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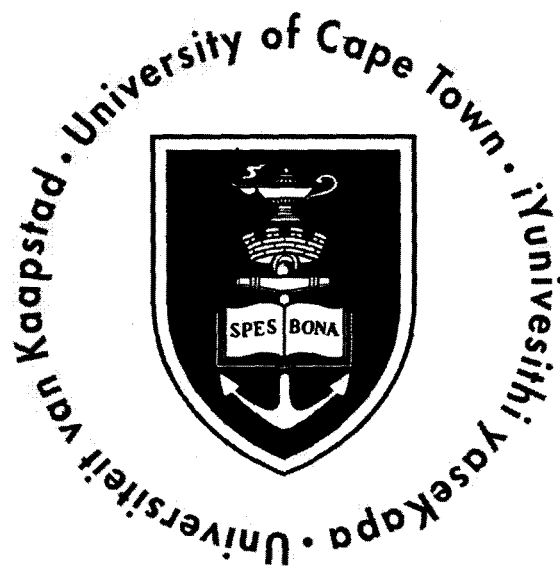
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# **Factors Influencing the Success of Business-IT Alignment: A Study of South African Firms**

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A Dissertation submitted to the  
Department of Information Systems



University of Cape Town

By

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Commerce in Information Systems

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My deep gratitude goes to my parents and siblings for their support. Above all, I thank the Almighty God for His favour and mercies upon me.

## Declaration

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## Abstract

Business-IT alignment has persistently been a top management concern globally for a couple of decades. This is understandably due to the perceived benefits it offers organisations such as maximising returns on IT investments which improves organisational performance, and the achievement of competitive advantage. However, realising business-IT alignment has been a complex task. Nevertheless, business-IT alignment can be achieved by maximising its success factors. Though there has been significant research on the factors influencing the success of business-IT alignment, more studies are still required to increase its understanding as business-IT alignment still remains a challenging issue.

This study investigated the factors influencing the success of business-IT alignment in South African firms while taking into consideration the coverage of the requisite dimensions and paradigms of business-IT alignment. The impacts of the South African business operating environment and the industry sector of firms on the success factors for business-IT alignment were also examined. Data was gathered through semi-structured interviews with 10 CIOs of major firms in five industry sectors – major retail, food and beverages, higher education, governmental organisation, and financial services. Though this study focused on major South African firms, the research findings still have a good measure of applicability to similar firms in other countries. The data gathered was analysed using the general inductive approach which adopts grounded theory data analysis techniques. The general inductive approach typically leads to the development of a theoretical framework which was one of the objectives of this research.

Regarding the research findings, 14 success factors for business-IT alignment covering the social, intellectual, and structural dimensions of alignment were discovered. These were consolidated into a theoretical framework which incorporates the impacts of the South African business operating environment and the industry sector of firms on the 'success factors' and by extension business-IT alignment. These 'impacts' which are positive and negative were found to vary across firms in different industry sectors. In addition, seven out of the 14 success

factors for business-IT alignment were deemed to be novel; and four success factors were discovered to be more important than others with 'communication between business and IT' emerging as the most important success factor for business-IT alignment. Also, 'formal and coordinated SISP process' emerged as being foundational to the success of business-IT alignment.

Furthermore, research findings indicate that regarding business-IT alignment paradigms, the process and state views are not distinct; rather, the process view of alignment encompasses the state view of alignment. This study's contribution to theory development lies in the theoretical framework of success factors for business-IT alignment and the propositions largely derived from the framework. These propositions can be tested by future studies. Finally, a key practical implication of the research findings is that the theoretical framework of success factors for alignment can be utilised to guide the achievement of business-IT alignment in practice.

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## 1 Introduction

Business-IT alignment is presently one of the top management concerns, and has been a persistent top-10 management concern for 30 years based on the United States of America's Society for Information Management (SIM) studies (Luftman & Ben-Zvi, 2010). It is also one of the top management concerns in South Africa (Hart, Berkowitz, Ryan, & Waspe, 2004; Johnston, Muganda, & Theys, 2006), and across the globe (Gottschalk, Watson, & Christensen, 2000). All this background information underscores its present prime concern to business and information technology (IT) management executives.

Business-IT alignment is the alignment of business and IT strategies. It is the integration of business and IT strategies with the aim of achieving sustained competitive advantage (Evans & Neu, 2008). However, a more inclusive definition of business-IT alignment which encompasses 'planning' is that it is "the degree to which the IT mission, objectives, and plans support and are supported by the business mission, objectives, and plans" (Reich & Benbasat, 1996, p. 56). Thus, the definition of business-IT alignment encompasses "how IT is aligned with the business, and how the business should or could be aligned with IT" (Luftman, 2000, p. 3). IT expenditure in South Africa for 2010 is projected to be 102 billion Rands (International Data Corporation, 2009), invariably leading firms to seek business-IT alignment as a means of ensuring that such huge expenditure is aligned with business objectives. Business-IT alignment will be used interchangeably with alignment to refer to the same concept; also, IT and information systems (IS) which are taken as similar concepts will be used interchangeably as well.

Different terms have been used to identify the nature of the relationship between IT and business regarding business-IT alignment. These are integration (Evans & Neu, 2008; Henderson & Venkatraman, 1993); fit (Chan, Huff, Barclay, & Copeland, 1997); bridge (Ciborra, 1997); and weaving (Broadbent & Kitzis, 2005). Others are linkage (Reich & Benbasat, 1996); harmony (Luftman, 2000); and fusion (Smaczny, 2001). Irrespective of the terms utilised, business-IT alignment enables firms to gain

competitive advantage (Chan, Sabherwal, & Thatcher, 2006; Kearns & Lederer, 2001, 2003; Luftman & Brier, 1999; Peppard & Ward, 2004). Competitive advantage enables a firm to earn profits higher than its industry average (Stair, Reynolds, & Chesney, 2008). The extant literature largely reveals that business-IT alignment improves organisational performance (Byrd, Lewis, & Bryan, 2006; Chan et al., 1997; Chan et al., 2006; Croteau & Bergeron, 2001; Melville, Kraemer, & Gurbaxani, 2004).

## 1.1 Background and Problem Definition

Business-IT alignment is a dynamic and complex process that takes time to achieve and greater effort to sustain (Luftman & Brier, 1999; Papp, 2005). The reasons for the difficulty in achieving business-IT alignment are the search for a total solution, assessment issues, and focusing on the alignment of IT with business without considering the alignment of business with IT (Luftman & Kempaiah, 2007). The search for a total solution indicates a failure to realise that success with business-IT alignment is due to a series of factors, while assessment issues relate to the lack of an effective tool for the assessment of alignment maturity with the aim of guiding its improvement (Luftman & Kempaiah, 2007). Another reason for the difficulty in achieving business-IT alignment is the dynamic nature of the IT and business environments (Luftman, 2003). Also, in the case of firms with multiple business divisions, business-IT alignment becomes a challenge as the business strategies and orientations of the various divisions are likely to differ thereby making it difficult for IT to align in such situations (Silvius, 2007a).

Chan and Reich (2007) state that business-IT alignment remains an important but elusive target with more studies required to increase its understanding. Regardless of the difficulties, it is possible to achieve alignment (Luftman, 2003). Business-IT alignment can be achieved and maintained by maximising its enablers and minimising its inhibitors (Luftman, 2000). The enablers of alignment refer to its success factors while the inhibitors are factors that hinder the success of alignment. Despite the significant number of studies, Chan and Reich (2007) also saw the need for further research on the success factors for achieving alignment as there are still

unexplored areas. This subsequently led to the problem statement which justifies this research:

*Achieving and sustaining business-IT alignment is still a challenging but important issue that requires further researching the factors that contribute to or influence the success of business-IT alignment.*

The word “success” as highlighted in this section and which appears in the dissertation title may appear to have different perspectives to different people. For the purpose of clarification, “success factors for business-IT alignment” may be referred to as “factors which improve business-IT alignment.” Thus, success is taken to mean the same as improvement in this sense. Nevertheless a decision was taken to stick with the use of the word “success” as it conveys a better meaning. Also, prior studies such as Burn and Szeto (2000) and Teo and Ang (1999) adopted the use of the phrase “success factors.”

## **1.2 Research Objectives**

The objectives of this research were to:

1. Identify the factors that influence the success of business-IT alignment taking into consideration the coverage of the state and process paradigms as well as the social and intellectual dimensions of business-IT alignment.
2. Explore novel success factors for the achievement of business-IT alignment.
3. Discover the relationships among the success factors for business-IT alignment.
4. Determine the impact of the South African business operating environment on the success factors for business-IT alignment.
5. Determine the impact of the industry sector of firms on the success factors for business-IT alignment.
6. Develop a framework from the findings of this study.

### **1.3 Relevance of the Study**

The success factors identified in this study will aid the achievement of business-IT alignment (Luftman, 2000), which is known to give competitive advantage and improve organisational performance (Chan et al., 2006), which is of interest to any organisation. Also, the totality of the objectives of this study has not been addressed by any other study to the best of the researcher's knowledge. This should also increase this study's relevance. In addition, the development of a framework from the findings of this study and the associated propositions are a contribution to theory development in the IS field.

This study has practical and theoretical implications. In other words, this study should be of interest to practitioners such as business and IT executives as well as the academic community.

### **1.4 Outline of the Dissertation**

The dissertation continues with Chapter 2 which details the literature review, including the gaps which were identified in the extant literature. Chapter 3 presents the research methodology which details the design of the entire research. Chapter 4 dwells on the findings of the research and the associated discussions. Chapter 5 highlights the implications of the research findings for theory development, research, and practice; and Chapter 6 concludes the dissertation and highlights the limitations of the study and suggests recommendations for future research.

## 2 Literature Review

### 2.1 Introduction

This chapter presents a review of the research literature relevant to the phenomena under investigation, namely, the factors influencing the success of business-IT alignment. This review commences with a discussion of the benefits of alignment, followed by a highlight of business-IT alignment concepts, which cover the dimensions and paradigms of alignment. Subsequently, alignment models are examined, following which issues relating to the measurement of business-IT alignment are detailed. The review continues with a focus on the success factors for business-IT alignment which were aggregated from the research literature; and an analysis of the gaps identified in the extant literature. The chapter ends with a summary of the main points raised.

### 2.2 Benefits of Business-IT Alignment

Business-IT alignment has attracted significant attention from researchers and practitioners over a couple of decades as a result of the perceived benefits it offers to organisations. This attribute accounts for its perennial ranking as one of the top management concerns (Luftman & Ben-Zvi, 2010). Gilbert, Pick, and Ward (2000) state that concerns or issues that have been successfully dealt with cease to remain management concerns, while persistent issues which include business-IT alignment have remained ongoing concerns. Another reason for business-IT alignment remaining as a top management concern is due to the constantly changing business and IT environments, which means business-IT alignment has to be adapted in response to the resultant changes in business and IT strategies (Motjoloane & Brown, 2004).

Expenditure on IT is aimed at deriving benefits or value from such investments. IT expenditure in South Africa in 2009 was estimated to be 97 billion Rands, with an annual increase of 5.5 percent forecasted for the period 2008 to 2013 (International Data Corporation, 2009). Globally, IT spending in 2007 was estimated to be about 1.2 trillion US dollars (International Data Corporation, 2007). This huge expenditure

on IT is also an indication of the importance attached to it, and warrants organisations seeking to justify such investments through benefits realization.

One of the benefits of business-IT alignment is that it facilitates maximal returns on IT investments thereby improving organisational performance (Avison, Jones, Powell, & Wilson, 2004; Byrd et al., 2006). Thus, firms can derive significant benefits from IT investments by improving their business-IT alignment. Practitioners have however complained about the difficulty in determining the impact of IT on organisational performance (Compass Group, 2000), which has led to the use of the phrase "IT productivity paradox." The IT productivity paradox means that there is no observable relationship between IT investments and productivity gains (Brynjolfsson, 1993; Brynjolfsson & Hitt, 1996; Stratopoulos & Dehning, 2000; Willcocks & Lester, 1997).

The reasons given for the IT productivity paradox include deficiencies in IT assessment techniques (Irani, 2002; Willcocks & Lester, 1997), mismanagement of IT (Stratopoulos & Dehning, 2000), and the time lag between IT investments and the realization of benefits (Brynjolfsson, 1993). Nevertheless, two studies by the same author identify the impact of IT on the productivity of firms. The first study (Brynjolfsson, 1993) explored the phenomenon of the IT productivity paradox, and the second study (Brynjolfsson & Hitt, 1996) asserted that the IT productivity paradox no longer exists as evidence of the contribution of IT investments to the productivity of firms was presented.

Another benefit of business-IT alignment is that it enables firms to achieve competitive advantage (Luftman & Brier, 1999; Luftman, Lewis, & Oldach, 1993; Peppard & Ward, 2004). However, a notable contrary argument to this perception of the importance of IT to firms was that expressed by Carr (2003) who asserted that IT is a commodity that is ubiquitous and therefore has no strategic value. He also stated that scarcity, which makes a resource strategic, is the basis for sustained competitive advantage. Nevertheless, his assertions run contrary to widely accepted beliefs that IT can be used strategically to gain competitive advantage (Irani, 2002;

Focusing on business-IT alignment paradigms, the state view of alignment regards alignment as an end state (Chan & Reich, 2007) while the process view regards alignment as an ongoing and dynamic process (Henderson & Venkatraman, 1993; Luftman & Brier, 1999). It is necessary to highlight Henderson and Venkatraman's (1993) view that business-IT alignment is not a state or event, but a continuous and dynamic process. This appears plausible as the process view should encompass the state view based on the argument that a process signifies changing states.

Prior studies have largely restricted success factors or antecedents of alignment to the state view (Chan & Reich, 2007; Chan et al., 2006; Reich & Benbasat, 2000). However a recent paper proposed a conceptual model of sustained business-IT alignment which linked the state and process views of alignment (Baker & Jones, 2008). This conceptual model incorporates success factors for achieving alignment which were aggregated from the research literature. However this has not been empirically tested yet but it does indicate that researchers are beginning to consider linking both the state and process views of alignment which Chan and Reich (2007) described as beneficial.

## **2.4 Business-IT Alignment Models**

Business-IT alignment models represent a framework for conceptualising the knowledge required to align business and IT strategies (Henderson, Venkatraman, & Oldach, 1996). This section reviews two alignment models that are prominent among researchers in this field (Avison et al., 2004), and also judging by citation counts. These are the Strategic Alignment Model (SAM) with a citation count of over 1400, and the MIT90s framework with a citation count of over 800, as at February 2010 when checks were made on the Google Scholar search engine.

Henderson and Venkatraman (1993) developed the Strategic Alignment Model (SAM) shown in Figure 1. This model consists of four quadrants or areas, with each made up of three components that must be addressed in each quadrant. The quadrants are business strategy and IT strategy which comprise the firm's external

domain, that is, the firm's external focus with respect to seeking competitive edge over its competitors. The other quadrants are organisational infrastructure and processes, and IS infrastructure and processes; and these deal with the firm's internal domain, which is concerned with the firm's internal structure and capacity to support the external domain. SAM specifies that business-IT alignment involves a strategic fit between the external and internal domains, as well as functional integration between the business and IT domains.

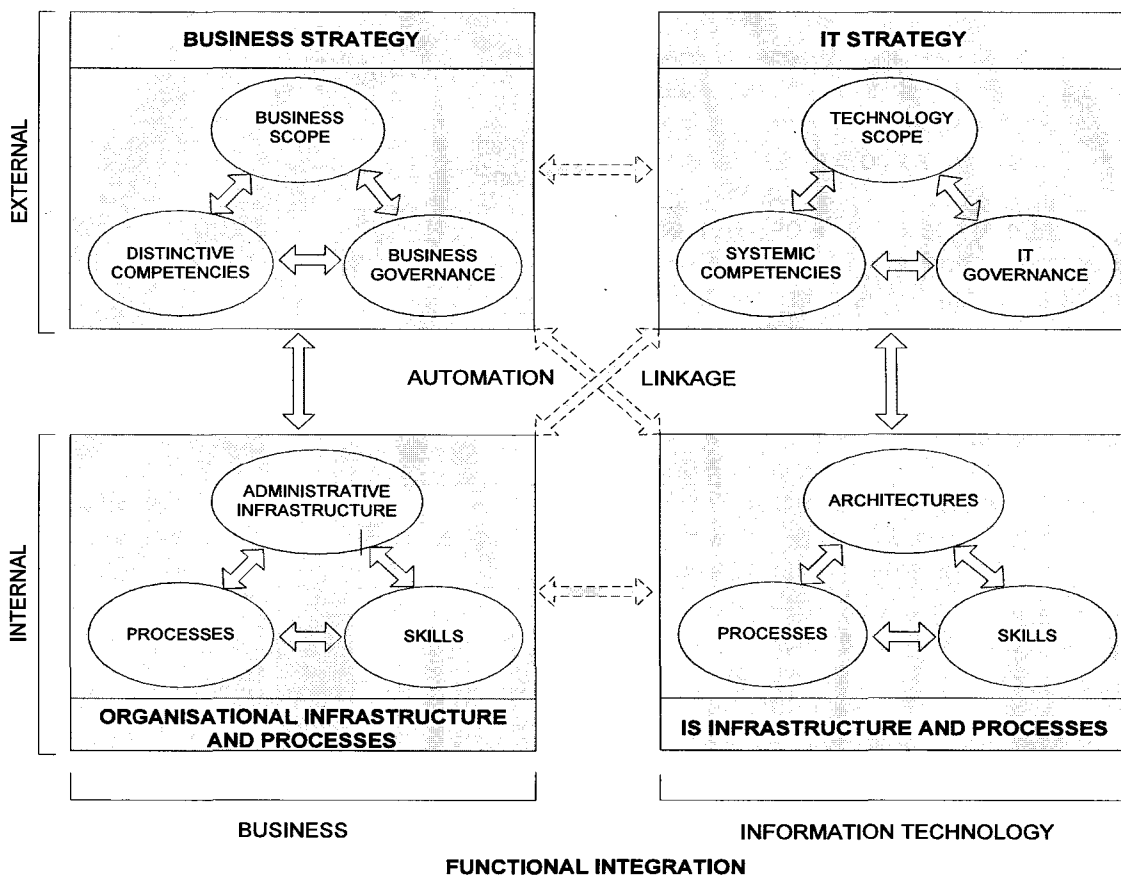


Figure 1: The Strategic Alignment Model (Henderson & Venkatraman, 1993)

The descriptions of the twelve components that make up SAM are shown in Table 1 (Henderson & Venkatraman, 1993; Papp, 2005).

anchor; it is seen as the deficient or weak area which needs to be improved. The impacted domain is the area that is affected by changes in the domain pivot.

The strategy execution perspective has business strategy as the domain anchor, organisational infrastructure and processes as the domain pivot, and IS infrastructure and processes as the impacted domain. The technology transformation perspective has business strategy as the domain anchor, IT strategy as the domain pivot, and IS infrastructure and processes as the impacted domain. The competitive potential perspective has IT strategy as the domain anchor, business strategy as the domain pivot, and organisational infrastructure and processes as the impacted domain. Lastly, the service level perspective has IT strategy as the domain anchor, IS infrastructure and processes as the domain pivot, and organisational infrastructure and processes as the impacted domain.

Subsequent studies have extended these four alignment perspectives by developing eight additional perspectives to give a total of 12 alignment perspectives (Coleman & Papp, 2006; Papp, 2005). The organisation IT infrastructure perspective has organisational infrastructure and processes as the domain anchor, IS infrastructure and processes as the domain pivot, and IT strategy as the impacted domain. The IT infrastructure strategy perspective has IS infrastructure and processes as the domain anchor, IT strategy as the domain pivot, and business strategy as the impacted domain. The IT organisation infrastructure perspective has IS infrastructure and processes as the domain anchor, organisational infrastructure and processes as the domain pivot, and business strategy as the impacted domain. The organisation infrastructure strategy perspective has organisational infrastructure and processes as the domain anchor, business strategy as the domain pivot, and IT strategy as the impacted domain.

The other four 'additional' alignment perspectives are distinct combinations of two of the eight alignment perspectives already presented. These combination perspectives result in alignment perspectives that have one domain anchor, two domain pivots, and one impacted domain. Since there are two domain pivots or weak areas, the

weakest of these must be determined and addressed first before the other domain pivot is addressed in turn. The four combination perspectives are organisation strategy fusion, organisation infrastructure fusion, IT strategy fusion, and IT infrastructure fusion (Coleman & Papp, 2006; Papp, 2005). The organisation strategy fusion perspective is a combination of the IT infrastructure strategy and the IT organisation infrastructure perspectives, whereas the organisation infrastructure fusion perspective is a combination of the competitive potential and the service level perspectives. The IT strategy fusion is a combination of the organisation infrastructure strategy and organisation IT infrastructure perspectives, while the IT infrastructure fusion is a combination of the strategy execution and technology transformation perspectives.

The organisation strategy fusion perspective has IS infrastructure and processes as the domain anchor, IT strategy and organisational infrastructure and processes as the domain pivots, and business strategy as the impacted domain. The organisation infrastructure fusion perspective has IT strategy as the domain anchor, business strategy and IS infrastructure and processes as the domain pivots, and organisational infrastructure and processes as the impacted domain. The IT strategy fusion perspective has organisational infrastructure and processes as the domain anchor, business strategy and IS infrastructure and processes as the domain pivots, and IT strategy as the impacted domain. The IT infrastructure fusion perspective has business strategy as the domain anchor, IT strategy and organisational infrastructure and processes as the domain pivots, and IS infrastructure and processes as the impacted domain.

Despite the criticism of alignment models as being devoid of real world application (Ciborra, 1997), SAM has been reported as having practical value (Avison et al., 2004; Sader, 2008). Avison et al. (2004) conducted a study in a financial services firm and confirmed based on generalization that SAM is of practical value to organisations. They proposed a practical framework based on SAM, and the unified framework of Maes, Rijsenbrij, Truijens, and Goedvolk (2000) which also incorporates some components of SAM. This practical framework uses the project

portfolio to determine a firm's alignment perspective through linking it to the domains of SAM and the unified framework. This approach can be used to sustain or change the alignment perspective through the prioritisation of projects, including the allocation of project resources. Also, Sader (2008) successfully used SAM to explore the nature of business-IT alignment in a large financial services firm. Consequently, recommendations were made to the firm on how to go about changing alignment perspectives. However, it was suggested that SAM should be extended through the addition of three components – values and beliefs, expectations, and success criteria. On the whole, it will be desirable if more studies are conducted to demonstrate the practical value of SAM to organisations, rather than conceptual frameworks which enhance SAM or provide guidelines on using SAM in practice.

Apart from Sader (2008), Maes (1999) also extended SAM through the integration of information management. It was proposed that three areas or domains - business, information/communication (information management component), and technology, instead of just business and IT, need to be aligned at the strategic, structural, and operational levels. These studies might appear to give the impression that SAM has some limitations in practice. However, Henderson and Venkatraman (1993) state that SAM is meant to be dynamic and not prescriptive. In effect, management is required to customise the use of alignment models and make them reflect the realities of the organisation.

Another well-cited alignment model is the MIT90s framework (Scott Morton, 1991) shown in Figure 2. This model posits that a firm would be successful with business-IT alignment if all the five forces that make up the firm are in harmony. These forces are structure (organisational structure), management processes, and individuals and roles, which make up the 'people aspects' and reflect the culture of the firm. These forces are regarded as critical to the process. The other forces are strategy (business strategy) and technology (IT). The model also advances that a firm is also influenced by the external socioeconomic and technological environments which should be considered. Scott Morton (1991, pp. 19-20) stated that business-IT alignment should involve the sequential consideration of the five forces, starting with

business strategy as the driver, in order to achieve IT-enabled transformation of the organisation. The order in which these five forces are considered has been likened to plotting a path through a maze (Levy, Powell, & Yetton, 2003).

However, the MIT90s framework as set out by Scott Morton (1991) has been described as static due to its consideration of only one perspective of business-IT alignment (Hsiao & Ormerod, 1998; Yetton, Johnston, & Craig, 1994). The application of the MIT90s framework in a longitudinal study of an architectural firm which adopted IT however revealed technology as the driver of business-IT alignment, followed by changes in individuals and roles, organisational structure, and management processes, all of which then influenced the business strategy (Yetton et al., 1994).

