

# Towards an understanding of the boundaries and characteristics of a Digital Business Strategy

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Department of Information Systems  
University of Cape Town

In fulfilment of the requirements for INF6001W

16 October 2020

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## Abstract

# Towards an understanding of the boundaries and characteristics of a Digital Business Strategy (DBS)

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Department: Information Systems

Degree: Doctor of Philosophy in Information Systems

The merging of business and information technology (IT) strategies, effectively becoming a Digital Business Strategy (DBS), is changing the way that organisations have to leverage resources to create differential value. Due to the DBS being such a novice idea, there is no clear understanding of what the DBS is, what its characteristics and boundaries are, how it impacts alignment between business and IT, and how it impacts organisational performance. Without this understanding, organisations leveraging a DBS run the risk of launching technological initiatives or making organisational changes that are disjointed from their strategic direction. These misaligned efforts may result in unrealised strategy and unsatisfactory organisational performance. The purpose of this study was to define the boundaries and characteristics of the DBS, provide a definition of a DBS and to establish if the DBS has a positive effect on organisational performance. To examine the DBS, it was observed in its natural habitat, through a single case study approach, focusing on an organisation that has been leveraging a DBS as part of their digital journey. The organisation is a South African based financial services provider and is a subsidiary of a larger financial services provider. In this study, the DBS was observed from an intellectual, operational, social and cultural alignment perspective, using a combination of the Strategic Alignment Model (SAM) and the Complex Adaptive System (CAS) frameworks. This study subscribed to a mixed-method approach which included both qualitative and quantitative research techniques. Staff providing input into this study included senior, middle, junior and non-management employees. The study was conducted over a period of thirteen months. The findings from both the qualitative and quantitative data suggest that to leverage



a DBS the organisation must be concerned with more than just leveraging digital resources. For instance, organisations must focus on customer and staff empowerment, use customer and industry-related information to create opportunistic and competitive decision-making opportunities, and create a change-ready culture where bold experimentation and failing forward is embraced. Researchers and practitioners alike can use the findings of this case study as lessons on how to leverage organisational resources in the context of the DBS.

**Keywords:**

*Alignment, Business Strategy, Complex Adaptive System (CAS), Cultural Alignment, DBS, Digital Business Strategy, Intellectual Alignment, IT, IT Strategy, Operational Alignment, Social Alignment, Strategic Alignment Model (SAM)*



## Chapter 1

### 1. Background and Introduction

#### 1.1 Background

For more than thirty years, the issue of alignment between business and information technology (IT) strategies remains one of the top three issues faced by IT executives (Brancheau, Janz, & Wetherbe, 1996; Coltman, Tallon, Sharma, & Queiroz, 2015; Dickson, Leitheiser, Wetherbe, & Nechis, 1984; Kappelman, Mclean, Johnson, & Gerhart, 2014; Kappelman et al., 2017; Luftman, 2005; Luftman & Ben-Zvi, 2011; Reich & Benbasat, 2000; Teo & King, 1997). While business strategy sets the direction for the organisation, IT is extensively used in keeping the organisation in operation, therefore making the use of IT a pivotal part of achieving organisational goals, and as such, making the alignment of business and IT strategy a key factor in the successful execution of the business strategy (Giannoulis, 2014).

Traditionally, IT strategy is directed by business strategy, as it is viewed as a functional-level strategy, subordinate to business strategy (Bharadwaj, Sawy, Pavlou, & Venkatraman, 2013; Holotiuk & Beimborn, 2017; Kahre, Hoffmann, & Ahlemann, 2017; Sawy, Kræmmergaard, Amsinck, & Vinther, 2016). However, with organisational infrastructure becoming more digital (Park & Mithas, 2020), i.e. business operations becoming more reliant on IT solutions in order to achieve economic objectives, IT strategy is influencing or shaping business strategy more and more. As such, there is a shift in thinking of business and IT strategy as separate entities, as there is merit in thinking of business and IT strategy as two sides to the same coin, effectively merging into a “Digital Business Strategy” (DBS) (Bharadwaj et al., 2013).

