's exists. Information systems have been widely used by many firms to automate and integrate their business processes. Furthermore, previous studies agreed that the if an organization is successfully aligned this will lead to an increase in firm's performance. This study observed IS Alignment, focusing on the alignment of IS with business processes. The data also revealed that alignment has an influence on the firm's performance, for every business operation today information systems (IS) is an essential component to have as the information that the Information systems produces is meant to support the business core functions.

However, alignment is not something that can only be implemented once and think that all is done it is a continuous process. Therefore, details of future research as follows:

1. This study focused only on SME's, it would be interesting in further research to investigate the differences on the importance of IS alignment with business processes between large companies and SMEs.

2. Some of the alignment models in place are mainly business driven rather that IS driven. Further research can be done on that by proposing an alignment model which is IS driven

3. This study focused on the alignment of IS with business processes within SME's and whether it leads to firm's performance. Further studies can be undertaken on accounting

software implementation within SME's to assist in identifying areas of successful implementation and observe why some SME's succeed or fail.

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APPENDIX A: CONSENT LETTER

FRAMEWORK FOR ALIGNING INFORMATION SYSTEMS WITH BUSINESS STRATEGY IN SMALL MEDUIM ENTERPRISES IN GAUTENG, SOUTH AFRICA

Consent Letter: Magister Technologiae Research

Researcher's Name: Rethabile Kale

E-Mail Address: thabiladyt@gmail.com

Supervisor Name: Prof Tranos Zuva

E-Mail Address: tranosz@vut.ac.za

Dear Participants:

You are being invited to participate in a research study Framework for aligning Information Systems with Business processes in Small Medium Enterprises. We're interested in measuring the current frameworks set in place and the difference between them and evaluating the types of frameworks used before to measure the alignment of Information Systems with Business Processes in Small Medium Enterprises.

The research will take a maximum of 8 months, during this time will require your participation in terms of filling in a brief sampled questionnaire. This session can be conducted at your workplace or wherever you prefer.

There are no anticipated risks or discomforts related to this research. However, if you feel uncomfortable with any part of this study at any time, you have the right to terminate participation without consequences.

Step to be taken to protect your anonymity and identity during your participation in this study is that your name and personal information will be kept confidential. Your participation in this research is completely voluntary, if you choose to participate and then change your mind you may withdraw from the study at any time for any reason.

Thank you for your assistance in this important endeavour.

Kind Regards,

R Kale

APPENDIX B: INTRODUCTION LETTER

Vaal University of Technology

Introduction Letter: Magister Technologiae Research

To whom it may concern:

The purpose of this research is to investigate current Framework for aligning information systems with business strategy in Small Medium Enterprises in Gauteng, South Africa. This will cover the SAM Model being used for alignment.

The purpose of this research is to evaluate as to which framework is best to use in an organisation and to determine the level of organisation's alignment currently and to evaluate which element would help improve alignment in an organisation and assist on analyzing the results and be able to write the conclusion.

Your participation in this study will be highly appreciated. This study is anonymous, and no answer will be tied to you or your firm; in addition, there are no known risks associated with this research. Information received will only be used for academic purposes.

The questionnaire consists of 7 questions that are broken down into sub-sections. The amount of time required for your participation in answering the questionnaire will be 10–15 min.

Your participation in this study is voluntary, you may choose not to participate, and you may withdraw your consent to participate at any time. You will not be penalized in any way should you decide not to participate or to withdraw from participating in the survey.

Your support will be highly appreciated

Yours sincerely

Rethabile Kale

APPENDIX C: QUESTIONNAIRE

Framework for Aligning Information Systems (IS) with Business strategy in Small Medium Enterprises in Gauteng, South Africa.

Section A: Demographic Information

1. **What is your Gender?**

   ☐ Male ☐ Female

2. **What is your Age?**

   ☐ 22-25 ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐ 41-50

3. **Which ethnic group do you fall under?**

   ☐ Asian ☐ Black ☐ White ☐ Indian ☐ Coloured

4. **Are you currently working in the IT Department?**

   ☐ Yes ☐ No

   If No, then this survey is no applicable to you.

Section B Alignment of IT/IS with Business Processes in an organization (Strategic Integration)

Answer the question and select your choice by clicking inside the square which best indicates how strongly you agree or disagree with the statement.

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

Questions on Business Strategy and IT strategy

1.

Item No	Item	Ranking
TA1	The IT strategy supports the business strategy.	1 2 3 4 5
TA2	The firm's IT strategy and business strategy match each other.	1 2 3 4 5
TA3	The firm adapts its IT strategy to business strategic change.	1 2 3 4 5
TA4	The firm's IT strategy is aligned to the business strategy plan.	1 2 3 4 5
TA5	We access the strategic importance of emerging technologies	1 2 3 4 5
TA6	We adapt our IT goals and objectives to our business goals and objectives.	1 2 3 4 5
TA7	We identify the fit between our IT related strategic opportunities and our businesses strategic direction.	1 2 3 4 5
TA8	The firm's IT strategy and business strategy correspond to each other.	1 2 3 4 5

2.