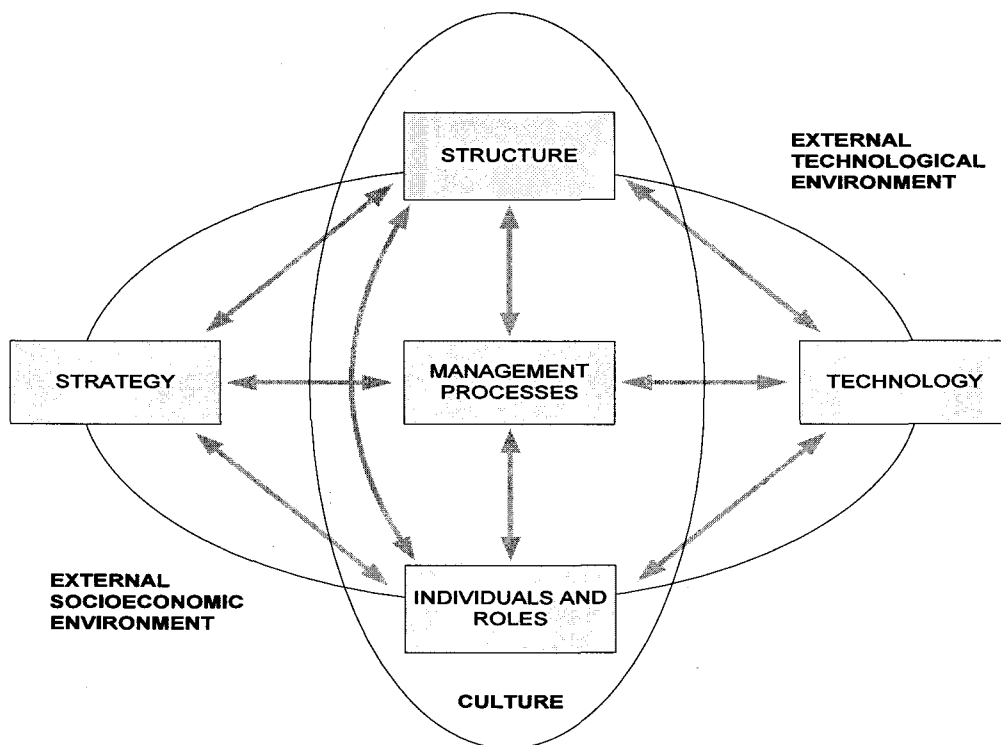


Figure 2: The MIT90s Framework (Source: Scott Morton, 1991)

Further research on the MIT90s framework conducted by Hsiao and Ormerod (1998) in another longitudinal study of five organisations led to the development of a dynamic MIT90s framework and four perspectives of business-IT alignment. The study indicates that as business-IT alignment is not static due to a variety of factors

communications, IT value, IT governance, partnership, scope and architecture, and skills.

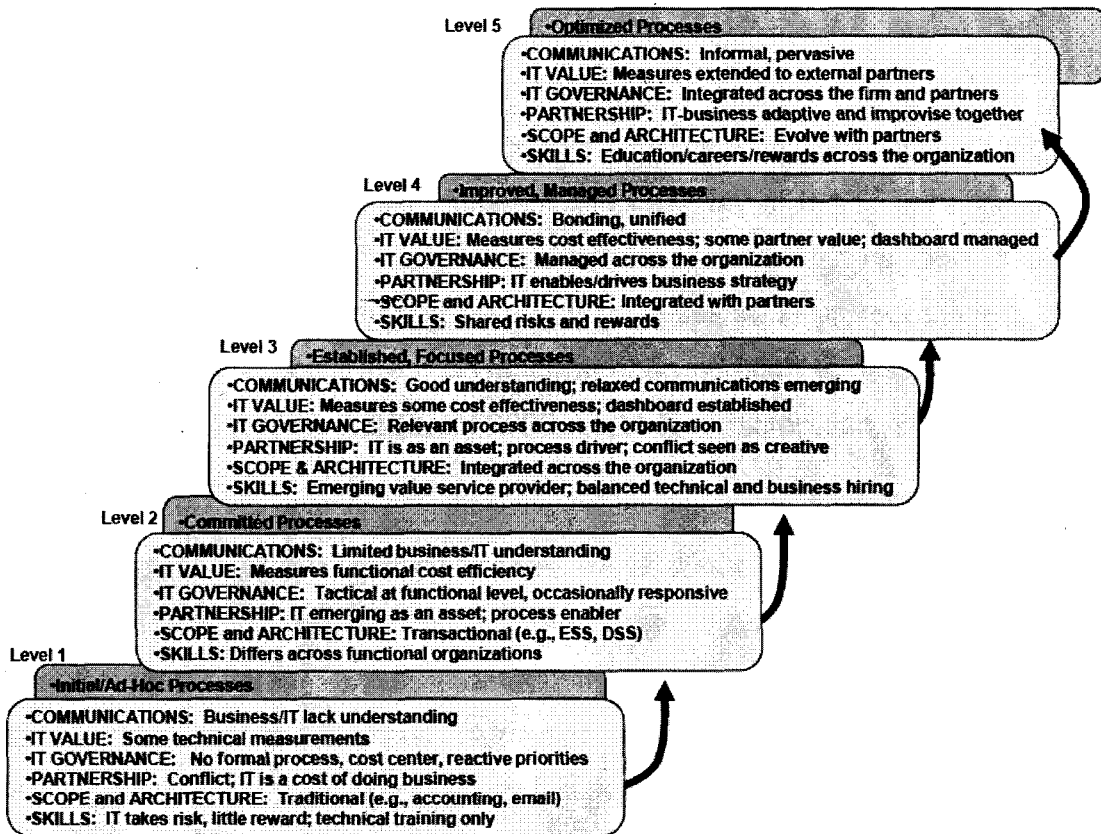


Figure 3: The Strategic Alignment Maturity Model (Source: Luftman & Kempaiah, 2007)

*Communications* assesses the quality of the exchange of information and knowledge between the business and IT domains in the firm. *IT value* measures the extent to which IT contributes to the business in terms that are mutually acceptable to both parties. *IT governance* assesses the control of the IT function with respect to authority and decision making at the strategic, tactical, and operational levels (Luftman & Kempaiah, 2007). SAMM has also been utilised to measure business-IT alignment maturity in Small and Medium Enterprises (SMEs) at strategic, tactical, and operational levels (Gutierrez, Orozco, Serrano, & Serrano, 2006). This study confirmed the effectiveness of SAMM and also extended its application to the tactical and operational levels of the firm, instead of focusing on the strategic level only. 'Strategic' implies decisions made at senior executive level and involves long-term direction and planning; 'tactical' refers to decisions made at middle management

level and involves short term planning; and 'operational' involves decisions affecting the daily operations of the firm (Luftman & Brier, 1999).

*Partnership* reflects the degree of the relationship and trust between IT and the business. It indicates the extent of IT's role in supporting or driving the business strategy. *Scope and architecture* assesses the flexibility of the IT infrastructure, IT's application of emerging technologies, as well as the drive or support of business processes. *Skills* measures human resource practices such as recruitment, training, support for innovation, and career advancement, in addition to readiness for change and organisational learning (Luftman, 2003; Luftman & Kempaiah, 2007).

Recent studies have shown that most firms are at about level 3 of SAMM (Luftman & Kempaiah, 2007; Silviu, 2007b). Luftman and Kempaiah (2007) stated that alignment maturity levels vary across industry sectors. They reported that the retail industry sector had the highest alignment maturity out of the industry sectors considered by the study. Also, research based on data from over 300 firms showed that a firm's industry sector, given the alignment perspective adopted, determines whether above-average or below-average returns on a range of financial performance indicators are achieved (Papp, 1999). These studies have revealed that a firm's industry sector has an impact on its business-IT alignment.

Another instrument that was designed for the assessment of business-IT alignment is based on a moderation approach applied to two measures: STROBE (Strategic Orientation of Business Enterprises) and STROEPIS (Strategic Orientation of the Existing Portfolio of IS Applications) (Chan et al., 1997). STROBE measures realised business strategy, while STROEPIS measures realised IS strategy. The measurement of business-IT alignment is thus realised through the combination of these two measures. The moderation approach which is viewed as the better option, results in the product score of the two measures as opposed to the matching approach which results in the difference score between the measures (Chan et al., 1997; Cragg, King, & Hussin, 2002).

between how business managers view the firm's desired alignment and what it is at present, and  $\Delta IT$  indicates the difference between how IT managers view the firm's desired alignment and what it is at present.  $\Delta IST$  reflects the difference between the views of IT and business managers on the current state of the firm's alignment.  $\Delta SOLL$  represents the difference between the views of IT and business managers on the future state of the firm's alignment, that is, the difference between their vision of IT's future role in the firm. High delta scores on the Quickscan tool indicate a misfit or problematic area that needs to be addressed. Regarding business-IT alignment, high delta scores translate into misalignment, while the lower the delta scores, the higher the firm's business-IT alignment.

## 2.6 Success Factors for Business-IT Alignment

The success factors for achieving business-IT alignment are also referred to as 'antecedents' (Chan & Reich, 2007; Chan et al., 2006), and 'enablers' (Luftman & Kempaiah, 2008). Seven related studies were identified from the research literature as having previously investigated the success factors for business-IT alignment. Two of these studies – Cohen and Toleman (2006) and Motjoloane and Brown (2004) were selected as they were the only South African studies identified; this study's focus also involved South African firms. The other five studies – Broadbent and Weill (1993); Reich and Benbasat (2000); Luftman and Kempaiah (2008); Chan, Sabherwal, and Thatcher (2006); and Teo and Ang (1999) are not South African studies and were selected by virtue of their being well-cited studies in this research area.

The success factors for alignment identified in these seven related studies have been aggregated into the 21 success factors shown in Table 2. These 21 success factors were arrived at by compiling all the success factors identified in these studies without repeating similar factors identified in separate studies. Some of the success factors in specific studies were consolidated into one factor – an instance of this is 'decision-making and accountabilities appropriate to business strategy orientation.' This factor is a fusion of two success factors – 'decision-making process appropriate to strategic orientation' and 'accountabilities appropriate to strategic orientation'

since they overlap or are related to each other. Nevertheless, a decision was made to present these success factors in similar or near-similar terms utilised by the authors, without attempting to expressly modify them.

**Table 2: Success factors for achieving business-IT alignment**

SUCCESS FACTORS	REFERENCES
Business planning – IT planning integration	(Luftman & Kempaiah, 2008; Motjoloane & Brown, 2004; Reich & Benbasat, 2000)
Prior IT implementation success	(Chan et al., 2006; Luftman & Kempaiah, 2008; Motjoloane & Brown, 2004; Reich & Benbasat, 2000; Teo & Ang, 1999)
Formal strategic planning process	(Broadbent & Weill, 1993; Chan et al., 2006; Motjoloane & Brown, 2004)
Consistency in business strategic orientation	(Broadbent & Weill, 1993)
Shared domain knowledge (IT understands business and vice versa)	(Broadbent & Weill, 1993; Chan et al., 2006; Cohen & Toleman, 2006; Luftman & Kempaiah, 2008; Reich & Benbasat, 2000; Teo & Ang, 1999)
Large organisational size	(Chan et al., 2006)
Organisational structure that complements strategy	(Broadbent & Weill, 1993)
Environmental uncertainty (uncertainty in the firm's operating environment)	(Chan et al., 2006)
Close partnership between business and IT	(Broadbent & Weill, 1993; Luftman & Kempaiah, 2008; Teo & Ang, 1999)
Common vision between business and IT executives	(Cohen & Toleman, 2006)
Appropriate technology architectures	(Broadbent & Weill, 1993)
Clear ownership of business-IT alignment	(Luftman & Kempaiah, 2008)
Good communication between business and IT executives	(Luftman & Kempaiah, 2008; Reich & Benbasat, 2000; Teo & Ang, 1999)
Similar planning horizon for business and IT plans	(Teo & Ang, 1999)
Mutual and extensive participation of business and IT in strategy formulation and planning processes	(Broadbent & Weill, 1993; Luftman & Kempaiah, 2008; Teo & Ang, 1999)
Business executive's management of business-IT alignment and ownership of IT projects	(Broadbent & Weill, 1993)
IT and business personnel have close personal relationships	(Luftman & Kempaiah, 2008)
Senior executive support for IT (Business Commitment to IT)	(Broadbent & Weill, 1993; Cohen & Toleman, 2006; Luftman & Kempaiah, 2008; Teo & Ang, 1999)
Decision-making and accountabilities appropriate to business strategy orientation	(Broadbent & Weill, 1993)
Business objectives are defined and made available to IT management	(Luftman & Kempaiah, 2008; Reich & Benbasat, 2000; Teo & Ang, 1999)
IT demonstrates leadership (through enabling strategic advantage, etc)	(Luftman & Kempaiah, 2008; Teo & Ang, 1999)

These success factors presented in Table 2 are not in a particular order, that is, they are not ranked. Some of the related studies ranked the identified success factors for business-IT alignment. Luftman and Kempaiah (2008, p. 109) ranked the top three success factors for alignment as “Senior executive support for IT,” “IT organisation understands firm’s business environment,” and “Close partnership between IT organisation and the business.” Also, Teo and Ang (1999, p. 178) ranked the top three success factors for alignment as “Top management is committed to the strategic use of IT,” “IS management is knowledgeable about business,” and “Top management has confidence in the IS department.” The ranking of success factors is not an objective of this research; ranking is more synonymous with quantitative research method which was not adopted by this study.

## 2.7 Gap Analysis

There has been significant research on the success factors for business-IT alignment. Nevertheless, there are still gaps in this research area that this study seeks to fill. There have been calls for the exploration of novel success factors and the discovery of relationships among identified factors (Chan & Reich, 2007). Novel success factors in this case refer to success factors that have not been identified by existing studies in this research area. The use of grounded theory methodology has been posited as a means of achieving this aim (Motjoloane & Brown, 2004). Chan and Reich (2007) also called for more grounded theory research on the broader alignment space. The grounded theory methodology or similar methodology is based on inductive reasoning or approach to theory, contrary to most studies in this research area that have largely followed a deductive approach to theory.

However, much of the extant literature in this research area did not explore novel success factors, and the success factors identified were listed without establishing relationships among them. Cavana, Delahaye, and Sekaran (2001, p. 82) state that the establishment of relationships between ‘variables’ leads to the development of a model or framework. In addition, the establishment of relationships between the success factors may give some indication of the strength or importance of some

success factors. A success factor with multiple relationships linking to it should indicate some measure of importance.

Table 3 shows an analysis of how the related studies compare with this study; the entries were arrived at after analysing each of these studies. Some of the reflected entries were explicitly stated in these studies and some were not. For instance, not all the studies explicitly stated the business-IT alignment dimensions and paradigms covered. Table 3 also shares few similar entries with that of a research on business-IT alignment taxonomy (Gutierrez et al., 2008).

The need for studies in the research area under investigation to consider the impact of a firm's industry sector on the success factors for business-IT alignment has also been emphasized (Cohen & Toleman, 2006). One of the highlights of the Chan et al. (2006) study is that success factors for alignment such as environmental uncertainty and organisational size vary in significance across firms in different industry sectors. This is the only study among the related studies that covered this area as the former, Cohen and Toleman (2006), is a suggestion for future research. There is therefore a need to investigate the impact of the industry sector of firms on the success factors for business-IT alignment in the South African context.

The impact of the business operating environment on the success factors for business-IT alignment has been raised. Chan et al. (2006) listed environmental uncertainty as a success factor, and Courtney, Kirkland, and Viguerie (1997) stated that this uncertainty affects a firm's approach to strategic planning. A recent study involving over 2,500 Chief Information Officers (CIOs) worldwide revealed that the operating environment of firms affects business-IT alignment (IBM Corporation, 2009). This is in terms of the IT investment required, with firms in emerging economies expected to invest more in IT due to opportunities for growth.

Cohen and Toleman (2006) in their study which involved Australian and South African firms discovered that a few success factors had little or no support in the

**Table 3: Analysis of related studies with respect to this study**

Study	Countries covered by study	Number of success factors identified	Business-IT alignment Paradigm	Business-IT Alignment Dimension	Approach to theory	Novel factors explored	Relationships among factors explored	Impact of business operating environment	Impact of industry sector	Data collection method
Broadbent and Weill (1993)	Australia	15	State & Process	Social & Intellectual	Inductive	N/A (Exploratory research)	No	No	No	Structured interview, strategic planning documents, annual reports
Chan et al. (2006)	USA & Canada	5	State	Social	Deductive	No	Yes	Yes	Yes	Questionnaire
Reich and Benbasat (2000)	Canada	5	State	Social	Deductive	Yes	Yes	No	No	Semi-structured interview, strategic planning documents, minutes from meetings
Motjoloane and Brown (2004)	South Africa	4	State	Social & Intellectual	Deductive	No	No	No	No	Strategic planning documents, Structured interview, Questionnaire
Luftman and Kempaiah (2008)	USA	14	State	Social	Deductive	No	No	No	No	Questionnaire
Cohen and Toleman (2006)	South Africa & Australia	4	State	Social	Deductive	No	Yes	Yes	No	Questionnaire
Teo and Ang (1999)	Singapore	18	State	Social	Deductive	No	No	No	No	Questionnaire
This study	South Africa	14	State & Process	Social & Intellectual*	Inductive	Yes	Yes	Yes	Yes	Semi-Structured interview

\* = The structural dimension of business-IT alignment was also covered as it emerged during the course of the research.

South African sample as compared with that of the Australian sample. The South African operating environment is a dynamic and uncertain one (Swartz, 2006), and it is worth specifically studying its impact on the success or perhaps failure of alignment. Though Motjoloane and Brown (2004) conducted a South African study, they however focused only on a case study of a tertiary institution. They concluded that future studies should involve multiple organisations as the context of the organisation which was investigated had some influence on the relative importance of success factors identified. This study involves multiple, i.e., 10 South African organisations.

The necessity of covering both the social and intellectual dimensions of business-IT alignment (Reich & Benbasat, 2000), as well as the state and process views of alignment (Chan & Reich, 2007) with regards to business-IT alignment paradigms has been highlighted as important for the achievement of business-IT alignment. Most of the related studies did not cover all these areas which this study accommodates.

## **2.8 Summary**

This chapter presented a review of the literature on business-IT alignment with emphasis on the success factors for achieving alignment. The literature review justified the need for further research on the factors influencing the success of business-IT alignment. This study responds to Chan and Reich's (2007) call for further research in this area, and also focuses on filling other gaps identified in the extant literature, and as made explicit in the 'gap analysis' section.

The information presented in the 'gap analysis' section formed the basis of this study's research objectives presented in section 1.2 of the preceding chapter, and the associated research questions presented in section 3.2 of the next chapter. Judging from the literature review, no previous study has covered all the objectives of this research. For instance, the coverage of the social and intellectual dimensions as well as the state and process paradigms of business-IT alignment was judged to

have been covered by one of the identified studies, that is Broadbent and Weill's (1993) Australian study. The coverage of these areas within the South African context has not been previously addressed.

The exploration of novel success factors for alignment is an explicit objective of this research which coupled with the recent nature of this study presents an opportunity to update the knowledge base in this research area. The identification of relationships among the success factors for alignment which was only covered by some of the related studies is also one of the objectives of this study. The identification of relationships between "factors" is relevant as it contributes to the development of a framework (Cavana et al., 2001, p. 82). This theoretical framework of success factors for business-IT alignment which is another objective of this study is a contribution to theory development or theory building (Gregor, 2006).

The other objectives of this study are the identification of the impacts of the South African business operating environment and the industry sector of firms on the success factors for business-IT alignment. The investigation of these impacts has received little attention in this research area. This therefore presents an opportunity to understand the impacts of these external forces on the success factors for business-IT alignment particularly within the South African context. Only one of the related "none South African" studies, Chan et al. (2006) which is an international study, investigated either or both of these impacts. A South African study by Cohen and Toleman (2006) highlighted the impact of the South African business operating environment but not the impact of the industry sector of firms.

Table 3 presented a summary of how this study compares with the related studies identified. It is expected that this research will contribute to the extant literature on the factors influencing the success of business-IT alignment, particularly in the South African context. Nevertheless, this does not limit applicability to other countries. This study is therefore justified.

The next chapter presents the research design which gives details of the methodology employed for the study.

## **3 Research Methodology**

### **3.1 Introduction**

This chapter presents the research methodology which has been defined by Lee and Lings (2008, pp. 181-182) as the design of the research towards obtaining the desired data from the real world in order to answer the research questions, and develop or test theory. This commences with the research questions for the study, followed by descriptions of the research purpose and research philosophy in subsequent sections. The research strategy is subsequently described in detail, following which the research time frame is highlighted. The succeeding section covers confidentiality and ethics considerations, and the chapter ends with a summary of the major points raised.

### **3.2 Research Questions**

The examination of the 'gap analysis' section of Chapter 2 led to the following research questions:

1. What factors influence the success of business-IT alignment, taking into consideration the coverage of the state and process paradigms as well as the social and intellectual dimensions of business-IT alignment?
2. Are there novel success factors for business-IT alignment?
3. What are the relationships among the success factors?
4. What is the impact of the South African business operating environment on the success factors for business-IT alignment?
5. What is the impact of the industry sector of firms on the success factors for business-IT alignment?
6. Of what form is the framework resulting from the findings of this study?

### 3.3 Research Purpose

The research purpose of this study was exploratory and explanatory. An exploratory study is undertaken when little is known about the phenomena under investigation, and there is therefore a need to better understand it (Cavana et al., 2001, p. 108). Though there has been a number of studies in the research area identified, this study is nevertheless exploratory as no previous study has covered all the objectives of this study. This study explored success factors including novel ones, for achieving business-IT alignment, and also explored relationships between these factors while considering the impact of the firm's industry sector and the South African business operating environment.

An explanatory study seeks to understand phenomena under investigation through the discovery and explanation of relationships or interdependence among them (Hussey & Hussey, 1997, p. 11). This study was also explanatory as the success factors for business-IT alignment identified were developed into a theoretical framework. This framework revealed the relationships between the success factors for business-IT alignment.

### 3.4 Research Philosophy

The philosophical assumptions underlying any research mainly encompass ontological and epistemological beliefs. Ontology refers to beliefs about physical and social reality (Orlikowski & Baroudi, 1991), and epistemology refers to assumptions about the knowledge on a phenomenon under investigation and how it may be obtained (Myers, 1997). Orlikowski and Baroudi (1991) classify research philosophy into three categories: positivist, interpretive, and critical.

Positivist researchers assume that the physical and social worlds are objective and exist independently of humans, and that these can be described by measurable properties that are independent of the researcher and his or her instruments (Myers, 1997; Orlikowski & Baroudi, 1991). In other words, reality is objectively given (Myers, 1997). Epistemologically, positivists concern themselves with the empirical testing of

theories in an attempt to seek or increase understanding about phenomena; this usually involves hypothetic-deductive logic (Orlikowski & Baroudi, 1991).

Interpretive researchers on the other hand assume that the social and physical worlds are subjective and influenced by human actions, i.e., reality is socially constructed and can only be interpreted (Orlikowski & Baroudi, 1991). Epistemologically, interpretive researchers attempt to understand phenomena through the meanings that people give to them (Myers, 2009, p. 38). Orlikowski and Baroudi (1991, p. 13) sum it up in the following words: "Interpretivism asserts that reality, as well as our knowledge thereof, are social products and hence incapable of being understood independent of the social actors (including the researchers) that construct and make sense of that reality."

"Critical researchers assume that social reality is historically constituted and that it is produced and reproduced by people" (Myers, 2009, p. 42). Epistemologically, critical researchers assume that knowledge is rooted in social and historical practices (Chua, 1986; Orlikowski & Baroudi, 1991). Critical research adopts a social critique perspective and seeks to be emancipatory or initiate change by revealing the restrictive, alienating, domineering, and contradictory conditions implicit in the phenomena under investigation (Klein & Myers, 1999; Myers, 2009).

This study adopts an interpretive philosophy as it seeks to explore the success factors for achieving business-IT alignment and develop a framework from the findings. An interpretive philosophy will help to reveal these success factors through shared meanings arrived at through interviewing CIOs in a semi-structured format. This study focused on interpreting the information provided by CIOs with respect to the phenomena under investigation. The entire research framework of this study is a reflection of the underlying interpretive philosophy.