During a time when IT was less complex and business strategy more firm (Coltman et al., 2015), the theme of business and IT strategy alignment was transformed from a one-way and sequential integration, as defined by King (1978), to a two-way reciprocal integration, as later expanded by King and Zmud (1981), Teo and King (1997) and Reich and Benbasat (2000). With IT advances over the years, a need for a refreshed approach to IT alignment has emerged, which lead to the rise of the concept of a DBS. It claims that there should be no distinction between IT and business strategy as IT *is* the strategy (Coltman et al., 2015).



The most significant difference between the DBS approach to alignment and the integrated business and IT strategy alignment approach is that the integrated alignment approach refers to the business strategy and IT strategy as two separate entities. These two entities are aligned through executing the development processes in parallel (Teo & King, 1997). This is in contrast to the DBS approach, which supposes that business strategy and IT strategy become one entity (Bharadwaj et al., 2013; Mithas & Lucas, 2010), which means developing one *is* to develop the other. Essentially the alignment between business strategy and IT strategy is moving away from a socio-technical view, where the phenomenon of alignment is investigated when the two constructs interact, to a socio-material view, where the two constructs are not merely co-existing but co-constituting (Boell & Cecez-Kecmanovic, 2015).

Before understanding the importance of business and IT strategy alignment, it is imperative to keep in mind that the end goal of any organisation is to respond to customer demands (Von Leipzig et al., 2017) in order to survive and thrive in their chosen industry. This includes maximising on economic profits (rents) of the organisation through creating a sustained competitive advantage (Eisenhardt & Martin, 2000). In the context of this study, the assumption is made that companies employing a DBS, use IT resources to create differential value (Bharadwaj et al., 2013) in order to gain a competitive advantage over its rivals in the chosen industry. While the previous views of leveraging IT resources was focussed on an operational excellence level (Coltman et al., 2015; Drnevich & Croson, 2013), the view concerning leveraging IT resources in the context of the DBS, is at a strategic level (Chi, Zhao, & Li, 2016; Mithas & Lucas, 2010). This elevation of IT from an operational to strategic level is one of the primary reasons a DBS is conducive to creating a competitive advantage (Bharadwaj et al., 2013).

There are three perspectives on rents, which are, the industrial organisation view (monopoly rents), the resource-based view (Ricardian rents) and the dynamic capability view (Schumpeterian rents). Monopoly rents are derived from an organisation's unique position within a market, which allows them to increase prices of services and products without fear of competition (Drnevich & Croson, 2013). Ricardian rents are derived from resources that have a competitive advantage that resides within an organisation (Liebeskind, 1996; Teece, Pisano, & Shuen, 1997). Schumpeterian rents are derived from innovative services or products (Schumpeter, 1934), which allows an organisation to charge for services and products above the cost price of said services and products.



A key factor of the industrial organisation view (monopoly) is to create a barrier to entry into the industry, while a key factor of the resource-based view (Ricardian) is to create a barrier to imitate the goods, processes or products of the organisation. The view most applicable to this study is the dynamic capability view (Schumpeterian), whose premise is that markets are dynamic, especially in industries where there are fast technological changes, therefore the innovation measures of an organisation matter (Giannoulis, 2014; Teece et al., 1997). Hence, in a world where organisational infrastructure is becoming more digital, the alignment (or integration) between business and IT strategy is crucial.

To summarise, business and IT strategy alignment is one of the top three concerns for IT executives. While this concern itself eludes to business and IT strategies as two separate constructs, recent studies are proposing that business and IT strategies should be viewed as one strategy, as organisational infrastructure is digitising, which makes IT strategy less of a subordinate to business strategy but rather its coequal.

## 1.2 Problem statement

A significant number of studies have been conducted on IT on a functional-level, seeking a link between IT investments and functional-level performance, however, research seeking the link between IT initiatives and organisational level performance (positively and causally), as it relates to an organisation's economic profits, are limited (Drnevich & Croson, 2013). Since the lens of extant literature was mostly looking at IT from a functional-level perspective, most of the studies were emphasising intellectual and operational alignment, which is observing how business and IT interacts on a strategic, process, and infrastructure level. This means that there is limited research conducted on business and IT strategy alignment from a social and cultural alignment perspective (Chan & Reich, 2007), which by definition is the common understanding of the commitment to the organisation's objectives between actors (Gerow, Grover, Thatcher, & Roth, 2014; Reich & Benbasat, 2000; Wagner, Beimbom, & Weitzel, 2014), and the culture fit between business and IT actors (Chan & Reich, 2007).