Questions on Business Infrastructure /Processes and IT Infrastructure/Processes (Functional Integration)

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

Item No	Item	Ranking
PA1	The firm's IT processes supports the business process.	1 2 3 4 5
PA2	We adapt our IT processes to our business processes	1 2 3 4 5
PA3	The firm's IT processes, and business processes match each other.	1 2 3 4 5
PA4	The firm's IT infrastructure and business infrastructure match each other.	1 2 3 4 5
PA5	The firm's IT infrastructure aligns with the business infrastructure.	1 2 3 4 5
PA6	We identify the fit between our IT infrastructure and our business infrastructure.	1 2 3 4 5

3.

Questions on Business Strategy and IT Infrastructure/Processes (Automation)

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

Item No	Item	Ranking
BA1	The firm's IT processes supports the business strategies.	1 2 3 4 5
BA2	We adapt our internal IT processes to our business strategies.	1 2 3 4 5
BA3	The firm's IT processes, and business processes match each other.	1 2 3 4 5
BA4	The firm's business strategies and internal IT processes match each other.	1 2 3 4 5
BA5	We identify the fit between our business-related strategic opportunities and our IT infrastructure.	1 2 3 4 5
BA6	Our IT infrastructure and business strategies correspond to each other.	1 2 3 4 5
BA7	The firm's IT infrastructure aligns with the business strategies.	1 2 3 4 5

4.

Questions on IT Strategy and Business Infrastructure/Processes (Linkage)

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

Item No	Item	Ranking
BAc1	The firm's IT strategies supports the business processes.	1 2 3 4 5
BAc2	We adapt our IT strategies to our internal business processes.	1 2 3 4 5
BAc3	The firm's externally focused IT strategies and internal business processes match each other.	1 2 3 4 5
Bac4	We identify the fit between our IT-related strategic opportunities and our business infrastructure.	1 2 3 4 5
Bac5	Our business infrastructure and IT strategies correspond to each other.	1 2 3 4 5
BA6	The firm's business infrastructure aligns with our externally focused IT strategies.	1 2 3 4 5

5.

Questions on IT Strategy and IT Infrastructure/Processes (IT Strategic Fit)

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

Item No	Item	Ranking
ITA1	The firm's IT processes supports the firm's IT strategies.	1 2 3 4 5
ITA 2	We adapt our IT strategies to our internal IT processes.	1 2 3 4 5

ITA 3	The firm's IT strategies and internal IT processes match each other.	1 2 3 4 5
ITA 4	We identify the fit between our IT-related strategic opportunities and our IT infrastructure.	1 2 3 4 5
ITA 5	Our IT infrastructure and IT strategies correspond to each other.	1 2 3 4 5
ITA 6	The firm's IT infrastructure aligns with IT strategies.	1 2 3 4 5

6.

Questions on Business Strategy and Business Infrastructure/Processes (Business Strategic Fit)

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

Item No	Item	Ranking
BSA1	The firm's business processes support the firm's business strategies.	1 2 3 4 5
BSA2	We adapt our business strategies to our internal business processes.	1 2 3 4 5
BSA 3	The firm's business strategies and internal business processes match each other.	1 2 3 4 5
BSA 4	We identify the fit between our business-related strategic opportunities and our business infrastructure.	1 2 3 4 5
BSA 5	Our business infrastructure and business strategies correspond to each other.	1 2 3 4 5
BSA 6	The firm's business infrastructure aligns with business strategies.	1 2 3 4 5

7.

Questions on Firms Performance

1 = Very Low; 2 = Low; 3 = Average; 4 = High; 5 = Very High

Item No	Item	Ranking
FPER1	The executive team satisfaction with return on sales is.	1 2 3 4 5
FPER2	The executive team satisfaction with the sales growth rate is.	1 2 3 4 5
FPER 3	The executive team satisfaction with return on corporate investment is.	1 2 3 4 5
FPER 4	The return on corporate investment options relative to the firm's principle competitors is.	1 2 3 4 5
FPER 5	The market share gains relative to the firm's principle competitors are.	1 2 3 4 5
FPER 6	The sales growth position relative to the firm's principle competitors is.	1 2 3 4 5
FPER 7	The net profit position relative to the firm's principle competitors is.	1 2 3 4 5
FPER 8	The financial liquidity position relative to the firm's principle competitors is.	1 2 3 4 5