### **3.5 Approach to Theory**

This study follows an inductive approach to theory, as opposed to the deductive approach which involves starting with theory, formulating hypothesis, collecting data, and accepting or rejecting hypotheses. The inductive approach to theory or reasoning typically involves the gathering of data, the analysis of the data gathered for patterns and themes, the formulation of relationships, and ends with the development of theory (Cavana et al., 2001, p. 36). This research follows inductive reasoning and leads to the development of a theoretical framework of success factors for achieving business-IT alignment. The inductive approach is justified based on the mainly exploratory nature of this study.

### **3.6 Research Strategy**

This research is based on an interview strategy, which is a qualitative research method. The interview strategy adopted for this study is suitable for investigating the factors influencing the success of business-IT alignment. This is due to the clearly defined objectives of this research which are directed towards obtaining this knowledge from CIOs. Motivation for using an interview strategy is summed up by Myers (1997) who stated that "one thing which distinguishes humans from the natural world is our ability to talk." Interviews also provide access to enriching data from interviewees in varying 'worlds' (Myers, 2009, p. 121).

#### **3.6.1 Target Population**

The CIO is the most senior IT/IS leader (Gottschalk, 2000), and is this study's target population. The word "leader" here emphasizes the CIO's role which has continuously evolved over time into that of a business visionary who utilises IT to drive the firm's business strategy (Gottschalk, 2000; Smaczny, 2001). The target population of related studies ranged from a mix of senior IT executives to a combination of senior IT and business executives. The decision to make CIOs the target population was based on two reasons. Firstly, the CIO has a thorough understanding of IT and the business (Karahanna & Watson, 2006), and is therefore regarded as the most suitable target population. In addition, there are perceptual

differences in the views of business and IT executives on the subject of alignment (Burn & Szeto, 2000; Motjoloane & Brown, 2004), and it is therefore best to interview the CIO whose main responsibility is to ensure business-IT alignment.

An argument might be raised as to whether the CIO has primary responsibility for business-IT alignment as well as 'IT-business alignment' when Kearns and Lederer's (2003) research is considered. They presented alignment as comprising two outcomes: the alignment of the IT plan with the business plan, i.e., IT plan-reflects-business plan alignment; and the alignment of the business plan with the IT plan, i.e., business plan-reflects-IT plan alignment. Judging from the context of the study, the former may be referred to as 'business-IT alignment' whereas the latter may be referred to as 'IT-business alignment.' However, the researcher argues that the CIO should have responsibility for both perspectives of "business-IT" alignment which are the alignment of the IT strategy with the business strategy as well as the alignment of the business strategy with the IT strategy, as they are perspectives of the same alignment phenomenon.

This view is congruent with Luftman's (2000) assertion that business-IT alignment involves the alignment of IT with the business and the alignment of business with IT; as well as Reich and Benbasat's (1996, p. 56) statement that business-IT alignment is "the degree to which the IT mission, objectives, and plans 'support and are supported' by the business mission, objectives, and plans." The responsibility for business-IT alignment does not imply that the CIO addresses it alone or that the inputs of other senior IT and business executives are not needed. Moreover, Kearns and Lederer (2003, p. 24) also concluded that "strategic IT alignment remains the primary burden of the CIO." Strategic IT alignment also refers to business-IT alignment.

### **3.6.2 Sample**

The sample for this research comprised CIOs of major firms. This is based on the assumption that major or large firms make huge IT investments with strategic intent

and will be able to determine if business-IT alignment has been successful from results obtained. This knowledge is essential as this study investigated factors influencing the success of business-IT alignment. It is necessary to highlight that not all firms address the head of the IT division as the CIO. There are varying titles for this position including IT director, Head of IT, Executive Director IT, Group CIO, Head of Group IT, and Group Head of IT. The term "CIO" is therefore a generic name for the overall head of the IT division in these firms.

In order to investigate the impact of the South African business operating environment on the success factors for business-IT alignment, only South African firms were considered. The extension of the study to firms in other countries would not be feasible due to resources and time constraints of a Master's programme. However, this should not limit the generalizability and applicability of the findings to firms in other countries.

The sample size comprised 10 CIOs of which two CIOs are from each of the five industry sectors selected. The selected industry sectors are major retail, higher education, food and beverages, financial services, and governmental organisation. The major retail, food and beverages, and financial services industry sectors were selected because they have been listed by the South African Department of Trade and Industry as sectors having the highest growth and investment potential (SouthAfrica.info, 2009). The governmental organisation and higher education industry sectors were selected in order to be able to compare findings with a related study by Chan et al. (2006) that also included these sectors in their sample.

The sampling method was based on judgement. Judgement sampling is a non-probabilistic, purposive sampling method that involves the selection of the sample based on pre-determined criteria (Blumberg, Cooper, & Schindler, 2008, p. 253). Consequently, the CIOs interviewed were those based in Cape Town, towns adjoining Cape Town but within the Western Cape province, and also Gauteng province but interviewed while visiting Cape Town.

The sample size of two firms from each of the five selected industry sectors enabled the investigation of the impact of the various industry sectors on the success factors for business-IT alignment. It also enabled generalizations to be made on firms within specific industry sectors and across different industry sectors. This sample size is representative enough, though not in the statistical sense. The extant literature reveals that for interpretive research, it is possible to generalize to theory from even the study of one organization (Walsham, 2006, 1995). Walsham (2006, p. 322) captures this in the following words: "Does access to a limited set of organisations, or even one organisation only, necessarily remove the possibility of generalizability? My answer to this is a clear no ... as generalizations can take the form of concepts, theories, specific implications or rich insights." Lee and Baskerville (2003, p. 235) refer to this form of generalizability as 'Type ET generalizability' which is generalizing from empirical statements to theoretical statements. In other words, generalizing from research findings or descriptions to theory. Descriptions here refer to data that has been interpreted or which has had sense made out of it.

To sum up, the sample of 10 CIOs is representative enough particularly as this research led to the development of a theoretical framework. This study can therefore lay claim to representativeness and generalizability.

### **3.6.3 Organisational Profiles of CIOs**

This section presents a general overview of the profiles of the firms or organisations that the CIOs interviewed belong. This is presented within the bounds of confidentiality assurances. This profile is necessary as it provides relevant contextual information and improves the understanding of the neutral observer with respect to the nature of the companies whose CIOs were interviewed. CIO-1 and CIO-2 are with firms in the governmental organisation industry sector; CIO-3 and CIO-4 belong to firms operating in the major retail sector; and CIO-5 and CIO-6 are in the financial services sector. CIO-7 and CIO-8 are in the food and beverages sectors; and CIO-9 and CIO-10 belong to firms in the higher education sector.

CIO-1 is with a major governmental organisation that is an agency of a government department which is heavily reliant on IT systems to enable its operations. This CIO in his own words is "currently implementing the most expensive and strategic project in government."

CIO-2 belongs to a governmental organisation which is a major municipality that employs over 20,000 workers and has a track record of successful enterprise IT implementations.

CIO-3 is employed by a firm in the major retail sector which is made up of a group of companies that majorly retail food. The group which is listed on the Johannesburg Stock Exchange (JSE) has over 1000 stores in South Africa as well as in more than 15 countries internationally. The firm employs over 80,000 people.

CIO-4 is engaged with a firm in the major retail sector that mainly retails fashion clothing and accessories. The firm is listed on the JSE and employs close to 10,000 workers. It has over 500 stores in South Africa and internationally.

CIO-5 is employed by a firm in the financial services sector. This firm which employs over 7,000 people is listed on the JSE. It comprises of a group of companies which operate in South Africa and internationally in over five countries as well. The group runs a federated IT organisation in which the various companies that make up the group have their own fairly autonomous IT departments, with the group IT led by this 'CIO' who is actually the Group CIO. Firms in the financial services sector typically offer services which include insurance, asset management, and investment administration.

CIO-6 belongs to a financial services firm that is actually a group of companies that run a federated IT organisation that the CIO leads as the Head of group IT. The group has offices in South Africa and internationally in over 10 countries. The group is listed on the JSE and employs over 10,000 people.

CIO-7 works for a firm in the food and beverages sector that has a network of plants and depots which employs over 1,000 people. This firm is a 'bottler' of non-alcoholic drinks for a global brand, and it distributes its products using its fleet of trucks. IT is managed from the head office.

CIO-8 is employed by a firm in the food and beverages sector that employs over 10,000 people. This JSE-listed firm consists of a group of companies that manufacture food and beverage products. It has a long history of enterprise IT implementation, and operates in South Africa and internationally. The IT department is run as a separate business unit.

CIO-9 belongs to a higher education institution that has over 20,000 students. This institution has few campuses and student residences whose IT systems are centrally administered by an IT services department. IT is recognised as important in this institution as the IT infrastructure is constantly renewed in order to effectively support research, teaching, security, and administration.

CIO-10 belongs to a higher education institution having multiple campuses spread across one of the provinces in South Africa. This institution has about 30,000 students. Campus and student residential sites are managed IT-wise by the IT services department operating from the central campus.

### **3.6.4 Data Collection**

This study followed the seven principles set out by Klein and Myers (1999) for the conduct of interpretive field studies. These principles and how this study fulfilled them are outlined in Table 4. Data was collected through interviews based on a semi-structured format. The largely exploratory nature of this study necessitated the use of semi-structured interviews as the means of data collection. The interview schedule shown in the 'appendices section' was not sent to respondents in order to avoid receiving superficial responses. Also, the interview questions were assessed

**Table 4: Klein and Myers' (1999) principles for the conduct of interpretive field studies**

Principles	Explanation – Klein and Myers' (1999) account	Study's Fulfilment of Principle
1. The fundamental principle of the hermeneutic circle	The hermeneutic circle "suggests that human understanding is achieved by iterating between considering the independent meaning of parts and the whole that they form" (Klein & Myers, 1999, p. 72). The parts can represent the researcher's and participant's prior understandings before the study while the whole can represent the shared meanings that result after interactions take place.	During interview sessions with CIOs, cognitive efforts were made to reconcile comments made at various stages of the interview with the broader research objectives. Questions were asked wherever gaps in understanding existed to ensure that the researcher and the CIOs reached shared meanings.
2. The principle of contextualization	This principle requires that the social and historical context of the research setting be described.	Since this research does not involve a case study, extensive information about organisational context was not provided. Nevertheless, general organisational profiles of the CIOs interviewed have been provided.
3. The principle of interaction between the researcher and the subjects	This principle requires a "reflection on how the research materials (or "data") were socially constructed through the interaction between the researchers and participants (Klein & Myers, 1999, p. 72).	The entire data collection process embodied the interaction between the researcher and the participants. The success factors for business-IT alignment that emerged in the course of the research were as a result of the interaction between the researcher and the participants and were not presumed.
4. The principle of abstraction and generalization	This principle requires relating the research findings to "theoretical, general concepts that describe the nature of human understanding and social action" (Klein & Myers, 1999, p. 72).	The general inductive approach utilised for analysing the research data typically leads to the development of a theoretical framework which is a form of abstraction and generalization of the research findings which are presented.
5. The principle of dialogical reasoning	This principle stipulates that the researcher should address possible contradictions between the presumptions guiding the research design and actual research findings. Thus, "the most fundamental point is that the researcher should make the historical intellectual basis of the research (i.e., its fundamental philosophical assumptions) as transparent as possible to the reader and himself or herself" (Klein & Myers, 1999, p. 76).	The research design considered the social and intellectual dimensions of business-IT alignment. However, an additional structural dimension of alignment emerged from the research findings. This is detailed in the subsequent chapter. Also the logical reasoning behind the study's analysis and results are detailed in subsequent chapters.
6. The principle of multiple interpretations	This principle requires "the researcher to examine the influences that the social context has upon the actions under study by seeking out and documenting multiple viewpoints along with the reasons for them" (Klein & Myers, 1999, p. 77).	Wherever contrary arguments or viewpoints exist, these have been presented and the underlying reasons for them have been supplied within this dissertation. The subsequent chapter also highlights some multiple interpretations put forward by the CIOs interviewed.
7. The principle of suspicion	This principle "requires sensitivity to possible 'biases' and 'systematic 'distortions' in the narratives collected from the participants" (Klein & Myers, 1999, p. 72).	Interview questions were not sent to participants before the interview sessions in order to avoid receiving superficial responses. Also, comments made by participants in some cases were assessed against the backdrop of organisational power dynamics so as to place them in proper perspective.

as not being difficult, and therefore it was not necessary to send the interview schedule to respondents before the interview sessions.

The interview sessions took about one hour duration on the average. A digital voice recorder (DVR), with the permission of participants, was utilised as a means to record the interviews. The DVR was used in order to ensure thorough analysis of the data collected. The data collected were transcribed by the researcher thereby aiding immersion in the data. This also led to a pre-analysis of the data during the process of transcription including the confirmation of its accuracy. During the process of analysing the data gathered, email communication was used to seek clarification on unclear concepts or areas, as well as to confirm if some concepts applied to the entire sample.

A pilot interview was conducted with the former CIO of a financial services organisation who is presently an academic staff in the university. The pilot interview made it possible to evaluate the suitability of the questions, and led to the rephrasing of less understood questions. It also helped to ensure adherence to timekeeping with respect to the duration of the interview as this was checked during the process. In addition, it also revealed some shortcomings in the process that were addressed before the actual interviews. On the whole, the feedback received during the conduct of the pilot interview assisted the conduct of the actual interviews.

The subjectivity inherent in interpretive research is an accepted one (Cavana et al., 2001, p. 9; Lee & Lings, 2008, p. 209). This can be minimised by reducing 'bias' as much as possible. There are various types of bias (Lee & Lings, 2008, p. 174; Myers & Newman, 2007; Onwuegbuzie & Leech, 2007), but the ones pertinent to this research are researcher bias and social desirability bias. Onwuegbuzie and Leech (2007) define researcher bias as prior assumptions adopted by the researcher which could potentially affect data collection and analysis. This kind of bias arises from the manner in which the entire research is approached by the researcher. Attempts were made to reduce researcher bias by conducting a pilot interview, and by ensuring that the questions posed to the CIOs were not leading ones. Researcher bias was also

guarded against during data analysis by “allowing the data to speak for itself” (Strauss & Corbin, 1998, p. 59). Lee and Lings (2008, pp. 174-175) define social desirability bias as the tendency of interviewees to portray themselves in a positive light. This bias was reduced by giving the CIOs assurances of confidentiality in order to elicit sincere answers.

### 3.6.5 Research Instrument

The interview schedule (see Appendix A) was the principal research instrument for this study. It was utilised “as is” at the start of data collection. This schedule consists of semi-structured interview questions, with follow-up questions asked based on the responses received. Myers (2009, p. 124) defined a semi-structured interview as one having some pre-formulated questions that are not strictly adhered to as new questions might emerge in the course of the interview. In principle, these interview questions were not necessarily followed in a rigid manner, and are therefore a guide to the general orientation of questions posed to the CIOs.

These questions were originally formulated using the research objectives as a guide and from an understanding of the extant literature on the success factors for business-IT alignment. The research objectives dictated the questions that were formulated. In some cases where there were already success factors in the extant literature which had some similar elements with any of the research objectives, these were taken into consideration in crafting the interview questions to determine if they were valid for this study. Though these questions were formulated by the researcher, their adequacy was confirmed by feedback received during the pilot interview and from the CIOs interviewed as well. In response to a question on whether there was anything relating to the subject matter that was yet to be brought to the researcher’s attention, CIO-8 said *“I think your questionnaire was very comprehensive, I can’t add anything.”*

The interview schedule was structured to meet the research objectives and answer the research questions of the study. It is made up of six sections as follows:

1. Section A presents general opening questions, and seeks to have an introductory understanding of the firm's business-IT alignment initiatives.
2. Section B covers the social and intellectual dimensions of business-IT alignment.
3. Section C questions provide the impact of the South African business operating environment on the success factors for alignment.
4. Section D questions seek to reveal the impact of industry sectors on the success factors for business-IT alignment.
5. Section E covers the process and state paradigms of alignment.
6. Section F rounds off the interview schedule with the concluding questions.

Table 5 gives an overview of how this study's data requirements or research objectives, and the associated research questions are sourced or linked to the interview schedule.

**Table 5: Data requirements and their sources in the interview schedule**

<b>Data Requirement/ Research Objective Addressed</b>	<b>Research Question Addressed</b>	<b>Source: Interview Schedule Section and/or Number</b>
Success factors for business-IT alignment	1	Linked to all interview questions
Novel success factors	2	Linked to all interview questions
Relationships between success factors	3	Question 17; data analysis of entire data gathered
Impact of the South African operating environment	4	Questions 12 - 14
Impact of industry sector	5	Questions 15 – 17
Framework development	6	Data analysis
Coverage of state and process paradigms as well as social and intellectual dimensions of business-IT alignment	Linked to other research questions	Sections B and E of the interview schedule

As a result of the largely exploratory nature of this study which was aided by the use of semi-structured interviews, other questions emerged in the course of data gathering. These "emergent interview questions" (see Appendix B) were integrated into the interview schedule during the course of data collection. Thus, in principle they were a part of the interview schedule but they have been separated herein from

that used at the start of data collection (see Appendix A) in order to reveal the emergence of these questions as data collection progressed.

It is pertinent to highlight that related studies have investigated the intellectual dimension of business-IT alignment by examining strategic planning documents (Broadbent & Weill, 1993; Motjoloane & Brown, 2004). This seems to be a plausible way of investigating the intellectual dimension of business-IT alignment which has strategic plans and strategic planning methodologies as coverage areas (Reich & Benbasat, 2000, 1996). The researcher argues that it is possible to investigate the intellectual dimension of alignment through properly focused and directed semi-structured interviews. In the sense expressed, the words “properly focused” refer to interview questions being crafted to address these coverage areas, and “directed” refers to semi-structured interviews being utilised in such a way as to seek understanding of how firms deal with these coverage areas in question.

### **3.6.6 Data Analysis**

The general inductive approach as set out by Thomas (2003, 2006) was used to analyse the data collected in the course of this study. The general inductive approach has been referred to as an informal grounded theory approach (Seymour & Roode, 2008). It is informal grounded theory because it does not fully adhere to grounded theory methodology’s principles, but adheres to grounded theory methodology’s data analysis techniques. A description of how the general inductive approach compares with the grounded theory methodology is presented herein.

Grounded theory methodology or approach is based on three principles, and these are the principles of emergence, constant comparative analysis, and theoretical sampling (Matavire & Brown, 2008). The principle of emergence requires that theory development and the research design should be emergent, which means “a researcher cannot enter an investigation with a list of preconceived concepts, a guiding theoretical framework, or a well thought out design. Concepts and design must be allowed to emerge from the data” (Strauss & Corbin, 1998, p. 34). The

general inductive approach partly adheres to this principle in that theory development is emergent but the research design is not.

The principle of constant comparative analysis involves the process in which “data are broken down into incidents, to be closely examined and compared for similarities and differences, while constantly asking of the data the neutral question ‘What category or property of a category does this incident indicate?’” (Glaser, 1992, p. 39). The constant comparison process is central to the identification of concepts and categories (Goulding, 2002, p. 69). The general inductive approach adheres to the principle of constant comparative analysis.

The principle of theoretical sampling stipulates that the sampling method should not be pre-determined but ought to evolve as the theory emerges, and that this process should continue until the categories identified are saturated, i.e., theoretical saturation (Glaser, 1992, pp. 101-102). Goulding (2002, p. 70) states that “theoretical saturation is achieved through staying in the field until no new evidence emerges which can inform or underpin the development of a theoretical point.” The general inductive approach does not adhere to the principle of theoretical sampling.

The use of open, axial, and selective coding by the general inductive approach in the analysis of data is also utilised in grounded theory studies. Strauss and Corbin (1998, p. 3) define coding as “the analytic processes through which data are fractured, conceptualized, and integrated to form theory.” Thus, open coding is referred to as “the analytic process through which concepts are identified and their properties and dimensions are discovered in data” (Strauss & Corbin, 1998, p. 101). In a related frame, axial coding refers to the process of establishing relationships among identified concepts (Corbin & Strauss, 2008, p. 195). There is typically constant interplay between open coding and axial coding, and they are not necessarily sequential steps (Strauss & Corbin, 1998, p. 101). Selective coding usually concludes the coding process towards the development of a theory, model, or framework. Glaser (1992, p. 75) states that “to selectively code is to cease open

coding and to delimit coding to only those variables that relate to the core variable, in sufficiently significant ways to be used in a parsimonious theory.”

In the extant literature, the terms concepts, sub-categories, and categories are used in various ways to indicate the ‘nesting of categories or concepts’ during the coding process. Concepts may be nested in categories, or sub-categories may be nested in categories, or simply categories may exist singly without any ‘nesting’. In this research, the latter mainly applies as this is the most probable scenario for this study due to it being especially focused on identifying the success factors for business-IT alignment. Thus, each success factor identified in the data gathered was coded as a category.

The underlying principles guiding the use of the general inductive approach are as follows (Thomas, 2003, 2006):

1. Data analysis is guided by the research objectives which identify the areas to be investigated. This analysis is carried out through detailed readings and interpretation of the raw data, without any prior expectations or models. The research objectives guide the focus of the research and do not set out any expectations with regards to the research findings.
2. The principal method of analysis is to develop the categories inherent in the raw data into a model or framework.
3. The research findings are an outcome of the interpretations of the raw data arrived at by the researchers involved in coding the data. These findings are shaped by the assumptions and experiences of the researchers.
4. There is a possibility that researchers could produce non-identical findings which may not have overlapping components. The differences or grey areas in the analyses may then be resolved by the researchers.
5. The trustworthiness of research findings can be assured through techniques such as independent replication of the research, comparison with the findings of related studies, and triangulation within the study. Others are feedback from research participants and feedback from other stakeholders in the research.

These underlying principles imply that the coding of data by multiple researchers is the norm. Though the involvement of multiple researchers will build consensus into the research findings as also reflected by Seymour and Roode (2008), the researcher argues that it is possible to obtain similar results when coding is done by an individual which is the case in this study. This is based on the premise that the researcher endeavours to increase the trustworthiness of the research findings. The next section on the 'validation of research approach' provides details of how this was achieved. This work is a Masters' dissertation research which necessitates that the researcher produce the work on his own with supervision provided.

Thomas (2003, 2006) also provides the following as features of the categories developed from coding:

1. *Category label* – a word or phrase used to label or refer to the category.
2. *Category description* – a description of the category's meaning, including main characteristics, scope and limitations.
3. *Text or data associated with the category* – This illustrates examples of text coded into a category.
4. *Links* – This sets out any links or relationships discovered among categories.
5. *Model or framework incorporation* – Categories discovered are typically incorporated into a model or framework. There is however possibility that every category may not be incorporated into a model or framework, as a result of selective coding.

These category features were used to guide the development of a Microsoft Excel workbook or spreadsheet file that was utilised to aid the coding process. The "coding spreadsheet" file shown in Figure 5 has different spreadsheets that reflect the objectives of this study, including the "success factors" spreadsheet which is displayed. Features such as "category label", "category description", "links", and "text associated with category" for each CIO as shown on the spreadsheet were placed in columns. The development of a framework which is the last feature is one of the objectives of this research.

CATEGORY LABEL	CATEGORY DESCRIPTION	LINKS	CIO-1 (TEXT OR DATA ASSOCIATED WITH CATEGORY) [ ] indicates masked information	CIO-2 (TEXT OR DATA ASSOCIATED WITH CATEGORY)
Formalised and coordinated SISP process	Category covers a formal SISP process that involves cross-inputs between business and IT, scenario planning is adopted, and an external facilitator is utilised when the IT plan is drafted.	Links to communication, consultation, and business and IT plans in same document (BITP)	<p>1. Strategic IT planning which is invested in the CIO is always done after the business strategy has being architected if I may put it that way. It is then taken onboard or stripped into various components in terms of the service-oriented architecture perspective, and we then do our strategy around that.</p> <p>2. The way we do it is that for each and every business unit have got a representative from ICT and the person is a business architect or business analyst. They sit with the business to consolidate their business plans and then these business plans are then brought into ICT and then ICT takes about 2 – 3 days into a strategy workshop, look at what business wants to achieve and then we come with our IT strategy plan (links to BITP).</p> <p>3. So in the planning stage, they (representative from IT) go and sit with the business to plan before we plan and they bring the plans that have been signed off by the business unit. I bring my plan, sign it off and then we all come together and...</p>	We don't use any tools (for strategic IT planning and management). We use facilitated interactions with all stakeholders. There is limited methodology being followed.
Business and IT plans are in the same document	Text segments that highlight business and IT plans existing in the same document are coded into this category. This could also be a high level summary.	Links to mutual understanding	<p>1. IT exists because of business. So you cannot have your own plan that is not aligned to the business. So you have to make sure that in every document that is about the business plan, IT plan is in there.</p> <p>I read a strategy document of an organisation and I don't see the IT plan that supports the business. Then it means that IT is not supporting the business. I don't want to go and read another document that says it's an IT plan of the organisation. If it really supports it, then it must sit with the business plan as well.</p> <p>3. (Have biz and IT plans in same document improved your alignment?) Tremendously, because IT is also a business and so your plan must be there.</p> <p>1. Communication and consultation. These are the two keys for alignment; if you don't</p>	(Contrary view) I don't think being fixated about producing one big book with 5000 pages that nobody is going to read is necessarily the right way to go. The process of planning (link to SISP process), the interaction, engaging each other, documenting each other's objectives that to me is very valuable. So, if that results in multiple pieces of paper then be it so

Figure 5: Coding aid - Microsoft Excel Spreadsheet

The raw data gathered were analysed in accordance with the following steps:

1. Transcripts of interviews conducted were produced.
2. The prepared transcripts were read in detail in order to ensure familiarisation with the content. This can be referred to as pre-analysis; some categories emerged during this process and were noted.
3. The transcripts were read again and as often as required, with the aim of identifying all the text segments that conveyed meanings. These text segments were labelled as categories. This is known as open coding.
4. In-vivo coding was adopted for some of the categories. In-vivo coding involves the creation of category labels from actual words used by research participants as reflected in the text (Corbin & Strauss, 2008, p. 65; Thomas, 2003).