Furthermore, as the concept of a DBS is still fairly new (Chi et al., 2016; Kahre et al., 2017), not many studies have been conducted on characterising and defining the boundaries of DBS (Bharadwaj et al., 2013; Kahre et al., 2017). These existing studies have been mainly focussed on *why* (context) there is a movement towards a DBS and *what* (content) changes organisations should consider when implementing a DBS. However, literature focussing on *how* an organisation should go about these changes are limited



(Kahre et al., 2017). In addition, the existing literature that is focussed on the context and content are not aligned in their views of the DBS. This limitation to studies also extends to understanding the DBS from a socio-material view where business and IT strategy merge as opposed to co-exist side by side.

The merging of business and IT strategy is changing the way that organisations have to “leverage digital resources to create differential value” (Bharadwaj et al., 2013. p472). To explain, products, services and processes are becoming more intertwined and dependent on technological advances (Park & Mithas, 2020), thus digitising business infrastructure. This digitisation of organisational infrastructure is impacting the business scope, which are the functions organisations perform that are within its control. For organisations to effectively use IT for competitive advantage in the digital era, there must be a clear understanding of *how* digital technologies are impacting business scope. To do so, there must be a clear understanding of the boundaries or limits of the DBS itself. This is important as defining the boundaries of a DBS will assist in the understanding of relationships between functional areas, organisations, industries and the external environment (Bharadwaj et al., 2013). Without such understanding, investing in IT initiatives may not create the desired sustained competitive advantage.

### 1.3 Purpose statement

The aim of this study is to address the above-mentioned limitations in existing literature, by primarily investigating the boundaries and characteristics of a DBS. By investigating the boundaries and characteristics of the DBS existing literature can be expanded on by an understanding of how an organisation must go about change to leverage a DBS from a strategic, operational, social and cultural perspective. While the boundaries and characteristics are the main focus of this study, the researcher also aims to investigate the other highlighted limitation in literature, which is the impact of the DBS on organisational performance. Furthermore, the researcher aims to define the concept of the DBS as there is no consensus in the existing literature on the DBS’s content or context.



## 1.4 Research questions and objectives

To actualise the aforementioned purpose of the study, the research questions and objectives that follow will be used as a guide.

### 1.4.1 Primary research question

The primary research question of this study is as follows:

- What are the boundaries and characteristics of a DBS?

### 1.4.2 Secondary research question

The secondary research question of the study is as follows:

- What is the definition of a DBS?

### 1.4.3 Research objectives

The objectives of this study are as follows:

- To define the boundaries and characteristics of a DBS
- To define the concept of a DBS
- To understand the DBS from both a technical (intellectual and operational alignment), and people (social and cultural alignment) perspective
- To transpose the Strategic Alignment Model (SAM) and the Complex Adaptive System (CAS) frameworks in order to understand the DBS from an intellectual, operational, social, and cultural alignment perspective.
- To understand the impact of the DBS on organisational performance

## 1.5 Importance and benefits of this study

The benefits of this study include understanding what a DBS is in an assortment of settings in order to leverage it effectively. This study aims to investigate the boundaries and define the characteristics of the DBS, and by doing so, will be able to provide a clear definition of a DBS. This will be done to achieve a



similar benefit as a study performed by Chen et. al (2010), where the concept of the Information Systems Strategy (ISS) was reconceptualised as there was no clear definition of an ISS at the time.

## 1.6 Delimitations and assumptions

Two delimitations relating to the context and theoretical lenses of this study have been identified. First, this study is limited to one organisation in the financial services industry and as such will exclude any other organisation, whether in or outside of the financial services industry.