5. A spreadsheet application, Microsoft Office Excel spreadsheet was used as an aid during the coding process as shown in Figure 5. This package only served data entry and organisation purposes and had no effect on the researcher's cognitive responsibility of making sense of the data gathered.
6. The analysis of data continued with the discovery of links or relationships between categories. This step is known as axial coding.
7. Finally, the categories were refined by dropping, and/or consolidating the categories in a process known as selective coding. The framework was developed at the end of this process.

The motivation for the use of the general inductive approach for data analysis stems from its fit for the research objectives of this study. The purpose of this study was exploratory and explanatory. The exploratory aspect explored among other areas, the possibility of novel success factors for achieving business-IT alignment. The general inductive approach used to analyse the qualitative data favours the emergence of novel success factors. Thomas (2006, p. 238) states that "the primary purpose of the inductive approach is to allow research findings to emerge from the frequent, dominant or significant themes inherent in raw data, without the restraints imposed by structured methodologies." Also, the explanatory aspect of this study involved the development of a theoretical framework of success factors for business-IT alignment. This is supported by the general inductive approach which typically ends with the development of a framework from the findings inherent in the data (Thomas, 2003). The discovery of relationships among the success factors for business-IT alignment and subsequent framework development are both objectives of this study. Axial coding, one of the steps in the general inductive approach to data analysis led to the discovery of relationships among the success factors for alignment, and contributed to the framework development.

A question might be posed as to why this research did not adopt grounded theory methodology or research approach in its 'comprehensive sense' as called for by Motjoloane and Brown (2004). A suitable response to this is that research findings from the use of the general inductive approach to data analysis may not be different

from that which employs grounded theory methodology (Thomas, 2003). It must however be stressed that this does not indicate that there is no value in adopting grounded theory methodology for research. Grounded theory methodology is particularly suitable for studies that seek to investigate 'broad, general, or ill-formed research questions' (Campbell, 2005). This is based on the premise that the research question under investigation determines the research method or approach to adopt (Corbin & Strauss, 2008, p. 24; Urquhart, 2001). Grounded theory methodology is also suitable for studies in research areas with little theory available (Urquhart, 2001).

Also, Matavire and Brown (2008) in a study which examined top-rated IS-focused journals, stated that the most common use (i.e., 62 percent) of grounded theory research approach in IS research is the use of grounded theory techniques for data analysis as compared with 'Glaserian', 'Straussian', and 'mixed methodology' grounded theory approaches. The general inductive approach uses grounded theory techniques for data analysis. The dominance of grounded theory data analysis techniques as an approach to grounded theory studies should serve to also validate the adoption of a similar approach in this study.

### **3.6.7 Validation of Research Approach**

Lee and Lings (2008, p. 209) state that validity and reliability are two concepts that demonstrate the 'rigour' of a study. This is broadly referred to herein as the 'validation of the research approach.' The use of the general inductive approach for qualitative data analysis was also adopted by Seymour and Roode (2008). This confers validity on the research approach adopted by this study.

The general inductive approach has provisions for assuring the trustworthiness of research findings (Thomas, 2003, 2006), otherwise known as reliability. This was assured, where applicable, by comparing research findings with findings from related studies in the extant literature. Also, the use of email communication with research participants to clarify 'grey areas' and to confirm the applicability or inapplicability of

concepts across the sample also assures the trustworthiness of the research findings. A final means of assuring trustworthiness lies in the presentation of the findings. The general inductive approach advocates that relevant quotations of research participants should be presented as a means of illustrating the categories when the findings are written up (Seymour & Roode, 2008; Thomas, 2003, 2006). This was adopted and can be observed in subsequent chapters; and it also enables a third party to follow the underlying logic. The Microsoft Excel spreadsheet which is the coding aid is voluminous and was therefore not included as an appendix in this dissertation.

### **3.7 Research Time Frame**

This research is of cross-sectional time frame or horizon as opposed to longitudinal. A cross-sectional study is one in which data is gathered at a point in time which could be over a couple of days, weeks or months. However, a longitudinal study is one in which data is gathered over multiple points in time and usually involves longer periods of time (Cavana et al., 2001, p. 123).

Seven out of ten interviews were conducted in November 2009; two interviews were held in December 2009; and one interview was conducted in January 2010. This is cross-sectional as the CIOs were interviewed only once. This cross-sectional time frame is adequate for the conduct of an interpretive research geared towards obtaining knowledge on the success factors for business-IT alignment. The assumption is that CIOs have lived and are still re-living the reality in question and are able to give the required information as guided by this study's objectives. In addition, the limited duration of a Master's research makes a longitudinal study unfeasible.

### **3.8 Confidentiality and Ethics**

Research participants were assured of the confidentiality of their persons and that of their organisations. An introductory letter and accompanying consent form (see Appendix C) detailing this and seeking their participation was sent to each CIO; this

was signed before interviews took place. Participants also consented to having the interviews recorded with a DVR in order to enable thorough analysis of the data. The data that was collected cannot be categorized as sensitive.

Approval to proceed with data collection was granted by the Commerce Faculty Ethics in Research Committee. This is a step that is mandatory before any form of data collection including pilot studies can begin. Approval was given after the ethics form, research design, introductory letter and consent form, and interview schedule were submitted. The ethics form mainly addresses ethics and confidentiality issues.

### 3.9 Summary

The research methodology or design was drafted to meet the research objectives and answer the research questions of this study. It also revealed contextual information relevant to the phenomena under investigation, as well as validating the research approach. A summary of the research methodology is presented in Table 6.

**Table 6: Summary of the research methodology**

<b>Research context</b>	Investigating the factors that influence the success of business-IT alignment in South African firms
<b>Research purpose</b>	Exploratory and explanatory
<b>Research philosophy</b>	Interpretive
<b>Approach to theory</b>	Inductive
<b>Sample</b>	10 CIOs; two each from firms in five different industry sectors
<b>Data Collection Method</b>	Semi-structured interviews <ul style="list-style-type: none"> <li>• Supplemented with email communication (for clarification)</li> </ul>
<b>Data analysis</b>	General inductive approach
<b>Research time frame</b>	Cross-sectional

The next chapter presents the research findings and the associated discussions on them.

## 4 Research Findings and Discussion

### 4.1 Introduction

This chapter presents the research findings and their discussions. These are presented in accordance with the requirements of the general inductive approach used for data analysis. The general inductive approach requires that:

When reporting findings from inductive analysis, the summary or top-level categories are often used as main headings in the findings, with specific categories as subheadings. It is good practice to include detailed descriptions of categories and suitable quotations from the text to illustrate the meanings of the categories. (Thomas, 2006, p. 245)

The quotes of CIOs reported in this chapter represent some of those that were coded into each category of success factors for business-IT alignment. For quotes presented in this chapter: Brackets [] indicate masked information for confidentiality reasons; and underlined words denote emphasised words. When the questions aid the understanding of the responses of CIOs, they are included in parentheses with a question mark (Words that emphasize the comments of CIOs are also placed in parentheses).

The findings commence with a presentation of the categories of success factors that emerged from data analysis, followed by the resultant theoretical framework. The relationships discovered among the success factors are subsequently described, following which the impact of the South African business operating environment on the success factors is highlighted. The succeeding sections detail the impact of industry sectors on the success factors for alignment, and the novel success factors discovered. The findings presented continue with discussions on the process and state paradigms of business-IT alignment, as well as the social and intellectual dimensions of business-IT alignment. The chapter ends with a summary of the main points highlighted.

## 4.2 Emergent Categories of Success Factors for Alignment

### 4.2.1 Strategic Partnerships

Strategic partners include technology vendors such as Microsoft and SAP; IT consulting firms such as Gartner, IBM, Accenture, GijimaAst, Dimension Data, and IBM; and industry level technical associations such as the Association of South African University Directors of Information Technology (ASAUDIT). IT directors of South African universities are members of ASAUDIT. Strategic partners can also include partner firms involved in some form of collaboration. Any organisation or body that can be consulted in the process of business-IT alignment in order to aid its success is referred herein as a strategic partner.

The data gathered revealed that CIOs are not limiting strategic partners to vendor roles but are engaging them to improve or achieve success with business-IT alignment. For instance, CIO-1 stated:

*“... we sometimes also engage our strategic partners e.g. Dimension Data, Accenture, GijimaAst, and I also engage IBM as well.... I have these four strategic partners that I engage thrice in a year to inform me in terms of the alignment, whether the alignment is appropriate or inadequate and what suggestions do they have in terms of keeping me in check and aligned with the business and where the economy is going.”*  
(Emphasis added).

Also, CIO-9 stressed:

*“Very much (impact on alignment of the CIO belonging to ASAUDIT), because we relate very close to fellow directors or CIOs and that has definitely helped us to make decisions and move us into the future.”*  
(Emphasis added.)

However there is the impression that strategic partners are after profits if they are engaged in the process of aiding a firm's alignment. This view was shared by CIO-3 who recounted:

*"Naturally, they (strategic partners) always come with one hand open; one hand they want to give you something, the other hand they ask you for money." (Emphasis added.)*

Nevertheless, it is possible to engage strategic partners for business-IT alignment purposes without incurring additional costs. For instance, CIO-7 described how this was achieved in his firm:

*"Ultimately they are technology advisers (SAP is the firm's strategic partner). So you know they bring to table that element. Part of what underpins why they are a strategic vendor is that they understand the business area they play in, in my business very well; and that's part of the preconditions, they have to.... (So it's not an extra service they render, it's part of the deal?) Oh yes, absolutely." (Emphasis added.)*

As a note of caution, CIO-6 while responding to a question on whether strategic partners aid his firm's business-IT alignment retorted that strategic partners should be carefully selected with a clearly delineated understanding of roles. He said:

*"Yes (strategic partners aid alignment); it created problems also. If you choose the wrong vendor, this is just an observation; I think horses for courses kind of thing. If you choose a vendor to look at business-IT alignment, then choose a vendor for that; if you choose a vendor for improving the IT internal controls and efficiencies and whatever, choose a vendor for that; don't mix these things. We've learnt that if you mix it you suffer." (Emphasis added.)*

To sum up, the IT function should exploit existing strategic partnerships or seek new ones as the data gathered revealed that they aid the success of business-IT alignment. This is likely due to the knowledge base they possess and the varied experience these 'strategic partners' have gathered in the course of working with different kinds of firms which could be leveraged to aid business-IT alignment. Since most of the large organisations already have existing partnerships with these

'consultants or vendors,' these partners should also be engaged at a strategic level for business-IT alignment purposes without necessarily incurring additional costs. This can be ensured by making it a precondition before agreements are signed or as a new condition when agreements are under review.

#### 4.2.2 Enterprise Architecture

Enterprise Architecture (EA) refers to a "set of design artifacts, or descriptive representations, that are *relevant* for describing an *enterprise* such that it can be produced to requirements (quality) as well as maintained over the period of its useful life (change)" (Zachman, 1997, p. 5). It is the "organizing logic for business processes and IT infrastructure, reflecting the integration and standardization requirements of the company's operating model" (Ross, Weill, & Robertson, 2006, p. 9).

The data collected indicates that EA has a positive impact on business-IT alignment. For instance, this was stressed by CIO-1:

*"... that (EA) is the framework within which we draw the alignment because Enterprise Architecture has got a business component which is then enabled by your IT infrastructure ... Enterprise Architecture gives you a better view of the alignment, the proper picture of the alignment."*  
(Emphasis added.)

However, concerns were raised about the need to determine when and how much of EA is needed? For instance, CIO-6 stated:

*"Yes it (Enterprise Architecture) does (have a positive impact on business-IT alignment). But if you are clever and you only do as much as is needed, yes, then it does. But if you do EA for the sake of doing EA I can tell you, you can now go to [business division one] and ask them for their Enterprise Architecture and every executive will say to you there it is, we've done this once, we didn't get any value but it was nice to do it, it cost us a lot of money.... EA is necessary always in big change but the challenge is how much."* (Emphasis added.)

It appears that firms would have to determine how much of EA is necessary for their context. For instance, CIO-4 adopted a scaled down EA approach:

*“... it's primarily just looking at our systems architecture and then we looking at our business on top of it and then we looking at how this systems architecture satisfy the business model basically. And it's a very high level; it's not at a very low detailed level.” (Emphasis added.)*

To sum up, the research data indicated that enterprise architecture is a success factor for business-IT alignment. This is likely because EA offers an architectural illustration of the total enterprise, including the technology domain, and can therefore be utilised to ensure proper business-IT alignment. Specific EA research also highlighted that enterprise architecture enables the optimisation of IT investments and guides alignment (Jonkers et al., 2006). However, the issue of the extent or detail should be taken into consideration (Zachman's definition of EA highlights this by using the word 'relevant').

#### **4.2.3 Service-Oriented Architecture (SOA)**

Service-oriented architecture (SOA) is a “framework for integrating business processes and supporting IT infrastructure as secure, standardized components – services – that can be reused and combined to address changing business priorities” (Bieberstein, Bose, Fiammante, Jones, & Shah, 2006, p. 5). Web services are the common means of implementing SOA (Lawler & Howell-Barber, 2008, p. 8), but technologies such as object-oriented or mainframe transactional systems may also be utilised (Bieberstein et al., 2006, p. 5).

The importance of enabling the agility of business processes through SOA, and its contribution to the success of business-IT alignment emerged from the data. As an indication, CIO-8 stated:

*“To be more agile, you have to have software and hardware that supports the whole SOA principle, because if everything in your software spec (i.e., specification) is SOA-enabled, then it will lead to shorter development*

*cycles, it will lead to quicker delivery definitely.... (And they both (EA and SOA) have (positive) impact on BITA?) Very much so yes; very much so.*  
(Emphasis added.)

In conclusion, the research data revealed that service-oriented architecture is a success factor for business-IT alignment. This is due to it enabling the enterprise to respond swiftly to changes in business processes as it affects business and IT systems. This agile response is aided by a SOA-enabled IT architecture. The fact that SOA aids business-IT alignment has also been reported in the research literature (Chen, 2008).

#### **4.2.4 Information Management**

Porter and Millar's (1985) concept of information technology as a resource that gives competitive advantage, covered information and the technologies that processed this information. However, over time, emphasis on information as a strategic resource appears to have waned. The need to also place some focus on information management rather than solely on IT was raised by the CIOs interviewed. For instance CIO-8 stated:

*"... we should rather focus on information management because IT is merely a supporting base of information management. Because a lot of people talk about IT, then they talk about ICT, then they talk about information. At the end of the day, IT support information where the business can make sound business decisions on. So we should talk more about information management, not about IT." (Emphasis added.)*

CIO-6 also highlighted the importance of information management in an organisation:

*"By the way very important, the definition of IT in this organisation includes information management.... we've got a critical information management policy..." (Emphasis added.)*

In response to a question regarding areas that fall under information management; CIO-8 stated:

*"I'll say something like business intelligence, it's definitely; enterprise content management for structured and unstructured data. Yeah, that to me is the two big pillars of information management." (Emphasis added.)*

The positive impact that information management has on alignment (i.e., success factor) reflected in the data. For instance, CIO-8 stressed:

*"Yes (information management has an (positive) impact on alignment), because who owns the information? Not IT; there is a huge misconception that IT owns the information or IT owns the system. No, no, IT merely support the system to actually operate as a business to make sound business decisions on the information.... information management can't be owned by IT, it must be owned by the business." (Emphasis added.)*

Also, CIO-3 in fact credits business intelligence (which involves information management) for the growth of his firm. He stressed:

*"I honestly believe that the reason that this company have grown so significantly over the last seven years has been due to IT, and it's been due to business intelligence.... we just implemented very accurate business intelligence tool - a data warehouse with a very good analysis tool on top of it. That gave us accurate data, we were able to identify out of stocks. If a key value item is not selling through a point of sale in 15 minutes, we are out of stock, we know that, so we address that immediately." (Emphasis added.)*

In conclusion, the CIOs interviewed highlighted the need to view information management as a success factor for business-IT alignment. This is likely because IT supports information which is a distinct strategic resource; therefore information which is at the core of business processes needs to be effectively managed to ensure the success of business-IT alignment. The emergence of this success factor supports the relevance of Maes' (1999) extension of SAM through the addition of the

information/communication (information management component) domain to the original business and IT domains.

#### 4.2.5 Measure the effectiveness of business-IT Alignment

The measurement of business-IT alignment as a success factor for alignment emerged from the research data. This can be done in a variety of ways that suits each firm's objectives. The CIOs interviewed had various means of measuring the effectiveness of business-IT alignment. For instance, CIO-1 measures alignment through the use of customised scorecards as he stated:

*"We have a scorecard where we looked at the various aspects of the business' operational efficiency e.g. the scope of what that needs to be done. We also look at the team and the infrastructure or the team and the structure; we also look at the benefit to the business and the benefit to IT. These are the four main areas of my scorecard that I use and each and every area has got a minimum of about eight different items that we measure every month. The measurement is a calculation, there is a computation behind it that gives us 1 – 4 for green, 5 – 6 for yellow, and 6 upwards is red. So, we are able to then measure the success of the alignment and also the fifth one is risk ..."* (Emphasis added.)

Another means utilised for measuring alignment is through customer surveys which was reported by CIO-8:

*"We do a yearly customer survey where we get a independent company to set questions and the questions is around how do we as a organisation support the strategic objectives of the company? So these people are professional, so they know what questions to ask."* (Emphasis added.)

An additional means of measuring alignment is that adopted by CIO-6 which involves putting in place a benefits realization plan for IT projects. He said:

*"So any change project in [business division one] and it has started in [business division two], must have a business case and must have a benefit realization plan. So I would imagine that that to a certain degree*

*sees to it that at least as far as the new projects are concerned that we do get alignment and I think that's a way to measure it.* (Emphasis added.)

The importance of measuring alignment as a success factor for the achievement of business-IT alignment reflected in the data. This was summed up by CIO-8:

*“Yes, yes, yes (the measurement of business-IT alignment will lead to its improvement)! I think in any alignment and survey you have to deal with the facts that's presented to you. So some of the facts is you are doing bad and you have to take and say okay how do I improve that; and other facts you actually say that you are doing good. So in terms of that I think if we get the right answers from the business and they are honest, then we can improve the alignment. And we must also have an opinion to say listen but we think that from a IT perspective, you guys need to improve on this, on this, and that.”* (Emphasis added.)

To sum up, it is necessary to measure the effectiveness of business-IT alignment as what is not measured cannot be readily improved. Chan and Reich (2007) stated that measuring the effectiveness of business-IT alignment or simply the measurement of alignment would enable practitioners to manage it better. The extent by which other functions of the firm including human resources (HR) as an example, gets evaluated or measured should also be applied to how IT supports the business, i.e., through business-IT alignment.

#### **4.2.6 Close Relationships between IT and Business**

'Relationship' in this sense refers to “working and social/personal relationships” between IT and business people, particularly as embodied by that which exists between the CIO and the person he or she reports to. This 'relationship' also includes that which exists between the CIO and other senior business executives, as well as the relationship that exists between the IT division and the entire firm. The CIOs interviewed either reported to the Chief Executive Officer (CEO) or senior directors such as the Finance Director. Close working relationship between CIO and

'boss' is reflected in the frequency of contacts or meetings between them. This includes planned and unplanned interactions, or formal and informal meetings. Social/personal relationship as utilised herein refers to a relationship that exceeds the typical "strictly business relationship," and involves some social interaction on a personal level.

The strength of close working relationships between IT and business in the firms investigated was highlighted in the research data. As an indication, CIO-1 stated:

*"I have a monthly one-on-one meeting with my CEO but we meet like almost on daily basis because IT is seen as an integral part of the strategy and the success of the organisation; so we meet on daily basis. I wouldn't say there is a specific time frame when we meet." (Emphasis added.)*

In the same vein, CIO-4 who shares a joint lunch table with his CEO also remarked:

*"... we have a joint lunch table and where we interact on a daily basis and then there is quite obviously lots of committee meetings and project meetings because we are quite a hands-on business. So we have obviously our daily contact." (Emphasis added.)*

The necessity of close working relationships to ensuring the quick and effective resolution of 'issues of interest' and the positive influence this has on alignment was highlighted in the data. As an indication, CIO-8 commented:

*"... I think that this open (door) policy of come and talk to me (CIO reports to the Financial Director) when you need me, I think definitely (has aided alignment), because we don't have to wait for planned meetings because some stuff arise and if you can't address it before the next meeting you can actually either escalate the problem and the problem gets bigger. So we've got a philosophy if there is a real urgent problem ... But it needs to be serious business impact issues and it really works." (Emphasis added.)*

The importance of social/personal relationships between IT and the business, particularly between the CIO and the CEO as well as other senior executives also manifested in the data. For instance, CIO-1 stated:

*"To be honest, for IT to be successful in an organisation particularly sitting at the Board level and also at the executive level, you've got to have a personal relationship, because that is where trust comes from, and in terms of ICT and corporate governance, the moment that personal relationship doesn't exist between the CEO and the executive, you tend to have problems. And that personal relationship is paramount, and that then creates trust between you and the executives as well as the CEO."*  
(Emphasis added.)

However, the need for caution when it comes to social/personal relationships was also raised. As an illustration, CIO-4 stressed:

*"I don't think so (that CIO having a personal relationship with person he reports to will improve alignment) because I think if you do that you break down the governance basically for the business. I think you see because, think about it, if you've got a very close personal relationship with people, people feel more obliged to be nice and easy going with each other as opposed to challenging each other. So I don't really believe so, there's got to be a bit of a line that you've got to, mustn't cross, I fully believe so."*  
(Emphasis added.)

Despite the caution expressed by CIOs when the issue of social/personal relationship was raised, their statements however alluded to its relevance. For instance, CIO-6 stated:

*"No (i.e., personal relationships don't aid alignment); I would personally have to say no. In fact, I think it might actually, could even be a inhibitor.... I have a relationship where I know what's important to the Finance Director (CIO reports to this person), so if I need something I can present it in such a way that touches the right points on him.... If I had to go out and say I needed to go and study something to do with IT strategy, it's really how to handle people rather than how to do strategy. How do you handle difficult people who've got their own agendas who want to pull you*

*away from where the strategy is going; that to me is key....” (Emphasis added.)*

Likewise, CIO-3 commented:

*“I disagree (with having personal relationship with boss); I don’t want to play golf with my deputy MD, I don’t want to experience the social environment ... Yes I agree I need to understand him better ... I need to be able to read him better... I know how to start a conversation ... You get to understand who the individual is beforehand, you go into the office and you look around the office and you find an object that you can see he appreciate... So it gives you an opening point of discussion ... That creates a kind of connection; when you have that connection is where you can go on to the next step where you can propose an idea.” (Emphasis added.)*

In conclusion, close relationships between IT and business, which include working as well as some social/personal relationships are essential for the success of business-IT alignment. Since business-IT alignment involves the integration of two more or less unique domains, it seems plausible that close relationships between IT and business personnel who are in these domains should improve business-IT alignment. One of the related studies, Luftman and Kempaiah (2008), identified a similar factor - “IT and business personnel have close personal relationships” as influencing the success of alignment. It is necessary to stress that though some social/personal relationship is necessary, it requires careful navigation in order not to exceed the required boundaries.