Second, this study will adopt an interpretivist philosophical orientation and as a result, will be limited by the suppositions or assumptions that are characteristic to interpretivism. These assumptions about the inquiry into the DBS is constraint by ontology, epistemology, axiology, rhetorical structure and methodology. Ontology refers to what reality is (Creswell, 2009) and what can be known about reality (Guba & Lincoln, 1994), epistemology explains how we know what knowledge is, axiology refers to the role values plays in acquiring knowledge through the research process, rhetorical structure describes how we write about knowledge and, methodology shows how we study knowledge (Creswell, 2009). Table 1.1. is a summary of the interpretivist philosophical assumptions this study is bound by. More detail on these assumptions can be found in [section 3.3](#)

Element	Description
<b>Ontology</b>	The truth or realities are subjective as understood by the individual; however, multiple truths are equally valid. The world is multi-layered, and the multiple realities can only be imperfectly understood.
<b>Epistemology</b>	The researcher interacts with the individuals in order to gain knowledge on not only what meaning an individual attaches to a particular phenomenon but also how the individual arrives at that meaning.
<b>Axiology</b>	The researcher acknowledges and discusses their biases.
<b>Rhetorical structure</b>	The researcher does not only observe what the individual is saying but also places emphasis on how the information is relayed in terms of body language and emotions.



Element	Description
<b>Methodology</b>	The researcher aims to uncover the meaning of what the participant is saying by uncovering the embedded connotation to the words the participant is using. This is performed mainly through words and text.

**Table 1.1: Delimitations and assumptions**

Source: (Ponterotto, 2005; Ponterotto &amp; Grieger, 2007)

## 1.7 Definition of key terms

Term	Definition
<b>Competitive advantage</b>	Outperforming competitors in the industry in business activities (Davis, Dehning, & Stratopoulos, 2003).
<b>Cultural alignment</b>	The cultural fit between business and IT (Chan & Reich, 2007).
<b>Information System (IS)</b>	The manner in which the organisation and people within an organisation collect, process, use and disclose information (Peppard & Ward, 2016).
<b>Intellectual alignment</b>	The degree of integration between business and IT on a strategic level with the emphasis on the organisation's strategic plans, mission and objectives (Gerow et al., 2014).
<b>Operational alignment</b>	The degree of integration between business and IT processes and infrastructure (Chan & Reich, 2007; Gerow et al., 2014; Henderson & Venkatraman, 1999).
<b>Social alignment</b>	The common understanding of the commitment to organisation objectives between actors (Gerow et al., 2014; Reich & Benbasat, 2000; Wagner et al., 2014).
<b>Strategy</b>	"An integrated set of actions aimed at increasing the long-term well-being and strengths of an enterprise relative to its competitors" (Porter, 1980, as cited in Tassabehji, 2003, p. 277).

**Table 1.2: Definition of key terms**



## 1.8 Abbreviations

Abbreviation	Term
<b>AVE</b>	Average Variance Extracted
<b>CAS</b>	Complex Adaptive System
<b>CDO</b>	Chief Digital Officer
<b>CEO</b>	Chief Executive Officer
<b>CIO</b>	Chief Information Officer
<b>COO</b>	Chief Operating Officer
<b>CR</b>	Composite Reliability
<b>DBS</b>	Digital Business Strategy
<b>HR</b>	Human Resources
<b>IoT</b>	Internet of Things
<b>IS</b>	Information Systems
<b>ISS</b>	Information Systems Strategy
<b>IT</b>	Information Technology
<b>KFA</b>	Key Focus Area
<b>LV</b>	Latent Variable
<b>MVP</b>	Minimum Viable Product
<b>PLS</b>	Partial Least Square



Abbreviation	Term
RBV	Resource-Based View
RIO	Return on Investment
SAM	Strategic Alignment Model
SEM	Structural Equation Modelling
SPA	Single Point of Accountability

Table 1.3: Abbreviations

## 1.9 Thesis structure

This thesis comprises of seven chapters. Table 1.4 is a summary of this thesis.

Chapter	Chapter Outline
<b>Chapter 1</b> – Background and Introduction	This chapter introduces the research and focuses on the purpose of the research.
<b>Chapter 2</b> – Literature Review	Chapter 2 will provide an overview of the concept of a DBS. In addition, it discusses existing research and provides further support for the rationale for this study.
<b>Chapter 3</b> – Research Design and Methods	The purpose of this chapter is to give an overview of the research design and methods applied to achieve the goal of the research.
<b>Chapter 4</b> – Qualitative Research Analysis and Findings	This chapter discusses qualitative research results. Additionally, it gives a detailed account of the reliability and validity of the data.
<b>Chapter 5</b> – Quantitative Research Analysis and Findings	Chapter 5 discusses the quantitative research results. Additionally, it gives a detailed account of the reliability and validity of the data.



Chapter	Chapter Outline
<b>Chapter 6</b> – Research Discussion	This chapter discusses and summarises the qualitative and quantitative research results.
<b>Chapter 7</b> – Conclusion	Chapter 7 provides a summary and evaluation of the research. Also, it outlines further research that may be conducted on the topic of a DBS.

**Table 1.4: Thesis structure**



Figure 1.1 is an overview of the thesis in graphical terms.

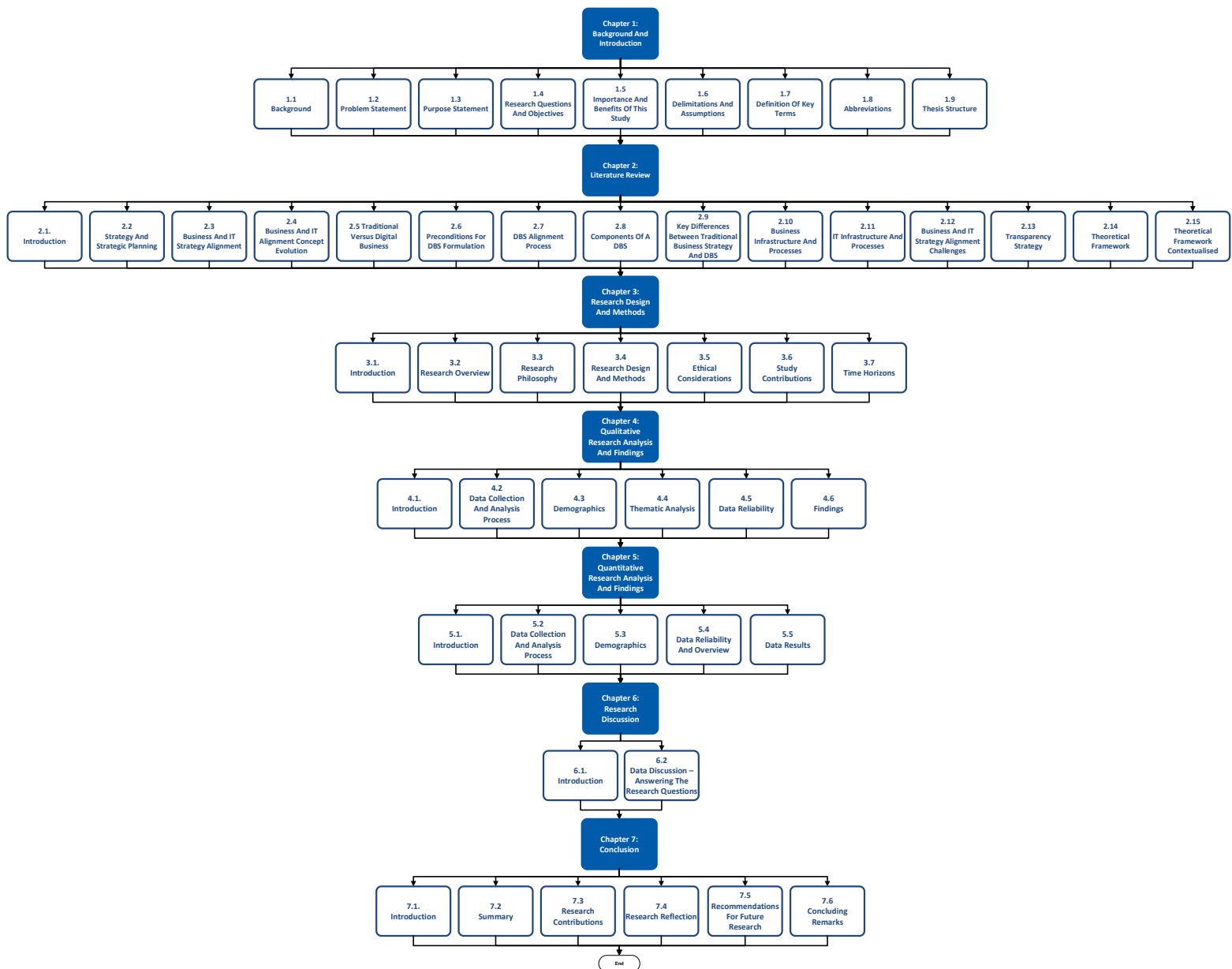


Figure 1.1: Thesis structure overview



## Chapter 2

### 2. Literature Review

#### 2.1 Introduction

[Chapter 1](#) provided an introduction and background to this study. This chapter focuses on a literature review. To gain an understanding of existing knowledge and gaps in the literature as it pertains to the Digital Business Strategy (DBS), the literature review was conducted as part of