#### **4.2.7 Communication between Business and IT**

Communication between business and IT should not only be restricted to communication between business and IT executives but should encompass the IT function and the entire business. Communication, which was generally viewed by CIOs as crucial and the most important success factor for business-IT alignment,

cannot be overstressed, and it must be done in a language that the business can comprehend. For instance, CIO-8 stressed:

*“... you can never communicate enough. To me communication is key; and the other thing is you also have to communicate in a language that the business can understand it, because from IT point of view, we like to talk in slogans and jargon but the business don't understand it. So you have to break it down into understandable knowledge.” (Emphasis added.)*

Likewise, CIO-9 also stated:

*“Now they (IT plan) become gospel, we talk it all the time; it becomes a living organism.” (Emphasis added.)*

In the same vein, CIO-5 added:

*“Communication is key; the engagement between business and IT.” (Emphasis added.)*

The communication of the benefits of IT initiatives should be seen as paramount when focusing on what IT should communicate about. As an indication, CIO-1 stated:

*“If I cannot articulate the benefit of using this technology, if I cannot articulate the benefit of using a particular approach or solution, then the alignment will not be successful.” (Emphasis added.)*

The IT function can also communicate what is possible versus what is desirable. For instance CIO-8 commented:

*“But now what we've done now is we've listened, we've crafted the strategy, and we said to the people: listen, we've listened; this is how we will execute on the strategy. And suddenly they can see okay they have listened; maybe we have listed 10 points but we can only act on five, they at least can relate to that. If you don't go back to the user community that's a big problem because you can talk to me and talk to me and talk to me, if I don't come back to you and say listen I have listened, I cannot execute on everything but this is what we will do in the year 2010. Then at least you are feeling better, you have been heard.” (Emphasis added.)*

Challenges or constraints, or opportunities with respect to IT can also be communicated. For instance, CIO-7 stated:

*“... you need somebody (i.e., when hiring someone for the CIO role) who understands the conceptual side of IT but can talk to a business person, who understands the business side too, and talk in simple English and communicate challenges or the constraints or the opportunities where technology can use.” (Emphasis added.)*

However, CIOs are having difficulties with getting firms to realise the benefits of IT to the business. As an indication, CIO-5 stressed:

*“IT realises the benefits to business, it is very difficult to get business to appreciate the benefit to business. It’s a really difficult situation.” (Emphasis added.)*

In conclusion, getting the business to realise the benefit of IT to its organisational goals when it appears not to view it as offering any strategic benefits may be overcome by ensuring that IT benefits are effectively communicated to the business in a language they can understand. A possible reason for the emergence of ‘communication between business and IT’ as a success factor for alignment is that effective communication and the resultant exchange of ideas between business and IT personnel who are in somewhat unique domains should improve business-IT alignment. Some related studies also identified ‘communication between business and IT’ as a success factor for alignment (Luftman & Kempaiah, 2008; Reich & Benbasat, 2000; Teo & Ang, 1999).

#### **4.2.8 Formal and Coordinated SISP Process**

A formal and coordinated SISP process as described here entails a formal SISP process in which there are cross-inputs between business and IT, scenario planning is adopted, and an external facilitator is utilised when the IT plan is drafted. Cross-inputs in this sense refer to IT inputs into the business planning process, and business inputs into the SISP process. Scenario planning is a planning technique

that considers possible future directions of the firm's external environment through developing likely outcomes of uncontrollable variables in this environment (Simpson, 1992). An external facilitator would ensure that the process is fairly balanced and that some people 'do not take over the conversation.'

The importance of a formal SISP process to the success of business-IT alignment was supported by the research data. An indication of this was CIO-8's response:

*"Previously it was more on a ad hoc basis and that didn't work well; and we can already see results because we already selling this plan (ad hoc format was changed to a formal SISP process)."* (Emphasis added.)

The significance of a formal SISP process that is coordinated by an external facilitator when the IT plan is drafted was also highlighted in the data. For instance, CIO-8 stated:

*"The facilitator is external to [the company]. They must sign confidentiality agreement as part of the assignment... You need to get the right person (facilitator) because he needs to be able to facilitate it without taking over the conversation; ... If I can convince you easily, then I will always get my point over but maybe my point is not the right point, maybe your point is the right point. If you get a facilitator, he can actually help to actually get you the right answer; because internally people know who's the strong one, who's the weak one. If you get an outside facilitator he will be able to get the right message; so that to us is crucial because we get used to each other in the environment of working."* (Emphasis added.)

The necessity of having cross-inputs between IT and business during the SISP process, and its positive impact on alignment, reflected in the data gathered. For instance, CIO-1 stated:

*"The way we do it (SISP process) is that for each and every business unit have got a representative from ICT and the person is a business architect or business analyst.... They sit with the business to consolidate their*

*business plans and then these business plans are then brought into ICT and then ICT takes about 2 – 3 days into a strategy workshop, look at what business wants to achieve and then we come with our IT strategy plan. (Emphasis added.)*

Furthermore, CIO-1 added:

*“It makes it (alignment) very easy because then the linkage is there completely, because sometimes they will say in their plan, ‘for the success of this particular service that we want to offer the dependency is IT, provided IT can give 1,2,3’. It is an input they have already given into the business plan for it to be successful. That input which is the dependency then comes back to IT and then we put it in our plan – we need to deliver this thing for the business to be successful. So you can see the alignment right from the beginning; it’s integrating right from the beginning.”* (Emphasis added.)

The importance of scenario planning to the SISP process was also evident in the research data. As an illustration, CIO-4 stressed:

*“I think it (scenario planning) has enabled us to invest in technologies that’s been giving us good returns on our investments. Yeah I think scenario planning is a good technique to use, but I mean we do use it on annual basis when we do our planning sessions.”* (Emphasis added.)

Also, CIO-10 stated:

*“But generally speaking, I think what it (scenario planning) helps you with is to actually be able to look at options and choices and say hang on, this one, if this happens what can we do? This point of view is actually very important especially from a disaster recovery point of view; actually you can understand what I am saying. We doing some scenario planning on that type of level now, but it is sort of very specific to that environment; but generally speaking I see it as good.”* (Emphasis added.)

To sum up, data gathered indicates that CIOs should commit time and resources into a formal and coordinated SISP process as it influences the success of business-IT alignment. A possible explanation for the emergence of this success factor is that effective planning is necessary for the success of desired objectives; the importance of business-IT alignment should therefore require effective planning. Some related studies also presented 'formal SISP process' as a success factor for business-IT alignment (Broadbent & Weill, 1993; Chan et al., 2006; Motjoloane & Brown, 2004). The analysis of the research data indicates that this success factor is crucial to alignment.

#### 4.2.9 IT Consults Business Stakeholders

The consultation of business stakeholders by the IT function was raised by CIOs interviewed as a success factor for business-IT alignment. This ensures that IT initiatives receive the support of the business as they would not be referred to as the sole initiatives of the IT function. The emergence of this success factor can be attributed to the fact that consultation ensures that IT keeps abreast with business developments and align accordingly. For instance, CIO-4 stated:

*"... the main thing we did was to drive IT initiatives via business involvement and then not in a way thinking that we know what it is that the business wants you know." (Emphasis added.)*

The data collected also revealed that CIOs widely consulted business stakeholders and by extension their own staff in a bid to achieve business-IT alignment. For instance, CIO-2 stated:

*"We don't use any tools (strategic IT planning and management). We use facilitated interactions with all stakeholders." (Emphasis added.)*

Also, CIO-9 indicated the category of people consulted:

*"I consult with everybody really. I consult with Computer Sciences; I consult with Libraries, with DVCs (Deputy Vice Chancellors), with Deans, with my staff, with students, with Research, everybody." (Emphasis added.)*

Consultation is viewed as a success factor for business-IT alignment, as evidenced in this statement made by CIO-1:

*“Communication and consultation; these are the two keys for alignment. If you don’t communicate what you want to achieve and if you don’t consult the business, you are going to be flat on the ground.” (Emphasis added.)*

To sum up, the consultation of business stakeholders should not only arise in the course of SISP, but should be promoted as often as possible and ought to become standard procedure for the IT function. This success factor was also identified by some related studies that referred to it generally as ‘close partnership between business and IT’ (Broadbent & Weill, 1993; Luftman & Kempaiah, 2008; Teo & Ang, 1999).

#### **4.2.10 Business and IT plans are in the Same Document**

The need to combine business and IT plans in the same document emerged from the data gathered as a success factor for business-IT alignment. Reich and Benbasat (1996, p. 62) in reference to how this single integrated business and IT plan can be implemented stated that “either the IT objectives are placed under business unit goals, or the IT objectives are contained in a separate section in the business plan but are articulated in terms of business unit objectives.” As a result of the obvious paper volume this would result in, some CIOs expressed their reservations. However, there was general agreement that this should be the case at least in a high level document. For instance, CIO-6 stated:

*“... if you’re looking for this all integrative plan, it’s gonna be massive because in there you would like to see the marketing plan, the HR plan ... and I think you know in general why have we created these focus areas? For a reason! So yes we need to tie it together at some stage and I would say yes some high level plan need to tie it all together, to me that makes sense. But to believe that you must have this voluminous massive plan, I don’t agree.” (Emphasis added.)*

In actual fact, the need to have the IT plan in the same document as the business plan was raised. As an indication, CIO-1 said:

*"IT exists because of business. So you cannot have your own plan that is not aligned to the business. So you have to make sure that in every document that is about the business plan, IT plan is in there.... If I read a strategy document of an organisation and I don't see the IT plan that supports the business. Then it means that IT is not supporting the business. I don't want to go and read another document that says it's an IT plan of the organisation. If it really supports it, then it must sit with the business plan as well." (Emphasis added.)*

Also, CIO-4 stressed:

*"We mainly have a business plan and then, but within the business plan there is the IT component; so it's actually one universal plan.... if you don't have one plan that you work off which includes business and IT you will be going to have disconnects and people being allocated to projects that is not necessarily synchronized with the business." (Emphasis added.)*

The impact on alignment of business and IT plans being in the same document reflected in the data gathered. For instance, CIO-1 stated:

*"Tremendously (business and IT plans in same document has improved my business-IT alignment); because IT is also a business and so your plan must be there." (Emphasis added.)*

Also, CIO-8 commented:

*"Yeah, yeah, I think it (business and IT plans in same document) will improve alignment. But as I said due to how we run our business that will be one massive document; from my point of view we take the input but we don't merge it in one document. But I think if you can later on do that, then I think it will improve it (alignment)." (Emphasis added.)*

In conclusion, CIOs should ensure that every document that pertains to the business, including the business plan and annual report, explicitly reflects IT support

in driving business objectives. This should among other outcomes give the IT function some visibility and lead to the success of business-IT alignment as it increases business and IT's awareness of each other's plans.

#### 4.2.11 IT Understands Business and Business Understands IT

This success factor was referred to as mutual understanding or shared domain knowledge by some related studies (Broadbent & Weill, 1993; Chan et al., 2006; Cohen & Toleman, 2006; Luftman & Kempaiah, 2008; Reich & Benbasat, 2000; Teo & Ang, 1999). The relative importance of this factor was stressed by CIO-9:

*"The very key to aligning is understanding the business strategy and what the strategy goals is, and then make sure that you understand how to enable that." (Emphasis added.)*

However, this is not limited to only IT understanding the business, but also that the business understands IT. This was raised by CIO-3 who stated:

*"There is no other representative on the [Board], that is the listed company, that represents IT other than that deputy MD. My role over the last let's say two years has been extensively to get that guy's knowledge of IT significantly improved because I do not believe that IT is well represented at our [Board] level ... IT is just a component of doing my business, that's why I believe that every individual that works in my business should understand the role that IT plays, that's why it's so critical for me to make sure everybody understands what is the value of IT? ... That is one of the reasons I support implementation of SAP (Enterprise Resource Planning system) now around this organisation because ... knowledge of the system will now move outside of IT into business and business will start taking ownership of their own processes and how to manage those processes and this is a critical requirement in our organisation." (Emphasis added.)*

Though it was assumed prior to data collection that a CIO has a good understanding of the business in addition to IT, it was nevertheless highlighted by the CIOs interviewed. This can have an impact on the degree of mutual understanding between business and IT that exists in the firm. As an indication, CIO-2 stated:

*“... my being [an engineer] and having a lot of business operational background stands me in very good stead and then helps me when am interacting with the HR guys, with the finance guys, with the engineering community because I have been there. I am not a technologist who understands wires and boxes. I am seen by the organisation to be a person who actually understands the business process and the business objectives and that is very often based on having worked together in other environments previously.” (Emphasis added.)*

Also CIO-6 commented:

*“In my mind you don’t want a typical IT guy as the CIO; you want a person with business acumen that really understands business very well, that really understand the business that you in very well and understand the processes, understand the levers for change et cetera. Then if you’ve got that person and if you can mix that with someone that’s got a understanding of IT and an understanding as to how to use IT; that’s ideal. But not in the first place a person that’s really very good at IT and then you try to teach him business tricks.” (Emphasis added.)*

CIOs are also ensuring that the personnel they hire have understanding of business issues as a means of increasing mutual understanding between business and IT within the organisation. For instance CIO-7 stated:

*“... if I hire people to my department especially on the business support side, I would rather hire someone who I believe has the ability to bridge the divide, understands business and I can teach him IT; and rather than necessarily hire someone with IT and they don’t have the potential to understand business. So it’s very important to have those sort of people in the organisation who can cross the divide, that think of it as a business rather than think of it as a technology.” (Emphasis added.)*

The impact of this success factor on alignment reflected in the research data. For instance, CIO-1 commented:

*“Yes, greatly; it (CIOs understanding of business in addition to IT) has improved it (alignment). Some of my colleagues as CIOs had come from the technical side and some of them were infrastructure people and they find it very difficult in even understanding what business wants, what they want, which is always a fight with IT. But mine is different... I have been in the trenches before and I have seen the challenges and I have come out of it into this level; so I am able to speak both languages. I am able to speak the IT language and I am able to speak the business language.”*  
(Emphasis added.)

The research data highlighted the need for CIOs to actively seek ways to establish or improve means by which the business understands IT, and IT understands the business, i.e., mutual understanding between business and IT. A possible explanation for the emergence of this success factor is that mutual understanding between business and IT should ensure understanding of what is required to achieve business-IT alignment. This success factor was found to be crucial to business-IT alignment.

#### **4.2.12 Structural Alignment**

The definition adopted for structural alignment is that described by Chan (2002, p. 100), which views it as “the degree of structural fit between IS and the business. Structural fit relates to organisational structure and includes such areas as the location of IS decision-making rights, reporting relationships, (de)centralization of IS services and infrastructure, and deployment of IS personnel. The goal of structural fit is for these IS and business structures to support organisational objectives and not work at counter purposes to them.” Structural alignment ensures that the structure of the business, which also involves IT, is balanced and in harmony with the business objectives, thereby aiding the success of business-IT alignment.

The relevance of structural alignment as a success factor for business-IT alignment emerged from the data. For instance, CIO-2 highlighted the non-alignment that results when there is no structural alignment:

*"I think one of the challenges that we face is when you say business-IT alignment, I understand very clearly who IT is and what IT is. It's sometimes more difficult to clearly understand who business is and what IT needs to align to. So you think of the executive level of an organisation versus the transactional end user layer of an organisation, there is quite a significant difference in terms of expectations around IT from those two layers of the business. In a way it does talk to the fact of a lack of business alignment within itself." (Emphasis added.)*

Continuing, CIO-2 also stated:

*"And now you tell IT, align to the business which both horizontally and vertically has disconnects. It does create a challenge for IT to say well I am perfectly aligned to the business. What you actually find happening is IT starts playing this role of exposing the non-alignment in the organisation because it all becomes visible when the IT guys try and build a fully integrated system in the process into an organisation that is not well structured and homogenous in terms of its objectives." (Emphasis added.)*

The best structure for the IT organisation or function in a firm also arose in the data with viewpoints differing in two large financial services organisations with major business divisions. This concerns whether to adopt centralized, decentralized or federated IT model and which is best for alignment? For instance, CIO-5 commented:

*"... historically we have a lot more centralized consolidated IT. I think from alignment point of view, there was extremely close alignment then because there was only one place you had to align to. In the last ten to twelve years, we've moved more to a federated IT environment; IT has been more decentralized and that I think has negatively impacted the whole business-IT alignment because business don't know where to align.*

*Do they align with their business IT department? Do they align with group IT department?" (Emphasis added.)*

Continuing, CIO-5 added:

*"The IT departments need to be aligned before they can even align with business so it makes it lot more complex. If you had a purely decentralized IT model where there was no group IT, it was just IT in businesses, then obviously it will just be within the different business components that need alignment. Because we have a federated model, then there is a group responsibility as well, that becomes a really complex environment to align.... The centralized model (is best for alignment). To me from an alignment point of view and from efficiency point of view, it has to be a largely centralized model. That doesn't mean that there can't be parts of IT sitting in business, but it needs to be centrally governed."*  
(Emphasis added.)

However, contrary to CIO-5's views, CIO-6 stated:

*"We won't change it (federated IT structure) because I think we are quite successful at getting good alignment between business and the use of IT and also the IT divisions in the businesses as it stands because they are accountable for bottom line performance. You know and I think that is the most important thing; if you get that right, then you are there. What we are struggling with is to get synergies going at the group level and to get standardization but now I must tell you this, if you go read most management textbooks they lead you to believe that to standardize everything and centralize is necessarily a good model."*

Continuing, CIO-6 added:

*I have come to learn in this organisation that sometimes it's a good model not to standardize and centralize because on the one hand you can make a case to say this is how much cheaper it will be, you know less expensive it will be if we standardize. But on the other hand you loosing agility and you lose out in alignment between business and their IT divisions..."*  
(Emphasis added.)

Data analysis revealed that to adopt a centralised or decentralised IT model is not necessarily a success factor particularly in large firms having big divisions, such as firms in the financial services sector, and it appears that there is no better option between the two. This tallies with Chan's (2002, p. 104) finding that "different organisations might successfully achieve structural alignment in different ways. At any given point in time, we found no 'one right way' to promote structural alignment." In federal business models with federated IT environments, the structural relationship between divisional CIOs and the group CIO needs to be examined and enhanced in order to ensure that there is synergy with group IT while not negatively impacting alignment at the divisional level or causing the business units to lose agility. IT may adopt a federal model but divisional IT needs to be centrally governed or under the governance of group IT, with clearly stipulated IT governance policy put in place.

To sum up, the structure of the organisation should be changed into a form that will improve alignment. This structure should be examined holistically to ensure that there is business alignment (and by extension IT alignment) before business-IT alignment is sought. One of the related studies, Broadbent and Weill (1993), also identified structural alignment as a success factor for business-IT alignment but referred to it as "organisational structure that complements strategy."

#### **4.2.13 CIO is a Member of the Executive Management Team (EMT)**

The research data indicated that the CIO being a member of the EMT is a crucial success factor for business-IT alignment. Prior related studies reported this success factor as top management demonstrating executive support or commitment to the strategic use of IT (Broadbent & Weill, 1993; Cohen & Toleman, 2006; Luftman & Kempaiah, 2008; Teo & Ang, 1999). As an indication of the important nature of this factor, CIO-5 stressed:

*"Probably to me the biggest factor to make sure your business-IT alignment is: whatever you do from IT perspective, you need to start at the group executive. If you try to do anything from business-IT alignment at a lower level that hasn't got executive support, it always runs into trouble ...*

*So to me the biggest factor to make sure things are aligned is first get the executive on your side and then you can take it from there.” (Emphasis added.)*

The data also revealed that the CIO being a member of the EMT indicates whether IT is viewed as strategic by the firm and accorded this importance. For instance, CIO-10 stated:

*“Because of the issue of alignment ... you’ve got to make sure that the decision making is at the right level for the strategic decisions to be taken to make sure alignment gets done. And then I’ve got practical examples we have been shown; it so has been hard to get decisions taken because maybe the authority wasn’t pushed as high as possible ...” (Emphasis added.)*

In addition, CIO-2 commented:

*“It (IT) should be sitting on the Board; it should be sitting at what we call the EMT level. Being within a silo one level down, it tends to then be a support service where it is currently positioned ...” (Emphasis added.)*

It was also observed that CIOs don’t mind reporting to other senior executives as a result of the CEO’s busy schedule but deem it essential that they are nonetheless members of the EMT. For instance, CIO-5 commented:

*“... because I report to the Financial Director, I don’t report to the Group CEO; I am not part of the core group executive team, he represents me on that and that is a big negative in the current arrangement and does impact alignment between IT and business.... In my opinion it doesn’t matter who I report to as long as I am part of that executive group.” (Emphasis added.)*

The research data also highlighted the positive impact this success factor has on alignment. For instance, CIO-1 stated:

*“A huge impact (i.e., impact of the CIO being a member of EMT on alignment). IT elevated to an executive level is an indication that IT is relevant in terms of business success.... So there's a huge impact on strategic decisions as well as operational decisions.” (Emphasis added.)*

In conclusion, it is important that the CIO is a member of the EMT as it is an indication of senior management support for IT, and it shows that IT is viewed or perceived as strategic to the business. A possible explanation for the emergence of this success factor is that the CIO being a member of the EMT effectively makes business-IT alignment a top executive agenda, and will ensure that IT has the maximum support that it can leverage to align successfully with the business.

#### **4.2.14 IT Governance**

IT governance “is an integral part of enterprise governance and consists of the leadership and organisational structures and processes that ensure that the organisation’s IT sustains and extends the organisation’s strategies and objectives” (ITGI, 2003, p. 10). Enterprise governance also refers to corporate governance which applies to the entire organisation. The four goals of IT governance are to achieve business-IT alignment, realization of the business value of IT, proper management of IT resources, and IT risk management (ITGI, 2003). The King report on governance in South Africa which is a code of principles and practices set on a ‘comply or explain’ basis provides guidelines for good corporate governance practices in firms, particularly major ones. The JSE Limited mandates all listed firms to comply with the requirements of the King report.

The current version of this report (King III) incorporates IT governance for the first time with one of the principles – “The board should ensure that IT is aligned with business objectives and sustainability,” detailing the required IT governance practices (IoDSA, 2009, p. 90-94). With King III, company boards are being ‘prodded’ to accord IT its strategic importance and make IT governance a board agenda. This report, inter alia, states: “It is important for the board to take ownership of IT

governance and set the direction management should follow,” and “Larger companies may consider appointing a chief information officer to take responsibility for the implementation and monitoring of IT governance within the company.”

The background information presented so far serves to contextualize the information presented in this section. In actual terms, CIO-2 details the main elements of his firm's IT governance framework:

*“It (IT governance framework) is based on a lot of stuff: it's based on ITIL (IT Infrastructure Library), it's based on COBIT (Control Objectives for Information and Related Technology), it's based on the King III stuff. So yeah we've got a lot of policies and standards that we take into that.” (Emphasis added.)*

Firms need to adopt an IT governance framework or policy that also includes these two areas - clear ownership of business-IT alignment and IT risk management. The analysis of data collected indicated these two areas or rather sub-categories are connected to IT governance. An indication of the connection between IT risk management and IT governance were CIO-7's comments:

*“... I think it is very important that risk is clearly described. So if you invest X amount, then understand that Y happens; this will be the impact and this is the risk exposure. You spend Y amount of money, you will reduce that risk exposure but this is what it's gonna cost. So I think the big thing is risk, it's the most important thing in any IT governance - what is the risk exposure.” (Emphasis added.)*

Also, CIO-9 stated:

*“[The university] has set up the correct structures to address risk. We know that King III (governance report) says IT reports risks to a Risk Committee. So yes we have a Risk Committee and I am on that Risk Committee and I am presenting the high level risk management measurements to them already. Risk Committee then reports to Audit Committee; so audit reports to Council.” (Emphasis added.)*

The connection between clear ownership or responsibility for business-IT alignment and IT governance also emerged from the research data. For instance CIO-2, in response to a question on who was responsible for or had clear ownership of business-IT alignment, stated:

*"It sits within the governance structure. It doesn't sit within a line function. Although we obviously are role players, we have what we call the [ICT] subcommittee which is really the IT board, and that is responsible."*  
(Emphasis added.)