the initial phases of the research process (Oates, 2006). To ensure the quality of the information that is reflected in this literature review, the researcher referenced ranked journals, esteemed conference papers and books. Key terms initially used for finding information on the DBS included, business strategy, IT strategy, digital business strategy and business and information technology (IT) alignment. Search engines such as Google Scholar and university-affiliated databases we used to find literature. Related topics to the DBS were explored as new concepts were discovered throughout the literature review process. The broad elements of the literature review are detailed in the following paragraphs.

First, the concepts strategy and alignment as it relates to business and IT will be discussed. This includes the evolution of the alignment concept from a one-way sequential integration between business and IT to the concept of a DBS, how the DBS relates to organisational performance, and how the DBS creates value through taking advantage of dynamic capabilities and skills. Thereafter, the focus will be on the context which gives rise to the DBS, including discussing the preconditions of a DBS, the differences between traditional versus digital business, and the duality of IT.

Furthermore, the components of a DBS will be delved into, which includes business and technology scope, distinctive and systemic competences, and business and IT governance. Business and IT strategy alignment will also be discussed in the context of business and IT infrastructure and processes. Penultimately, challenges of alignment in the context of the DBS will be presented and, last, the theoretical frameworks this study is based on will be discussed. Figure 2.1 provides an overview of Chapter 2.