However, some of the organisations whose CIOs were interviewed either lacked ownership of alignment or ownership of alignment was not clear. For instance, CIO-3 commented:

*"... we are in a state of flux (with respect to ownership of alignment) at the moment, we haven't decided which way we are gonna go yet, so we haven't made that decision yet. I actually believe that a component of the CIO's function should be responsible for that type of alignment."*  
(Emphasis added.)

Also, CIO-5 stated:

*"There is no clear ownership (of alignment) at this stage ... I am actually in the process now of doing exactly that is establishing a mandate at the group board level that they can provide to us so we can establish ownership and responsibilities and that's gonna happen over next three to four months because it is a problem at the moment as a group. We have a group IT department and we have also federated IT areas and to what extent I can have the ability to make decisions in those federated IT areas is extremely unclear."* (Emphasis added.)

Regarding who should have ownership of alignment, opinions differed. For instance, CIO-1 stated:

*"If it is a private sector, it (alignment) should be owned by the CEO. If it is in government, it should be owned by the [Strategy Division] in terms of*

*the government Act ... From where I am sitting and my experience, if you do that (make CIO responsible/have ownership of alignment), everything then becomes IT. No, I would rather say it should be owned by a non-IT person but supported by the CIO. The reason being that if a CIO drives alignment it becomes technology, it becomes the view of IT department which most business departments or business heads don't like it and that is where they either sabotage it; they don't give you the support. But if you give the ownership to them, it becomes their responsibility to make sure that this alignment takes place.... if he (CEO) owns alignment, it makes it more neutral and therefore solicits the views of the business much as the ICT views are also incorporated.” (Emphasis added.)*

On the contrary, CIO-8 commented:

*“It should be the CIO (who is responsible for and has ownership of BITA), it can't be anybody else because the CIO needs to understand the business and the ICT environment and he needs to be able to bridge the gap between business and IT. That to me is the only person that can answer it.” (Emphasis added.)*

Focusing on who should have ownership of alignment, it seems plausible to state that for the purpose of improving business-IT alignment, it would be better to have this vested in a non-IT person such as the CEO in the case of companies without Boards, or the Board where they exist. However, this duty should then be delegated to the CIO who constantly keeps these parties abreast of developments.

The positive impact that IT governance has on alignment also emerged from the data. For instance, CIO-6 commented:

*“... the reason why you set up IT governance is to get business and IT alignment not just as far as projects or change initiatives are concerned but also in as far as strategy, architecture, policy, et cetera is concerned. It's the reason for having it.” (Emphasis added.)*

In addition, CIO-2 stated:

*“... we found that the world changes so quickly and the business priorities are moving continuously that by creating governance structures that are a better representation of both IT and the business, we are guaranteed to continuously be aligned because we do things together rather than do things in separate activities and from time to time come together to see are we aligned.” (Emphasis added.)*

In conclusion, IT governance should be vested in the Board or other alternative top governance structure, but with the CIO responsible for execution and the provision of feedback to such bodies. The emergence of this success factor can be attributed to the fact that an IT governance framework that addresses ownership of business-IT alignment and IT risk management sends a message to the business that IT is effectively governed. In addition, it reflects that IT has addressed its risk impacts on the business and should therefore be able to elicit the required cooperation from the business that will ensure business-IT alignment.

### **4.3 Theoretical Framework**

The success factors for business-IT alignment identified in this study have been developed or consolidated into a theoretical framework as shown in Figure 6. This framework shows the relationships that exist among the success factors. Frameworks and models represent some of the expressions of theory (Gregor, 2006). This theoretical framework includes 14 success factors and 12 relationships that exist among them. Whetten (1989) expounds that a complete theory should answer the following four questions: “what,” “how,” “why,” and “who, where, and when.” Discussions on these as detailed in this section follow.

The “what” question refers to which factors constitute the theory presented on the phenomena under investigation, while ensuring comprehensiveness and parsimony? This question was answered by presenting 14 success factors for business-IT alignment which are comprehensive judging by the research objectives, and also parsimonious judging by some success factors having subcategories. For instance,

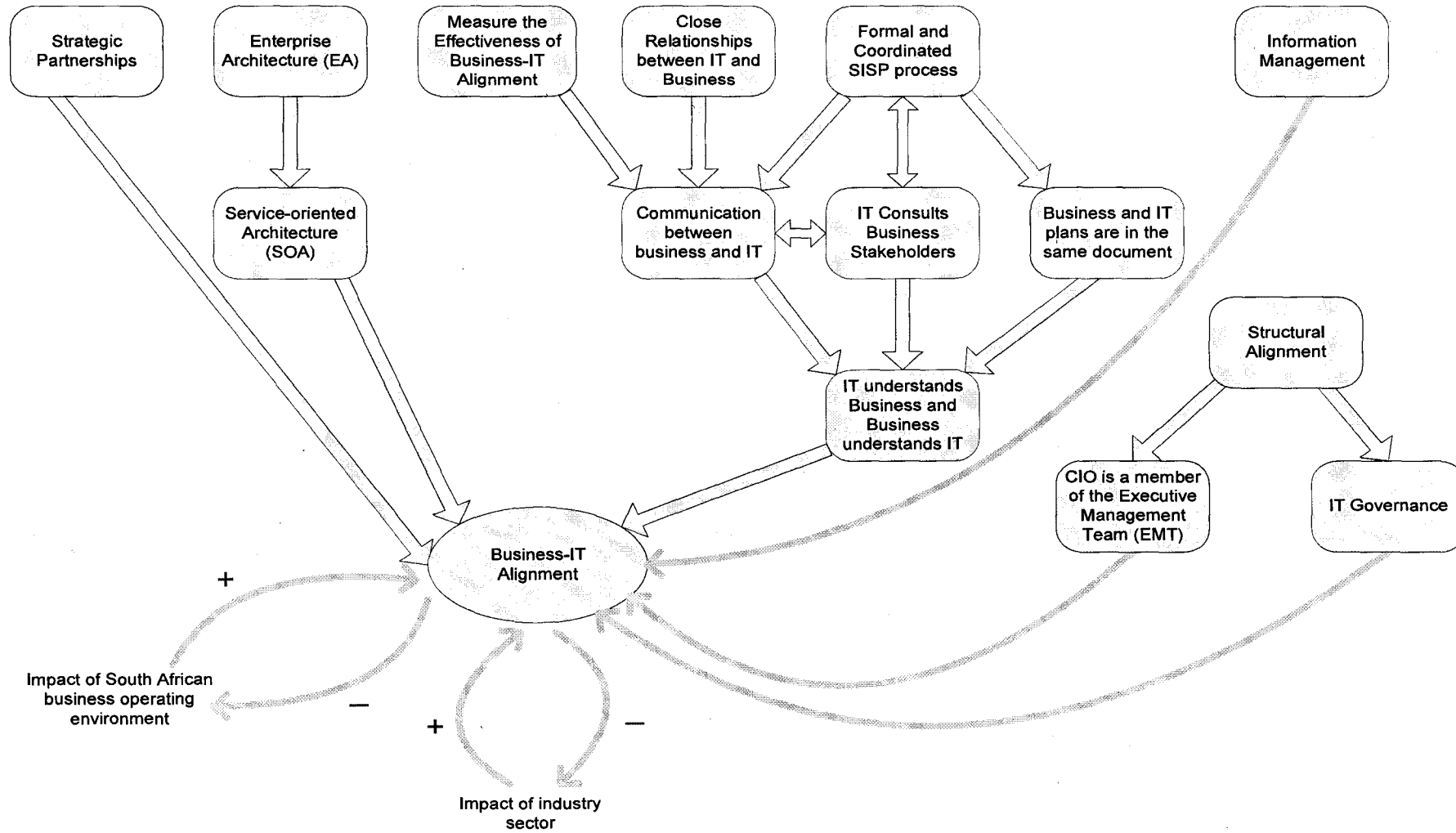


Figure 6: Theoretical framework of success factors for business-IT alignment

clear ownership of business-IT alignment and IT risk management are subcategories under the IT governance category.

The “how” question refers to the relationships among the factors and denotes causality. The theoretical framework answers this question as 12 relationships were discovered to exist among the 14 success factors for business-IT alignment.

The “why” question requires that reasons be advanced to justify the emergence of factors and the establishment of causal relationships among the factors. In this chapter, relevant text segments and the underlying logic or arguments that provide justification for the emergence of each success factor for business-IT alignment as well as relationships among the success factors are provided.

The “who, where, and when” questions “place limitations on the propositions generated from a theoretical model. These temporal and contextual factors (i.e., the “who, where, and when” questions) set the boundaries of generalizability, and as such constitute the range of the theory” (Whetten, 1989, p. 492). Regarding the “who” question, this theoretical framework is relevant to academia as it is a contribution to theory development. It also has practical relevance as this framework can be used to guide the achievement of business-IT alignment in practice. Regarding the “where” question, although this study involved the CIOs of major South African firms, it still has a good measure of applicability to similar large organisations in other countries as business-IT alignment is a general phenomenon. Focusing on the “when” question which involves timing; this study is expected to have continued relevance but with future studies required to update the findings. This is because success factors for business-IT alignment tend to evolve over time.

This theoretical framework therefore represents complete theory as it addresses all the building blocks of theory development as expounded by Whetten’s (1989) research paper. The theoretical framework also reflects the impact of the South African business operating environment and the impact of the industry sector of firms

on the success factors for alignment. The positive and negative symbols connecting 'these' to business-IT alignment indicate that they have both positive and negative impacts on business-IT alignment. The positive symbol indicates a contribution while the negative symbol indicates a subtraction or negative effect on alignment. Therefore, it is necessary to take these impacts into consideration while examining the success factors for business-IT alignment; the positive impacts of 'these constructs' should be maximised while their negative impacts should be minimised.

The success factors identified by this study are all important for achieving business-IT alignment. However, judging by the data gathered and its subsequent analysis, four factors were discovered to be crucial, i.e., more important than others. These four success factors are communication between business and IT, formal and coordinated SISP process, IT understands business and business understands IT, and CIO is a member of the EMT. Among these four factors, 'communication between business and IT' was discovered to be the most important. A close observation of the theoretical framework reveals how the importance of three of these four 'more important' success factors was decided. This decision was reached by considering the number of factors they link to or the number of factors linking to them. "Formal and coordinated SISP process" is the only factor that links or leads to three other success factors; this confirms that this factor is foundational to the success of business-IT alignment. "IT understands business and business understands IT" has three other success factors that link or lead to it. "Communication between business and IT" has four other success factors that link or lead to it, thus reflecting its position as the most important success factor for business-IT alignment. The fourth factor, CIO is a member of the EMT was deemed as 'more important' through the analysis of the data collected.

#### **4.4 Relationships Discovered**

As reflected in the theoretical framework, 12 relationships between success factors for business-IT alignment were discovered. The presentation of these follows.

#### 4.4.1 Relationship between EA and SOA

The relationship between EA and SOA emerged from the research data. The nature of this relationship is that EA should link to SOA, i.e., EA must be put in place before SOA is adopted. An indication of this relationship is reflected in CIO-8's comments:

*“SOA – we’ve got the SOA capability in terms of our software that we’ve acquired but we not gonna venture into SOA before we don’t have a full understanding of our current architecture. We first want to understand the ‘as is’ in terms of all the architecture and then we can say okay how can SOA now enable some of this. But you can’t go to SOA if you don’t know what you want to service.... Yes of course (there is a link between EA and SOA), but EA is before SOA.... But if you take this by the other side and you say I first want to ESOA (Enterprise SOA) but you don’t know what you actually wanna achieve, according to me it’s gonna be a disaster.” (Emphasis added.)*

It is important that firms should adhere to this principle and ensure that they have an architectural blueprint of the enterprise which EA offers before undertaking SOA implementation in order for it to yield value. Gruman (2006) also confirmed the nature of this relationship.

#### 4.4.2 Relationship between Measuring the Effectiveness of Alignment and Communication between Business and IT

The nature of this relationship is that measuring the effectiveness of alignment links or leads to communication between business and IT. Thus, in the process of measuring the effectiveness of business-IT alignment initiatives, communication between business and IT improves. An indication of this relationship in the data gathered is CIO-8's comments:

*“... actual measurement of the alignment is also done on projects. So if it’s a project that the business want, then we will say okay so what is the key objectives that we have to satisfy in this project and after a time we will measure it and we will give them feedback on that.” (Emphasis added.)*

Likewise, CIO-4 similarly commented:

*"... we have twice a year a CEO day that we actually sit with the CEO and other board of directors to assess the effectiveness of IT and then we get direct feedback at that session." (Emphasis added.)*

A possible explanation for this relationship is that the measurement of alignment always generates a need to report the findings or provide feedback which inevitably leads to communication between business and IT.

#### **4.4.3 Relationship between Close Relationships between IT and Business, and Communication between Business and IT**

The nature of this relationship is that close relationships between IT and business links or leads to communication between business and IT. Comments by CIOs which are indicative of this relationship follow.

CIO-10 when asked if having close working and personal relationships with the person the CIO reports to improves alignment, stated:

*"...it's got to do with communication; you know for the person you goes to, basically you communicate much. I think that's the issue, so the more relaxed way you will do that type of thing." (Emphasis added.)*

CIO-4 when asked if seeing the CEO practically on a daily basis improved alignment in this firm, commented:

*"Yeah, for certain yeah. I think the fact that I know what's happening in the business all the time, it actually gives me an insight in terms of what it is that I've got to focus on as a CIO" (Emphasis added.)*

Communication is an expected outcome of relating with people. The emphasised words indicate that close relationships between the CIO and CEO leads to communication.

#### 4.4.4 Bidirectional Relationship between Formal and Coordinated SISP Process and IT Consults Business Stakeholders, and Relationship between Formal and Coordinated SISP Process and Communication between Business and IT

The title of this section is a combination of two relationship forms which have been compounded because some coded text segments bear both relationship forms. The following statement by CIO-8 is indicative of the bidirectional relationship between a formal and coordinated SISP process and IT consults business stakeholders:

*“Once a year we’ve got a planning session. Firstly, we go to the executive team and we ask them: What is their strategic plan? Then we go to each and every business unit executive team (this involves consultation, and reflects the link from a formal and coordinated SISP process to IT consults business stakeholders); then we take that information as input for our own strategic planning (information received from consultation is now used as further input into the SISP process – this involves link from consultation to SISP). So we use the business input, so there we get the alignment piece ...” (Emphasis added.)*

The following comments by CIOs bear both relationship forms. For instance, CIO-5 while describing the firm’s SISP process stated:

*“... we’ve gone back to basics and we started step one and got all the business inputs, rechecked the drivers and that is when we engage business on a much more formal level and basically what happened two weeks ago, three weeks ago, every executive from each business area presented their business strategies to the [ICT] forum (this involves consultation, and reflects the link from SISP to consultation). We’ve now consolidated all that information and we go back to them and say this is how we understand your business, is it right (this involves communication, and reflects the link from SISP to communication)? And then we will develop our IT strategy.” (Emphasis added.)*

Likewise, CIO-8 while also describing his firm’s SISP process stressed:

“... business can see I’ve listened and we giving feedback (IT has listened or consulted and is giving feedback which is communication – thereby reflecting both relationship forms). Normally we just listen, we gather all the information, then we’d go off.” (*Emphasis added.*)

To sum up, the bidirectional link or relationship between formal and coordinated SISP process, and IT consults business stakeholders, stresses the importance to the SISP process, of IT consulting the business. This relationship can be explained by the fact that since the goal of the SISP process is to achieve business-IT alignment, IT consulting business stakeholders ought to occur during the process. Also, the other relationship highlights that a formal and coordinated SISP process will lead to or improves the communication between business and IT within the firm. A likely explanation for this relationship is that a formal and coordinated SISP process that involves cross-inputs between business and IT personnel should facilitate communication between them.

#### **4.4.5 Bi-directional Relationship between Communication between Business and IT, and IT Consults Business Stakeholders**

The research data revealed that ‘IT consults business stakeholders’ leads or links to ‘communication between business and IT.’ An indication of this can be observed from the following statement by CIO-5:

“We involve business a lot more into that process into the five-year plan (IT strategy) and the business comes to us and tell us what their plans are (involves consultation). We then as a group will consolidate that and take that back to them (this feedback process involves communication) to make sure we’ve heard them properly. Once we have done that, then we will start setting up the strategy.” (*Emphasis added.*)

Also, CIO-8 while commenting on the SISP process, stated:

“... because suddenly business can see I’ve listened and we giving feedback (IT has listened or consulted and is giving feedback which is

*communication). Normally we just listen, we gather all the information, then we'd go off." (Emphasis added.)*

The desire for communication can also drive or lead to consultation. The link from 'communication between business and IT' to 'IT consults business stakeholders' can be observed from statements made by CIO-8:

*"What we've now start doing; as from this year, we will have more regular communication. So we will meet once a quarter, we will meet with the executive team (i.e., at group level) ... then once a quarter we will meet with the executive teams of each division to also look at alignment (links to consultation), and then once a month we will look lower down the operational, but most probably that won't be myself and [my colleague]; we will actually delegate that into our supporting structures. So we will focus on IT and business alignment in the one session and the other session will be just purely strategic – where do business want to take their IT investment? So that we have both." (Emphasis added.)*

In conclusion, there is a bidirectional relationship or link between 'communication between business and IT' and 'IT consults business stakeholders.' Thus, 'consultation' should lead to 'communication,' and vice versa. The underlying logic which likely supports this relationship is that consultation between business and IT personnel should facilitate communication between them; and the desire to communicate should also lead to consultation.

#### **4.4.6 Relationship between Formal and Coordinated SISP Process, and Business and IT plans are in the same Document**

The production of plans, be it business or IT plans, is a usual consequence of the strategic planning process. Thus, the production of IT plans is an expected outcome of the SISP process. This link between 'formal and coordinated SISP process' and 'business and IT plans are in the same document' emerged from the research data. An illustration of this sort of relationship can be observed from CIO-1's statement:

*“Strategic IT planning which is invested in the CIO is always done after the business strategy has being architected if I may put it that way.... So in the planning stage, they (representative from IT) go and sit with the business to plan before we plan and they bring the plans that have been signed off by the business unit; I bring my plan (IT plan), sign it off and then we all come together and consolidate it under the [Strategy Division]. Then that becomes the total strategic plan of the organisation with the business plan (i.e., business and IT plans are in the same document). Then that is submitted to the Director General of the ministry and then it goes to the Minister to sign; then any money that is sitting in is then taken to Treasury for the budget speech.” (Emphasis added.)*

#### **4.4.7 Relationship between Business and IT plans are in the same document, and IT Understands Business and Business Understands IT**

The research data revealed a relationship in which the business and IT plans in the same document led to IT understanding the business, and business understanding IT. An indication of this was CIO-3’s response when asked if business and IT plans linked together in one document helps other personnel understand what IT is doing and consequently improve alignment. He stated:

*“Correct, that’s why when you look at this thing (CIO presents a model), that’s direction, that’s control, that’s execution; it should be combined. I believe at this moment they are not being combined into a single direction, there are people pulling in separate directions (indicates a lack of understanding) and money is being wasted.” (Emphasis added.)*

CIO-3’s comment highlights the accurateness of this relationship by drawing comparisons with a one-page alignment model. A likely reason for the emergence of this relationship is that if business and IT plans are in the same document, it should promote business and IT personnel’s awareness of each other’s plans thereby improving the mutual understanding between them.

#### 4.4.8 Relationship between IT Consults Business Stakeholders, and IT Understands Business and Business Understands IT

The relationship between IT consults business stakeholders, and IT understands business and business understands IT, otherwise known as mutual understanding between business and IT, emerged from the research data. An indication of this relationship was CIO-5's comments:

*"A session we did couple of weeks ago where we got a executive member from each business executive (i.e., from each business division) to come and tell us what their strategies are (this involves consultation). In thirty years in the company, that's the first time in one day I have heard all the business strategies articulated in such a way that it was actually of value to a group of people. Interesting enough, both business and the IT people have commented positively about that workshop that we had (mutual understanding between business and IT results)." (Emphasis added.)*

Also, an indication of this relationship was CIO-9's comments on steps taken to improve alignment. He responded:

*"Understanding the user; understanding what the business wants. I don't think that was very clear previously." (Emphasis added.)*

When CIO-9 was asked to elaborate on 'understanding what the business wants,' the analysis of his comments shows that there is a link or relationship between consultation and mutual understanding between business and IT. He stated:

*"You need to consult them (the business) and interpret what the mission and vision, and strategic goals of the business is." (Emphasis added.)*

These highlighted comments by these CIOs clearly demonstrate that IT consulting the business leads to mutual understanding between business and IT. The logical explanation for this relationship is that IT consulting the business should facilitate interactions between business and IT personnel thereby promoting mutual understanding between them.

#### 4.4.9 Relationship between Communication between Business and IT, and IT Understands Business and Business Understands IT

The relationship linking communication between business and IT, and IT understands the business and business understands IT emerged from the research data. An indication of this relationship can be observed from CIO-10's comments:

*"The fact that IT reports to someone that doesn't have to have IT knowledge on a more senior level means that there is a bit of a problem in terms of governance issues. So we can interact quite a bit with myself and my superior itself; but he must also understand what the issues are. So I interact a lot with him because I then actually get exposure to what the issues are." (Emphasis added.)*

The last sentence in the quote indicates that CIO-9's communication with boss whom he reports to provides for exposure and associated understanding of business issues. Understanding is often both ways in that IT understanding the business invariably means business will also understand IT in the process. Thus, communication between business and IT leads to business and IT mutually understanding each other.

#### 4.4.10 Relationship between Structural Alignment and CIO is a member of the EMT

Since structural alignment refers to fit in the organisational structure (Chan, 2002), the CIO being an EMT member sits within the organisational structure and therefore should result from ensuring the structural alignment of the firm. The data gathered also attests to this relationship that structural alignment links to the CIO being a member of the EMT. For instance, CIO-2 in reaction to a question regarding the effect on alignment of the CIO not being an EMT member, stated:

*"It means that the IT alignment is taking place through other governance structures and through a lot of interaction at an operational level and not at an executive level. So there is a lot more effort required to ensure IT*

*alignment and to make sure that the business is aligned with itself, because that is not very often the case.” (Emphasis added.)*

In addition, CIO-8 stressed:

*“But you see in South Africa, every company is structured differently. There is a lot of companies in the food manufacturing industry that you will find that the actual person that plays the role of a CIO will report to the Financial Director and the Financial Director will be represented on the executive team; and in other companies you will find that the person playing the role that I am playing is on the executive team. But you see that it differs from company to company; but my belief is the CIO should be on the executive team.” (Emphasis added.)*

To sum up, firms should consider appointing the CIO as a member of the EMT as one of the ways of improving the structural alignment of the organisation. Stating this in another way, efforts to improve the structural alignment of the firm should necessitate the CIO being appointed as a member of the EMT.

#### **4.4.11 Relationship between Structural Alignment and IT Governance**

Data analysis revealed that there is a relationship linking structural alignment to IT governance. In response to questions on what should be put in place (i.e., precedent) in order to have a sound IT governance framework, the responses of CIOs confirmed the existence of this relationship. For instance, CIO-6 stated:

*“... the one thing that I always believe in is, you should have a role that looks at it (IT governance), that is quite focused on it. You know if I do information security I'll say you must have a security officer; so if you do IT governance I'll say you must have a CIO. So you know for me that's important; I think it's also important to have a steering committee amongst others, so you need to create the bodies. I think you need to understand quite well what the other bodies of the board are, and how you relate to them like the risk committee and the audit committee.... But yes definitely I*

*do believe there are few critical key levers that should be put in place and you must have some kind of document that says who is responsible for what, and that must be very clear.* (Emphasis added.)

The statement by CIO-6 alludes to the structure of the organisation and alignment within its structures as a prelude to IT governance. In the same vein, CIO-8 commented:

*“Yeah I think if you look at people and process, you need to make somebody responsible for driving governance; and then obviously you need the change of internal processes because if you have to adhere to something you have to change your processes. So it will have an effect on people and processes.”* (Emphasis added.)

The statement made by CIO-8 also refers to elements of structural alignment as a precedent to putting in place an IT governance framework or policy. A possible explanation for this relationship is that IT governance cannot be implemented without taking into account how it fits the organisational structure.

#### **4.5 Impact of the South African business operating environment**

The impact of the South African business operating environment on the success factors for alignment was discovered to be both positive, and negative or challenging. The positives in the environment which were highlighted in the data gathered are innovativeness and competitiveness of the environment, good work ethics, and the King III report.