## Chapter 2: Literature Review

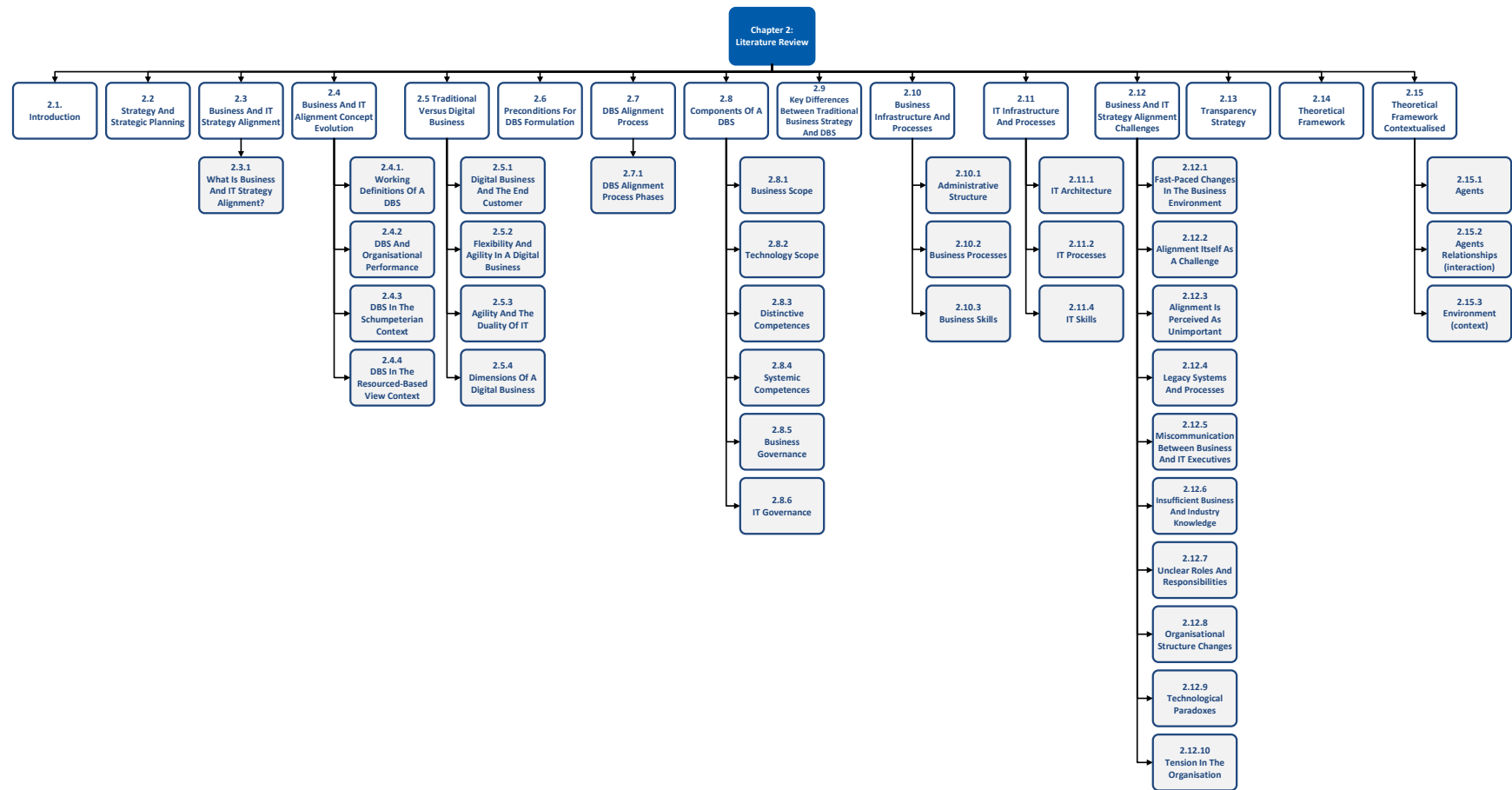


Figure 2.1: Chapter 2 overview



## 2.2 Strategy and strategic planning

According to Olsen (2011), there are four levels of strategic planning. Level one refers to standard strategy elements such as the organisation's mission, vision, values, goals and objectives. The mission, vision and values are the reasons for the organisation's existence (Tassabehji, 2003; Witcher & Chau, 2007) and the goals and objectives are the organisation's medium-term plans (Witcher & Chau, 2007) to accomplish the long-term rationale of the organisation. However, this articulated plan is not necessarily strategic. What elevates a plan to a strategic plan (level two) is the collection and consideration of external market data such as customer needs, competitor analysis, what is happening in and around the industry of operation (Kahre et al., 2017), and how the industry is likely to change (Tassabehji, 2003).

Without understanding these exogenous influences, which is largely shaped through technological innovation (Da Costa, Pereira, & Akkari, 2018; Reijnen, 2018; Westerman, Bonnet, & McAfee, 2014), organisations will be unable to deliberately adapt to market demands (Kahre et al., 2017), differentiate themselves from competitors by delivering unique value to its customers (Holotiuk & Beimborn, 2017; Porter, 1996), or ensure its longevity (Porter, 1985).

A strategy is defined by Porter (1980 as cited in Tassabehji, 2003, p. 277) as an "integrated set of actions aimed at increasing the long-term well being and strengths of an enterprise relative to its competitors". This definition suggests that strategic planning is not synonymous with strategic positioning. Strategic planning is but one element of the 'set of actions' that contribute to strategic positioning. Strategic positioning is where an organisation finds itself 'relative to its competitors'. In other words, strategy in itself is not the result of strategic planning, but the outcome of different processes which includes strategic planning, strategic thinking and "opportunistic decision making" (Ward & Peppard, 2002, p. 69).