The South African business operating environment is seen as competitive and innovative. For instance, CIO-4 stated:

*“I mean we are in a highly competitive environment ... South Africa is quite an innovative country, I think in South Africa, we make lots of things happen. I would say the first world - America, Europe, Australia, I think they've got lots of legacy embedded in their way of working and I don't*

*think they are as flexible and as agile as a typical South African company will be .... by us being able to roll out solutions as quickly as we can, it improves your other efficiencies or your reach to your customers or you know, your communication to your customers. So it improves your effectiveness as an organisation.* (Emphasis added.)

CIOs interviewed also highlighted that South Africans have good work ethics. For instance, CIO-3 stated:

*"I do however believe that a well educated urban South African can do more than many individuals I have met from Norway, Germany, Switzerland, Italy, France, London et cetera. We have a certain work ethic which is impressive. I am a bit concerned now whether that work ethic still exists." (Emphasis added.)*

Likewise, CIO-8 commented:

*"I think SA can be very proud of the kind of people that we've got; I think we are very proud nation and I think we've got very good work ethics and if I talk about work ethics it's people that are willing to go the extra mile and the reason why that is so is that South Africa we've got a hunger for knowledge." (Emphasis added.)*

The King III report on corporate governance has been pivotal in South Africa towards "pushing" IT on the agenda for Board discussions. Consequently, companies are literally been goaded into adopting IT best practices and ensuring IT governance at the highest levels. For instance, CIO-5 stressed:

*"Up till very very recently, it (business-IT alignment) hasn't even been an agenda item. So, the topic around business-IT alignment were in research companies' papers and things like that. There was never a topic that was really discussed to a large degree in [this organisation]. However in the last three to six months, those questions have actually come out at board level, where they have actually started asking us questions - how well is IT aligned; how well is IT investments aligned? I think some of that might*

*have to do with King III ... I as a group CIO think there is a lot of positives IT can get out of King III in getting a improved business-IT alignment.*  
(Emphasis added.)

In addition, CIO-6 stated:

*"We used to have an IT governance philosophy, now that we've got King III, we will have an IT governance policy."* (Emphasis added.)

The negatives or challenges identified in the environment are shortage of skills, including IT skills; bandwidth; and the inadequacy of financial resources. The shortage of IT skills in South Africa was highly stressed by CIOs interviewed. Recent studies estimate a shortage of 70,000 IT skills (ITWeb, 2008). For instance CIO-5 stated:

*"... the other one is a skills issue, we battle I think very much in South Africa to have really good skilled people who understand IT and understand the products that are being sold by the vendors. So, we really battle with the vendors for them to actually understand the products they sell us.... if you put a personal resource onto a project you expect it to take three months. Because the skill isn't at the level that it should be, it takes six months. So, it does impact that and the result of that from alignment point of view is the trust issue between business and IT, because there is a perception that if IT does it, it will be late, it will go over-budget and this lack of trust between business and IT then comes after that situation."*  
(Emphasis added.)

Likewise CIO-7 commented:

*"... available skill sets within organisations is a challenge and not necessarily technical skill sets but skill sets that can operate in both the business frame of mind and an IT frame of mind; so your typical business analyst type of person." (Emphasis added.)*

In order to address the shortage of IT skills, CIOs are adopting varying measures. For instance, CIO-2 recruits business people into IT, which also ends up promoting mutual understanding between business and IT personnel. He stated:

*"... I think there is an understanding and an appreciation that you don't just have to have an IT background to work in IT. That has emerged in the last few years especially after our big SAP-ERP project that you see more and more non-traditional IT people taking up IT roles.... We have seen a much closer alignment through the roles that people perform.... If we are recruiting for a infrastructural guy on the other side of the IT port, absolutely then they need a true IT and technology background."*  
(Emphasis added.)

In a similar vein, higher education institutions are utilising students to address the shortfall. This arrangement helps the student to gain much sought after experience, while the institution fills its job vacancies. For instance, CIO-10 stated:

*"... I don't think we addressed this specific resource problem very well as an institution but the opportunity is that after articulation is saying hang on, but then can't we use academic students to assist the process of support. They need experience; we can develop them into good working people out there with accompanying skills that sell and we benefit because the service that we deliver is okay. So we've got a mechanism that we've been following for a long period of time where we actually using students in a contract type labour." (Emphasis added.)*

The availability of bandwidth has also been a challenge in the SA environment. For instance, CIO-7 commented:

*"... we operate under ridiculous constraints and it's very sad and I think that the South African government is being so slow at deregulating the telecoms industry in South Africa.... So I operate across multiple geographies in multiple territories in multiple rural towns; my single biggest constraint is bandwidth across my rural areas." (Emphasis added.)*

Also, CIO-5 stated:

*"The two big challenges we have from IT is communications and bandwidth. Compared to the rest of the world we use a lot less bandwidth available at a lot higher price. So, from a strategic point of view especially when we use external companies, they sometimes find it difficult to understand why we do things differently. But because Europe and America they got piles of bandwidth at low cost, we can't do things like that." (Emphasis added.)*

CIOs interviewed also highlighted the inadequacy of financial resources as a challenge that they have to cope with. For instance, CIO-2 stated:

*"I think we are expected to do a lot with a lot less than what you would find anywhere else in the world. The IT budgets, the kind of investment in ICT in the South African context is low but in the government context even lower. One of the reasons [this municipality] has been relatively successful is that it has been able to increase its investments in ICT above what the average is for other municipalities. But still if you compare that to some international markets or levels, it is very low. We are under-funded, we are a low cost type of operation yet we are playing in the same environment as anybody else in the international station in terms of licensing and cost." (Emphasis added.)*

A means of reducing IT expenditure in view of the limited funds available through limiting IT expenditure to value-added systems and initiatives was highlighted by CIO-7 who stated:

*"... because of the ever changing environment and because of the fast moving nature of the business we have very, very, few nice-to-haves. So you will find compared to most other companies our IT spend as a percentage of turnover, or as percentage of labour force, or as percentage of whatever metric you wanna use is considerably lower. A large reason for that is we don't have nice-to-have, we have critical value add systems and solutions and processes to deliver an ice cold [drink] within an arm's*

*reach of desire; that is what we live by every single day.” (Emphasis added.)*

CIO-7 also added:

*“Well you go to some organisations, they are on their tenth version of BI tools and BI thing and they churn out hundreds of thousands of meaningless reports that no one actually looks at you know. Some of it is useful but I bet you if you did a BI survey out there, you would probably find five percent of what is churned out, and five percent of what is produced, five percent of what cost is put in is actually adding value as an example you know. I am not saying I don’t have a BI tool, I have a BI tool as well but it’s very honed in to what’s important to this business, five or six metrics per business area that’s it. So that’s an example. If I look at the waste in most other companies, it’s unbelievable, the IT waste, where companies don’t use their assets properly or efficiently ...” (Emphasis added.)*

In conclusion, data analysis revealed that the South African business operating environment both has positive and negative impacts on the success factors for alignment, and by extension business-IT alignment. It is therefore imperative that the positive impacts should be maximised or exploited as they could more or less assume the status of success factors, while the negative impacts or challenges should be minimised.

#### **4.6 Impact of Industry Sector of Firms**

This research found that the industry sector of firms has both positive impacts and negative impacts or challenges on the success factors for alignment, and by extension business-IT alignment. These impacts of the industry sector of firms on the success factors for alignment varied across firms in different industry sectors. As an illustration of the dual nature of the industry sector to improve or contribute to business-IT alignment, and to also impose challenges, CIO-1’s comments are apt:

*“... it (impact of industry sector on business-IT alignment) has improved and it's also imposing challenges.” (Emphasis added.)*

One challenge that firms in different industry sectors have to cope with in varying proportions is uncertainty. CIO-8's comment on uncertainty follows:

*“I don't think the level of uncertainty in food is any different from any other industry; the uncertainty in any environment is what is the economy gonna do next? Where is interest rate gonna go? Where is commodity prices gonna go? Because we buy wheat and maize and stuff on the commodity market.... I think there is a lot of uncertain factors, but that is true for a lot of companies and for a lot of industries.” (Emphasis added.)*

However, uncertainty seems to affect the retail industry sector more. For instance, CIO-3 stated:

*“As a retailer, we do not always know where are we going to be next year or what are we going to do tomorrow? .... So that's a bit difficult for IT; we can't deliver in IT on such short lead times, so it makes it a bit of a difficult relationship (with the business) at times.” (Emphasis added.)*

Considering the higher education sector, the peculiar collaboration that exists between IT directors of South African universities is a positive that enables them to leverage a large pool of knowledge towards aiding business-IT alignment initiatives in the various institutions. For instance, CIO-10 commented:

*“There have been very good things on the side of the broader sector from higher education point of view because of the way we've cooperated on the IT level. So we've got for instance within higher education, we've got HESA (i.e., Higher Education South Africa); HESA is like kind of cooperative organizing body for higher education, especially on the high level. What we've got on the IT side is we've got a organized body that came out, what's it, about fifteen years old at least, even longer, where they decided that IT directors could actually cooperate and now we've actually formalized that body (i.e., ASAUDIT), we talk directly to HESA*

*who actually made it clear that we can actually assist the process going forward. Because of the cooperation, that's actually added value.* (Emphasis added.)

Regarding the governmental sector, firms in this sector deal with the public. The expectation that IT can improve service delivery and enable government to deliver on its planned programmes is a positive that aids business-IT alignment. For instance, CIO-1 commented:

*"So, my industry or my sector is now driven by expectations of improved service delivery and therefore is linking to IT capability in improving service delivery.... we have to improve service delivery and they are relying on IT to improve service delivery."* (Emphasis added.)

The challenge discovered within the governmental sector is that of legislation at various tiers of government. For instance, CIO-2 stated:

*"Laws are passed that dictate in terms of how and what a local authority needs to do. Because we are so IT-enabled and automated, those legislative requirements then influence the way in which we build systems and have to maintain systems. I think one thing about this environment is the strong influence of the legislature doesn't allow business to necessarily have the kind of freedom that you might see within the private sector. In terms of how this translates to business-IT alignment means that we've got this law that says you will operate like that, and business and IT then have to do their bit to make sure we comply." (Emphasis added.)*

Considering the financial services sector, a challenge faced by firms is that due to legacy systems and the resulting data complexities that arise with keeping them operational in the light of current technologies. These legacy systems negatively impact on the firm's agility and ability to compete with newer start-up firms as stated by CIO-5:

“... in the insurance area, we used to be five to ten major players selling especially long term insurance, we all worked pretty similarly and there was very little competitive edge coming out of technology because we all did the same things, and the competitiveness came how did you service the customer and what was the quality of the product. These days that scenario has changed totally ... Little startup companies who have got no baggage and no legacy starting up insurance companies using current web-based technologies and they can move a lot faster, a lot more agile than us ... policies we have to keep for 30, 40, 50 years in our books; so we've got all that legacy. So we are really finding it difficult to stay competitive with the smaller startup companies who are lot more agile than us particularly from a web perspective.” (Emphasis added.)

Likewise, CIO-6 stated:

“... if you understand our data challenges and complexities, then you fully understand the challenges that we have. Let me just explain that; if you take a look at the systems that we run, we still run systems that were developed in Assembler, they are old, they are stable, et cetera. We've got policies; just remember one thing, when we sell a product it can last for 90 years, 100 years; we need to keep it alive and running and we have that in our old systems, we've got generations of systems. If you go overseas in this market place or in this industry, you'll find the same thing, major data issues.... To what degree does the industry have an impact on the way in which we view our projects? I think to a large degree it's got an impact ...” (Emphasis added.)

To sum up, the industry sector of firms has both positive impacts and negative impacts or challenges on the success factors for alignment, and by extension alignment itself. These impacts were found to vary across firms in different industry sectors. It is therefore imperative that the positives should be exploited or maximised as they could assume the status of success factors, and the negatives or challenges should be minimised.

## 4.7 Novel Success Factors Identified

Based on the identified related studies for this research, the following success factors are classified as novel as they have not been presented previously by these studies to the best of the researcher's knowledge.

- 1) Enterprise Architecture (EA)
- 2) Service-oriented Architecture (SOA)
- 3) Strategic partnerships
- 4) Measure effectiveness of business-IT alignment
- 5) Business and IT plans are in the same document
- 6) Information management
- 7) IT governance

It is necessary to highlight that Broadbent and Weill (1993) presented "appropriate technology architectures" as a success factor for business-IT alignment, which may appear to be related to EA and SOA. Though SOA is a form of technology (i.e., IT) architecture that is designed to support business agility, it is still worthy of being referred to as a novel success factor in this context as it is a specific technology (i.e., IT) architecture. On the other hand, EA is more than technology architecture; it is a logical representation or model of the entire enterprise which encompasses the information, process, product, application, and technical architectures (Jonkers et al., 2006). Thus, EA merits being referred to as a novel success factor for business-IT alignment in this context.

The other five novel success factors have not been previously presented by the related studies highlighted. There is a possibility that other studies, which are not 'success factors for business-IT alignment research,' may have stated that these factors have some positive influence on business-IT alignment. Nevertheless, the fact that major related studies highlighted in this distinct research area have not previously presented these factors means they can be referred to as novel success factors in this context.

## 4.8 Process and State Paradigms of Business-IT Alignment

The data gathered indicates that in practice, business-IT alignment is seen as a process and not as a state. The CIOs interviewed unanimously viewed business-IT alignment as a dynamic ongoing process. Nevertheless, it was discovered that the process view encompasses the state view of alignment. This indicates empirical support for the prior assumption before the start of data collection as highlighted in section 2.3 of the literature review chapter that since a process signifies changing states, the process view should encompass the state view. As an illustration, CIO- 2 stated:

*"It (business-IT alignment) is an ongoing process ... What counts as business-IT alignment in a generic sense? That's a continuum in my mind. We always want to be aligned to business and all our efforts must align to business and deliver business value. Otherwise IT is a means to itself. So, if IT is not delivering business value, then there is some serious problems. However, there are initiatives that take place and those have clearly start and end dates. Otherwise then you just have this continuous activity with no real value coming out. So, projects follow a project life cycle which has a very clearly defined process ..."* (Emphasis added.)

Also, CIO-10 commented:

*"It (business-IT alignment) is ongoing process ... there is a big difference between being ongoing and how you deal with it; you deal with it as projects in a certain way.... The issue is that to translate the broad objective into something that's tangible, through a project, so that becomes a timeline thing you know; and that's the way you work and in most times you do that."* (Emphasis added.)

In the same vein, CIO-9 added:

*"It (business-IT alignment) is ongoing; you measure on the instance. So we'll use COBIT to measure on that instance, but it would be ongoing project.... projects will (have) start and end dates, alignment will be continuous; and because goals might move."* (Emphasis added.)

Likewise, CIO-1 stated:

*"It (business-IT alignment) is a dynamic ongoing process. It is not an end to itself ... It (strategic IT planning) is an ongoing thing. When you develop the three-year plan; let's give a hypothetical situation, 2010/2011 is one year, 2011/2012 is one year, 2012/2013 is another year, so it's three years. But when we get to 2010, we extend that three years to another three years; so, it's a rolling three-year plan." (Emphasis added.)*

In conclusion, there is a need to re-examine the distinct characterizations of business-IT alignment as either a process or state which is prevalent in the research literature. Thus, judging by the research data, the process and state paradigms of business-IT alignment are not distinct; rather, the process view of alignment encompasses the state view of alignment.

#### **4.9 Social and Intellectual Dimensions of Business-IT Alignment**

The 14 success factors identified in this study include factors that influence both the social and intellectual dimensions of business-IT alignment. The five success factors that influence the social dimension are close relationships between IT and business, communication between business and IT, strategic partnerships, IT consults business stakeholders, and IT understands business and business understands IT. The six success factors that influence the intellectual dimension are EA, SOA, measure effectiveness of business-IT alignment, formal and coordinated SISP process, information management, and business and IT plans are in the same document.

Considering Reich and Benbasat's (2000, p. 82) definition of the intellectual dimension of alignment as "the state in which a high-quality set of interrelated IT and business plans exist," which appears to be similar to one of the success factors found to influence the intellectual dimension of alignment. This success factor – "business and IT plans are in the same document" which in effect means a single integrated business and IT plan, can still be regarded as influencing the intellectual

dimension of alignment as it is distinct from the definition of the intellectual dimension of alignment presented by Reich and Benbasat (2000). This assertion is based on the premise that the integration of business and IT plans in the same document increases the degree of interrelationship between business and IT plans thereby improving the intellectual dimension of business-IT alignment.

In addition, though not an objective of this research at the start, three success factors that influence another less highlighted alignment dimension emerged from the data. Chan and Reich (2007) referred to this dimension as the structural dimension. The identified success factors that influence the structural dimension of business-IT alignment are CIO is a member of the EMT, IT governance, and structural alignment.

Considering the four crucial or more important success factors earlier highlighted – formal and coordinated SISP process, communication between business and IT, IT understands business and business understands IT, and CIO is a member of the EMT. These four factors include two factors from the social dimension of alignment; one factor from the intellectual dimension; and one factor from the structural dimension. Reich and Benbasat (2000) stated that both social and intellectual dimensions are essential for achieving business-IT alignment. However, findings support the addition of the structural dimension to this statement. Thus, the coverage of the social, intellectual, and structural dimensions is essential for achieving business-IT alignment.

#### **4.10 Summary**

This chapter presented the findings of this research which also situates some of the contributions made by this study. The linkage or mapping of these findings to the research questions of this study follows.

The first research question dwells on the factors influencing the success of business-IT alignment, taking into consideration the coverage of the state and process

paradigms as well as the social and intellectual dimensions of alignment. Fourteen success factors for alignment were discovered and these spanned the social, intellectual, and structural dimensions of business-IT alignment. The success factors were classified into the business-IT alignment dimensions they influence. The structural dimension emerged in the course of the research and was not an objective of the research at the start as the reviewed literature on the 'success factors for alignment' research clearly made reference to the social and intellectual dimensions of alignment as being essential for the achievement of alignment (Reich & Benbasat, 2000). Thus, the research findings indicate that the coverage of the social, intellectual, and structural dimensions of alignment with regards to its success factors is essential for achieving business-IT alignment.

It is necessary to add that this study found that four out of the 14 success factors for alignment can be termed as crucial or more important than the others. These four success factors are communication between business and IT, formal and coordinated SISP process, IT understands business and business understands IT (mutual understanding between business and IT), and CIO is a member of the EMT. The social, intellectual, and structural dimensions of alignment all have success factors that influence them within these four 'more important' success factors. This further supports the finding that the coverage of the social, intellectual, and structural dimensions of business-IT alignment with regards to its success factors is essential for the achievement of business-IT alignment.

Also, three out of the four crucial or 'more important' success factors are generally similar to three of the five success factors found by Reich and Benbasat (2000, p. 99) which are "shared domain knowledge, communication between business and IT executives, and connections between business and IT planning." This further confirms that findings from "success factors for business-IT alignment research" are relevant to various countries as business-IT alignment is a general phenomenon. On the contrary, while Reich and Benbasat (2000) found that shared domain knowledge leads to or improves communication between business and IT executives, this research discovered instead that communication between business and IT

executives leads to mutual understanding between business and IT (also known as shared domain knowledge). It can be argued that communication between business and IT executives should precede and promote mutual understanding between business and IT executives particularly at the early stages, while IT and business executives' mutual understanding of each other's domains strengthens ongoing communication between them.

Regarding the state and process paradigms of alignment, the research literature has more or less characterized these state and process views of alignment as distinct (Chan & Reich, 2007). This research found that the state and process views of alignment are not distinct, but rather the process view of alignment encompasses the state view of alignment.

The second research question concerns the investigation of novel success factors for alignment. This call by Chan and Reich (2007) has been met and in the light of the already established context, seven novel success factors for business-IT alignment were discovered. Therefore, this study can state this as one of its contributions to research on the success factors for business-IT alignment.

The third research question involves investigating the relationships that exist among the success factors for alignment. This study discovered 12 relationships among the identified success factors for business-IT alignment. These 12 relationships can be observed upon the examination of the theoretical framework of success factors for alignment which was developed. The rationale for the importance attached to three of the four crucial or 'more important' success factors was based on examining the relationships among the success factors and judging from the number of factors they link to or the number of factors that link to them. On this basis, formal and coordinated SISP process, IT understands business and business understands IT, and communication between business and IT were deemed as 'more important' success factors with communication between business and IT emerging as the most important success factor for business-IT alignment. The fourth factor - CIO is a member of the EMT was deemed one of the 'more important' success factors

through the analysis of the research data. This study also found that a formal and coordinated SISP process is foundational to the success of business-IT alignment, thus confirming the statement highlighted earlier that "SISP is the first and fundamental step to alignment" (Huang & Hu, 2007, p. 175).

The two subsequent research questions concern identifying the impacts of the South African business operating environment and the industry sector of firms on the success factors for alignment. This study found that the South African business operating environment and the industry sector of firms have both positive and negative impacts on the success factors for business-IT alignment, and by extension business-IT alignment. For instance, positives identified within the South African business operating environment are competitive and innovative environment, good work ethics, and the King III report on corporate governance. The challenges or negatives identified are shortage of skills, including IT skills; bandwidth; and inadequate financial resources.

Focusing on the industry sector of firms, the positive and negative impacts this has on the success factors for alignment and by extension alignment was found to vary across firms in different industry sectors. For instance, a negative impact or challenge that firms in the different industry sectors considered have to face is uncertainty. A related study by Chan et al. (2006) listed environmental uncertainty, which was seen as a positive environmental impact as a success factor for alignment. In effect this study by Chan et al. (2006) presented environmental uncertainty as having a positive impact on alignment. On the contrary, CIOs interviewed cited uncertainty as a negative or challenge, with the retail industry sector being the most affected of all the industry sectors considered. This variance could possibly be due to the countries in which the studies were conducted; the Chan et al. (2006) study was conducted in USA and Canada, while this study involved South African firms. An instance of the positive impact that the industry sector has on the success factors for alignment concerns the expectations of IT improving service delivery in the governmental sector. This enables IT to receive

support for its initiatives as the improvement of service delivery in South Africa is a key goal of government at all levels.

To sum up the findings regarding the impacts of the South African business operating environment and the industry sector of firms on the success factors for business-IT alignment and by extension alignment itself. The positive impacts should be maximised as they could more or less assume the status of 'success factors,' while the negative impacts or challenges should be minimised. Therefore focus should not be placed entirely on the positive impacts, but also on avoiding or minimising the negative impacts. The finding that these 'impacts' vary across firms in different industry sectors lends support to Chan et al.'s (2006) observation that some success factors for alignment varied in significance across firms in different industry sectors. They considered various industry sectors including public and private institutions in the higher education sector. Therefore, this confirms that the industry sector of firms impacts on business-IT alignment. It is also pertinent to highlight that these 'impacts' of the business operating environment and the industry sector could vary from one country to another. Irrespective of the nature of these impacts, the positives should be maximised or exploited, while the negatives or challenges should be minimised.

The last research question concerns the form of the theoretical framework of success factors for business-IT alignment resulting from the findings of this study. This theoretical framework includes 14 success factors and 12 relationships that exist among them. The framework also reflects the positive and negative impacts of the South African business operating environment and the industry sector of firms on the success factors for alignment. These positive and negative impacts are indicated by positive and negative symbols that connect these 'impacts' to business-IT alignment, as reflected in the framework.

It is worth highlighting that the importance of adopting project management principles for the implementation of IT initiatives which are aligned to business objectives

emerged from the research data. There was unanimous agreement that it is critical for the proper implementation of IT initiatives. CIO-7 stressed this:

*"You can't implement them (IT initiatives) without it (project management principles); you won't be successful ..." (Emphasis added.)*

Also, CIO-4 stressed that firms have set up project management offices (PMO) to manage their project portfolio:

*"... we just brought the project office process in to manage all that a lot of projects and we needed to find a way of how we prioritize and manage it you know going forward." (Emphasis added.)*

However, the adoption of project management principles wasn't necessarily viewed as a success factor for business-IT alignment by CIOs. For instance, CIO-6 stated:

*"... in my mind the reason we have project and program management is to get the job done. So the techniques to really get alignment between business and IT should not be in project management. No it should be in the business cases that you build; in the business analysis that you do. So it should be in the technical process but definitely not in the project management process." (Emphasis added.)*

The next chapter presents the implications of the research findings which have been set out and discussed in this chapter.

## 5 Implication of Findings

### 5.1 Introduction

This chapter attempts to present more focused discussions on the implications of the findings presented in the preceding chapter. The next section details the implications of the findings from the perspective of theory development; and the subsequent section examines the research implications. The chapter continues with discussions centred on the implications for practice and the chapter ends with a summary of the main points highlighted.

### 5.2 Theory Development

Theory is central to research and there have been calls for strong theory at the core of the IS field (King & Lyytinen, 2004); and for the development of theories emanating from the IS discipline as the IS field has largely used theories borrowed from other disciplines (Weber, 2003). Top journals are insisting that research papers submitted should be grounded in theory (ASQ, 2010; MISQ, 2008). An examination of the research literature on theory building or development reveals that what constitutes theory has varying connotations. This section will attempt to bring these various perspectives together and situate this study's contribution to theory development in this context.

The dictionary of Sociology defines theory as "an account of the world which goes beyond what we can see and measure. It embraces a set of interrelated definitions and relationships that organizes our concepts of and understanding of the empirical world in a systematic way" (Marshall, 1998). Also, Bacharach (1989, p. 498) states that "theory may be viewed as a system of constructs and variables in which the constructs are related to each other by propositions and the variables are related to each other by hypotheses."

What constitutes theory or strong theory as the case may be, has received significant attention from researchers. Sutton and Staw (1995) posit that references to theory, data, lists of variables or constructs, diagrams, and hypotheses which

have often been used in lieu of theory do not constitute theory. In reaction to Sutton and Staw's (1995) research article, Weick (1995) states that they rather constitute the 'process of theorizing' and do not represent theory. However, Sutton and Staw (1995) state that references to theory, data, lists of variables or constructs, diagrams, and hypotheses only constitute theory when logical arguments have been presented to explain the reasons for their occurrence, i.e., when answers are provided to questions of "why." When this criterion is met, then it can be referred to as strong theory which in the view of Sutton and Staw (1995, p. 378) "delves into underlying processes so as to understand the systematic reasons for a particular occurrence or non-occurrence."

In terms of guidelines or requirements for building a complete or strong theory, one which is comprehensive is that set out by Whetten's (1989) research article which states that a complete theory should answer the following four questions: "what," "how," "why," and "who, where, and when." The explanation of these has been detailed in section 4.3 of Chapter 4. The "why" question demands that justifications or explanations be provided for the selection or emergence of variables or constructs and the ensuing causal relationships detected (Sutton & Staw, 1995; Whetten, 1989). The "what" and "how" questions typically result in a model or framework from which propositions can be derived; propositions should also provide answers to the "why" question (Whetten, 1989).

This study's contribution to theory development lies in the theoretical framework of success factors for business-IT alignment and the 17 propositions virtually derived from the framework. Most of the propositions have been developed from relationships observed in the framework. The justifications for the emergence of each success factor and the relationships among them which constitute the theoretical framework have been provided in the form of relevant text segments and explanation of the underlying logic that buttress them. All these have been presented as part of the findings in Chapter 4. Since the underlying logic or arguments which provide answers to the "why" question with regards to the derived propositions have

been largely highlighted in section 4.4 of Chapter 4, it is not necessary to repeat them in this section. The presentation of the derived propositions follows.

**Proposition 1:** Business-IT alignment can be achieved by maximising its success factors and exploiting the positives in the firm's industry sector and the national business operating environment, while minimising the negatives in these areas.

**Proposition 2:** Regarding alignment paradigms, the process view of business-IT alignment encompasses the state view of business-IT alignment.

**Proposition 3:** The coverage of the structural, social and intellectual dimensions, with regards to success factors for alignment, is essential for achieving business-IT alignment.

**Proposition 4:** SISP is foundational to the success of business-IT alignment.

**Proposition 5:** Communication between business and IT is the most important success factor for business-IT alignment.

**Proposition 6:** Putting the EA of the firm in place before SOA adoption enables the firm to derive significant benefits from SOA.

**Proposition 7:** The measurement of the effectiveness of business-IT alignment leads to or improves communication between business and IT.

**Proposition 8:** Close relationships between IT and business lead to or improve communication between business and IT.

**Proposition 9:** A formal and coordinated SISP process that involves cross-inputs between business and IT, use of external facilitator, and scenario planning leads to or improves communication between business and IT.

**Proposition 10:** A formal and coordinated SISP process that involves cross-inputs between business and IT, use of external facilitator, and scenario planning leads to IT consulting business stakeholders.

**Proposition 11:** A formal and coordinated SISP process that involves cross-inputs between business and IT, use of external facilitator, and scenario planning influences business and IT plans being in the same document.

**Proposition 12:** Communication between business and IT leads to or improves mutual understanding between business and IT.

**Proposition 13:** IT consulting business stakeholders leads to or improves communication between business and IT; and vice versa.

**Proposition 14:** IT consulting business stakeholders leads to or improves mutual understanding between business and IT.

**Proposition 15:** Business and IT plans being in the same document leads to or improves mutual understanding between business and IT.

**Proposition 16:** Structural alignment in an organisation can be enhanced by appointing the CIO as a member of the EMT.

**Proposition 17:** Structural alignment in an organisation can be enhanced by putting in place an IT governance framework or policy.

To sum up the theoretical contribution, the classification of the type of theory developed will be in order. Gregor (2006) proposed a taxonomy of five theory types for the classification of theory in IS research. These are theory for analysing; theory for explaining; theory for predicting; theory for explaining and predicting (type EP theory); and theory for design and action. Type EP theory normally involves presenting propositions and causal explanations (Gregor, 2006). The theory developed in this dissertation is a 'type EP theory' which includes a theoretical framework of success factors for business-IT alignment and testable propositions.

Finally, a highlight of how this theoretical contribution maps to the levels of theorizing. Llewelyn (2003, p. 663) introduced five levels of theorizing: "metaphor; differentiation; conceptualization; context-bound theorizing of settings; and context-free grand theorizing." The word "theorizing" was used in order to distance the article from the connotations associated with the word "theory", but references the same intended meaning. This study in the context of this research article, theorizes at level 4 which "*explains specific social, organisational or individual phenomena in their settings*. A range of differentiations and concepts will be tied together to construct a broader schema. Such schemas may either focus on specific issues at a particular

**Proposition 12:** Communication between business and IT leads to or improves mutual understanding between business and IT.

**Proposition 13:** IT consulting business stakeholders leads to or improves communication between business and IT; and vice versa.

**Proposition 14:** IT consulting business stakeholders leads to or improves mutual understanding between business and IT.

**Proposition 15:** Business and IT plans being in the same document leads to or improves mutual understanding between business and IT.

**Proposition 16:** Structural alignment in an organisation can be enhanced by appointing the CIO as a member of the EMT.

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level of analysis or explicate relationships between different levels of analysis” (Llewelyn, 2003, p. 674). This study investigated the factors influencing the success of business-IT alignment within the South African context; research findings though still have a good measure of applicability to other countries as well. This research in the South African context was undertaken through interviewing CIOs based on experiences within their organisations and the business environment (i.e., in their settings).

### 5.3 Research Implications

Research implications are taken to mean - “Moving forward; what do the findings of this study portray for research particularly in the research area under investigation?” The answers to these are detailed in this section.

The general inductive approach as set out by Thomas (2003, 2006) stipulates that the number of categories discovered in data should be between three and eight; and that the inductive coding process should adhere to the following:

The intended outcome of the process (of inductive coding) is to create a small number of summary categories (e.g., between three and eight categories) that in the evaluator’s view capture the key aspects of the themes identified in the raw data and are assessed to be the most important themes given the evaluation objectives. Inductive coding that finishes up with many major themes (e.g., more than eight) can be viewed as incomplete. In this case, some of the categories may need combining, or the evaluator must make hard decisions about which themes or categories are most important. (Thomas, 2006, p. 242)

However this research ended up with 14 categories of success factors for alignment, after ensuring the parsimony of the categories discovered as subcategories were nested in categories, and categories were combined. For instance, the following categories had nested subcategories – formal and coordinated SISP process and IT governance. In addition, categories were combined: an example of this is close relationships between IT and business which was actually a combination of two categories – close working relationship and close social/personal relationship.

Also, considering the related studies highlighted in this study, three out of these seven studies have success factors which are greater than 10 in number. Broadbent and Weill (1993) identified fifteen success factors; Luftman and Kempaiah (2008) highlighted 14 success factors; and Teo and Ang (1999) presented eighteen success factors. Thus, the arguments presented suggest that the general inductive approach should not be strictly seen as limiting the number of categories to between three and eight, but rather the number of categories that emerge from the raw data should be based on the research context. Research on the 'success factors for business-IT alignment' is likely to generate significant number of categories of success factors.

The success factors for business-IT alignment discovered in this study were explicitly classified into three alignment dimensions – social, intellectual, and structural. This should aid clear understanding of the study and such explicit declaration makes it possible for the researcher's thoughts to be accessed when the study is being analysed. The implication of this is that research on the 'success factors for business-IT alignment' should explicitly highlight the dimensions of alignment covered and clearly indicate the alignment dimension that is influenced by each success factor.

Focusing on the process and state paradigms of business-IT alignment, this study's findings that the process view of alignment encompasses the state view of alignment has implications for research on business-IT alignment. This research suggests that the distinct characterizations of the process and state views of alignment that has dominated this research area need to be re-examined. Another implication of this is that research on the 'success factors for business-IT alignment' should explicitly indicate how such study maps to business-IT alignment paradigms.

## **5.4 Implications for Practice**

The relevance of any academic study to practice should be clearly demonstrated as academic research cannot appear to be devoid of practical realities. In view of this, the implications of this study's findings for practice are set out in this section.

The theoretical framework of success factors for business-IT alignment resulting from this study has practical implications. Thus, CIOs and other interested parties can utilise the framework to guide the achievement of business-IT alignment in practice. For instance, the framework shows that communication between business and IT can be achieved or improved by measuring the effectiveness of alignment; building close relationships between IT and business; through IT consulting business stakeholders; and by adopting a formal and coordinated SISP process. Likewise, mutual understanding between business and IT can be achieved or improved by having business and IT plans in the same document; through IT consulting business stakeholders; and communication between business and IT.

The close readings of CIO comments presented as part of the requirements of the general inductive approach to data analysis adopted by this study can also be utilised to guide the achievement of business-IT alignment in practice. The general inductive approach requires that text segments should be quoted as a means of illustrating the meaning of concepts presented (Thomas, 2003, 2006). Thus, the quoted CIO comments presented to demonstrate “proof of concept” with respect to categories or concepts highlighted can be used as a guide for practical implementation.

Another practical implication of the research findings is that the impact of the South African business operating environment and the industry sector of firms should be taken into account when focusing on success factors for business-IT alignment. This is because they both have positive and negative impacts on the success factors for alignment and ultimately on business-IT alignment. Thus, CIOs while considering the success factors for achieving business-IT alignment, should also consider exploiting or maximising the ‘positives’ in the South African business operating environment and the firm’s industry sector, and minimise their ‘negatives’ or challenges.

## 5.5 Summary

The findings of this research were summarised and mapped to the research questions in section 4.10 of the preceding chapter. This led to the implications of the findings of this study as set out in this chapter. The implications for theory development, research and practice were presented.

Thus, the research findings as summarised in section 4.10 of Chapter 4 and the implications of the findings as detailed in this chapter constitute the contributions of this study.

## 6 Conclusions and Recommendations

### 6.1 Introduction

Business-IT alignment has persistently been one of the top management concerns globally for a couple of decades (Gottschalk et al., 2000; Luftman & Ben-Zvi, 2010). This is due to the perceived benefits it offers organisations such as maximising returns on IT investments thereby improving organisational performance (Avison et al., 2004; Byrd et al., 2006), and the achievement of competitive advantage (Luftman et al., 1993; Peppard & Ward, 2004). However, business-IT alignment is a dynamic and complex process that is challenging (Luftman & Kempaiah, 2007; Papp, 2005), but can be achieved by maximising its success factors or enablers.

Though there has been significant research on the success factors for business-IT alignment, achieving and sustaining alignment has continued to remain a challenging issue that requires further researching the factors influencing its success. Also, Chan and Reich (2007) in their review article on the state of business-IT alignment research called for more studies on the success factors for alignment in order to increase its understanding. This study therefore responded to Chan and Reich's (2007) call with research objectives and associated research questions geared towards investigating the factors influencing the success of business-IT alignment in the South African context. Though this study focused on South African firms, the research findings still have a good measure of applicability to similar firms in other countries.

The desired phenomenon was investigated on the basis of an interpretivist philosophy and employed semi-structured interviews as the means of data collection. The sample comprised 10 CIOs of major firms in five industry sectors, with two CIOs belonging to firms in each industry sector. The five industry sectors are major retail, food and beverages, higher education, governmental organisation, and financial services. The data gathered was analysed using the general inductive approach as set out by Thomas (2003, 2006), which adopts grounded theory data analysis techniques.

The findings resulting from this research are presented in a succinct form in the next section.

## 6.2 Conclusions

The research findings specifically tied to this study's research questions are presented in Table 7.

**Table 7: Research questions and the associated findings**

Research Questions	Findings
<p>What factors influence the success of business-IT alignment taking into consideration the coverage of the state and process paradigms as well as the social and intellectual dimensions of business-IT alignment? <i>(The structural dimension of business-IT alignment was also covered as it emerged during the research process)</i></p>	<p>14 success factors for business-IT alignment were discovered. These are:</p> <ul style="list-style-type: none"> <li>- <i>Intellectual dimension</i> <ul style="list-style-type: none"> <li>• EA</li> <li>• SOA</li> <li>• Measure the effectiveness of business-IT alignment</li> <li>• Formal and coordinated SISP process</li> <li>• Business and IT plans are in the same document</li> <li>• Information Management</li> </ul> </li> <li>- <i>Social dimension</i> <ul style="list-style-type: none"> <li>• Close relationships between IT and business</li> <li>• Communication between business and IT</li> <li>• Strategic partnerships</li> <li>• IT consults business stakeholders</li> <li>• IT understands business and business understands IT (mutual understanding between business and IT)</li> </ul> </li> <li>- <i>Structural dimension</i> <ul style="list-style-type: none"> <li>• Structural alignment</li> <li>• CIO is a member of the EMT</li> <li>• IT governance</li> </ul> </li> </ul>
<p>Are there novel success factors for business-IT alignment?</p>	<p>Seven novel success factors based on the context of the study as earlier highlighted were discovered. These are:</p> <ul style="list-style-type: none"> <li>• EA</li> <li>• SOA</li> <li>• Strategic partnerships</li> <li>• Measure the effectiveness of business-IT alignment</li> <li>• Business and IT plans are in the same document</li> </ul>

	<ul style="list-style-type: none"> <li>• Information management</li> <li>• IT governance</li> </ul>
What are the relationships among the success factors?	12 relationships were identified among the success factors as shown in the theoretical framework.
What is the impact of the South African business operating environment on the success factors for business-IT alignment?	This has both positive and negative impacts on the success factors for alignment and by extension business-IT alignment. The 'positives' should be maximised as they could more or less assume the status of success factors, and the 'negatives' minimised.
What is the impact of the industry sector of firms on the success factors for business-IT alignment?	This has both positive and negative impacts on the success factors for alignment and by extension business-IT alignment. The 'positives' should be maximised as they could more or less assume the status of success factors, and the 'negatives' minimised. These impacts vary across firms in different industry sectors.
Of what form is the framework resulting from the findings of this study?	The success factors for business-IT alignment identified in this study were consolidated into a theoretical framework that also incorporates the impacts of the South African business operating environment and the industry sector of firms on the success factors for business-IT alignment and by extension alignment.

One research finding not evident in Table 7 is that regarding business-IT alignment paradigms: the process view of alignment encompasses the state view of alignment. Also, four success factors for business-IT alignment were identified as crucial or 'more important' than the rest of the 14 success factors for alignment. These success factors are communication between business and IT, formal and coordinated SISP process, IT understands business and business understands IT, and CIO is a member of the EMT. Communication between business and IT emerged as the most important success factor for business-IT alignment; while formal and coordinated SISP process was discovered to be foundational to the success of business-IT alignment.

Another research finding is that the coverage of the social, intellectual, and structural dimensions of alignment with regards to its success factors is essential for achieving business-IT alignment.

The research findings also led to the presentation of their implications for theory development, research, and practice. This study's contribution to theory development lies in the theoretical framework of success factors for business-IT alignment and the resulting 17 propositions virtually derived from the theoretical framework. A key practical implication of the research findings is that the theoretical framework of success factors for alignment can be utilised to guide the achievement of business-IT alignment in practice.

One key research implication of this study is that 'success factors for alignment' research should explicitly indicate the dimensions of alignment covered and also classify the success factors into the alignment dimensions they influence. Another key research implication is that 'success factors for alignment research' should explicitly state how they map to business-IT alignment paradigms. Explicitly stating how studies in this research area map to the dimensions and paradigms of alignment will aid better understanding of such studies.

This research on the factors influencing the success of business-IT alignment adequately engaged the IT artifact as raised by Orlikowski and Iacono (2001) who propounded that IS research should address the IT artifact as its core theme. However Weber (2003) stressed that addressing the IT artifact should involve focus on IS-related issues or phenomena, as reflected in this study. In the light of this, this research is firmly placed within the "Ensemble view of Technology" (Orlikowski & Iacono, 2001, p. 125-126) which focuses on "the dynamic interactions between people and technology – whether during construction, implementation, or use in organizations, or during the deployment of technology in society at large."

### **6.3 Limitations and Recommendations for Future Research**

This research did not rank all the success factors presented in decreasing order of importance. Though four success factors were categorised as 'more important' than others, with "communication between business and IT" emerging as the most important success factor for business-IT alignment. This however falls short of an absolute ranking of all the success factors. Thus, future research could rank the success factors by incorporating quantitative research methods in addition to the qualitative research methods adopted by this study. This would assist CIOs to place greater focus on certain success factors with due awareness of their ranking in terms of importance.

The propositions presented which are contributions to theory development can be tested by future studies. The formulation of hypotheses for testing can be achieved by utilising these propositions.

This research is largely restricted to major firms. Other studies can apply this study's research framework to investigate the success factors for business-IT alignment in small and medium enterprises (SMEs). The findings from such studies can be compared with this study's findings.

The importance of information to the success of business-IT alignment has not been well researched as greater focus has been placed on IT. The emergence of information management as a success factor in this study highlights the need for future research to focus more on the role of information in business-IT alignment and how firms manage their information assets.

Finally, the dynamic nature of business-IT alignment should imply that success factors for business-IT alignment may not totally remain constant over extended periods of time. Therefore, similar research on factors influencing the success of business-IT alignment should be conducted every couple of years.

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## 8 Appendices

### Appendix A: Interview Schedule (at the Start)

#### Section A: General

1. What is your company's perspective on business-IT alignment: Is it IT-led or business-led? Do you follow any alignment model? (If yes, which; If no, why)
2. Has your company derived any benefits from its strategic use of IT? Please give examples.
3. How do you measure the effectiveness of your business-IT alignment initiatives?

#### Section B: Social and intellectual dimensions

4. Who do you report to? What is the frequency of your contacts or meetings? Do these occur formally and/or informally? Do you have any personal relationships with this person? Would there have been any difference if you were reporting to the CEO?
5. What is the impact of [4] on your business-IT alignment?
6. Who is responsible for or has clear ownership of business-IT alignment? What is your view on who the right personnel should be? What is the impact of this on your business-IT alignment?
7. How does your organisation go about strategic IT planning.
8. What tools or methods do you use for strategic IT planning and management? Which tools or methods did you use in the past and why were they discontinued?
9. Are your business and IT plans developed at the same time, or is the IT plan derived from the business plan or vice versa? Has this always been the case?
10. Do your documented strategic plans contain both short and long term goals? Are these plans often referred to? How often have there been changes or revisions?
11. Does a single documented strategic plan for business and IT exist or are they separate?

### **Section C: Impact of South African business operating environment**

12. Have you worked in any other country apart from South Africa? If yes, how does the business operating environment compare with that of South Africa? [If no, cue next question].
13. What specific challenges does your company face within the SA business operating environment?
14. How have these challenges within the SA biz operating environment impacted on your firm's business-IT alignment initiatives? Please give some examples of how it has led to its success or failure?

### **Section D: Impact of industry sector**

15. What is the impact of the industry sector on your firm's business-IT alignment? Did it contribute to its success or challenges?
16. Has your company always been successful with business-IT alignment? If not, what steps did you take to turn things around?
17. What factors have you identified as having contributed to the success of business-IT alignment in your firm? Which of these have been decisive? [To probe each factor given].

### **Section E: Process and state paradigms**

18. Is business-IT alignment in your firm viewed as an end state or a dynamic ongoing process?
19. Are your business-IT alignment initiatives conceptualised with clearly discernible start and end states or are they continuously modified with time?

### **Section F: Concluding questions**

20. Are there are other factors which have contributed to the success of business-IT alignment in your firm that have not been raised yet? [To probe each factor given].
21. Are there other issues relating to business-IT alignment in your firm that you want to bring to my attention?
22. Do you have any questions for me?

## Appendix B: Emergent Interview Questions

1. Do you consult academic literature for alignment models and in the process of alignment?
2. Do you have an IT governance framework in place in your organisation? What is its impact on alignment?
3. What should be put in place in order to have sound IT governance framework?
4. Does your company have strategic partners? What is the impact on business-IT alignment?
5. Do you have a project management office (PMO)? What is the impact on alignment?
6. What is the level of uncertainty that you face as a business? Do you utilise scenario planning? What are their impacts on alignment?
7. Is the availability of finance necessarily a success factor for alignment?
8. How important is risk management to your organisation? Will the compliance of IT initiatives aid the success of business-IT alignment?
9. Have you developed an enterprise architecture (EA) for your business? What is its impact on alignment?
10. Is green IT an area you are looking into? What is the impact on alignment?
11. Does having long term vision/goals have any impact on your alignment?
12. Do you manage IT as a service? Any impact on alignment?
13. Are you into web services? What about SOA? What is the link between EA and SOA in your organisation? What is the impact on alignment?

## Appendix C: Introductory Letter and Consent Form



UNIVERSITY OF CAPE TOWN

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### Department of Information Systems

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**Date 1 November 2009**

#### **Masters dissertation research: Introductory letter and consent form**

Dear Sir/Madam,

As an Information Systems Masters student, I am conducting a study on the factors influencing the success of business-IT alignment in South African firms. I will be interviewing Chief Information Officers (CIOs) or equivalent of major firms, as a means of collecting data for this research.

This is to kindly request your participation in this research. Interview questions have been approved by the University's Ethics Committee and will be about one hour in duration. Your decision to participate in the study will be greatly appreciated.

Participation is voluntary and all data collected will be stored electronically and kept strictly confidential. Personal information or company identification will not be archived. This is to encourage disclosure of information being sought, which is non-sensitive. If you wish to receive a copy of the results of the study, you are welcome to provide your email address and the final results will be sent to you.

If you have any queries, please contact either the researcher or supervisor using the contact details provided. Thank you for your time and cooperation.

Sincerely,

Uche Onumajuru (Research student)

Email: uche.onumajuru@uct.ac.za

Tel: 021 650 4233

Prof Derek Smith (Supervisor)

Email: Derek.Smith@uct.ac.za

Tel: 021 650 3155

**Participant consent form**

By signing this participant consent form, you are agreeing to participate in the research titled "Factors influencing the success of business-IT alignment: A study of South African firms."

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix D: List of Acronyms

ASAUDIT	Association of South African University Directors of Information Technology
CEO	Chief Executive Officers
CIO	Chief Information Officer
CMM	Capability Maturity Model
COBIT	Control Objectives for Information and Related Technology
DVC	Deputy Vice Chancellor
DVR	Digital Voice Recorder
EA	Enterprise Architecture
EMT	Executive Management Team
ESOA	Enterprise Service-Oriented Architecture
HESA	Higher Education South Africa
HR	Human Resources
IS	Information Systems
IT	Information Technology
ITIL	Information Technology Infrastructure Library
JSE	Johannesburg Stock Exchange
PMO	Project Management Office
RBV	Resource-Based View
SAM	Strategic Alignment Model
SAMM	Strategic Alignment Maturity Model
SIM	Society for Information Management
SISP	Strategic Information Systems Planning
SME	Small and Medium Enterprise
SOA	Service-Oriented Architecture
STROBE	Strategic Orientation of Business Enterprises
STROEPIS	Strategic Orientation of the Existing Portfolio of IS Applications