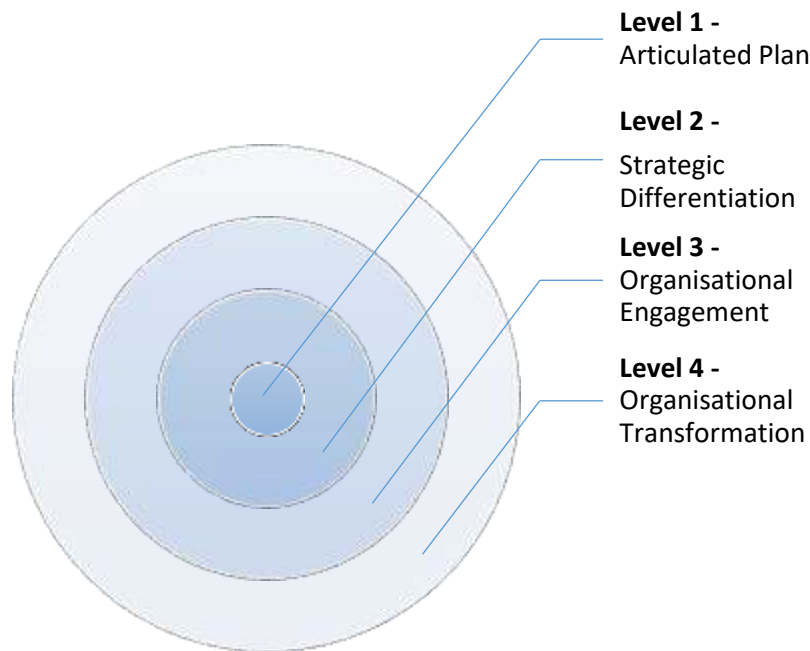
A strategy is also not synonymous with operational efficiency. Operational efficiency is outperforming a competitor by doing the same activities better. By comparison, strategy is making moves that differentiate an organisation from their competitors by either doing the same activities in a different way or performing different activities altogether (Porter, 1996).

Level three of strategic planning is concerned with cascading and agreeing on the goals and plans of the organisation throughout the organisation's hierarchy and ensuring that each individual understands their contribution to actualising said goals (Mithas & Lucas, 2010; Witcher & Chau, 2007). This can be achieved



through social alignment which is having a common understanding of the commitment to organisation objectives between actors (Gerow et al., 2014; Reich & Benbasat, 2000; Wagner et al., 2014).

Last, level four, organisational transformation, refers to implementing the plan and ensuring a constant shift in the behaviour of the actors in the organisation to quickly and effectively respond to the changing business environment (Tassabehji, 2003). Figure 2.2 provides an overview of the different levels in strategic planning.



**Figure 2.2: Four levels of strategic planning**

Source: (Olsen, 2011)

Within this study, the concept strategy will be explored from both a business and IT strategy perspective focusing on both exogenous factors and internal structures. The overall exploration will be within the context of a digital business where business and IT strategy are considered one strategy, namely a DBS. [Section 2.3](#) addresses business and IT strategy alignment in the setting of both IT and business strategies as separate entities and as a fused entity.



## 2.3 Business and IT strategy alignment

Alignment between business and IT strategy is an established theme within the Information Systems (IS) field (Coltman et al., 2015). For more than thirty years, IT executives have listed business and IT strategy alignment as a top concern (Brancheau et al., 1996; Dickson et al., 1984; El-Masri, Orozco, Tarhini, & Tarhini, 2015; Gerow, Thatcher, & Grover, 2015; Kappelman et al., 2014, 2017; Luftman, 2005; Luftman & Ben-Zvi, 2011; Reich & Benbasat, 2000; Teo & King, 1997) and for as long, studies have been conducted in an effort to understand business and IT strategy alignment.

The importance of alignment between business and IT strategy can be seen in the empirical evidence in studies (Gerow et al., 2015; Tallon & Pinsonneault, 2011; Yayla & Hu, 2012), that continue to show that there is a positive causal effect between the alignment of business and IT strategy and organisational performance. Failing to align business and IT strategies could lead to unsuccessful IT projects which yield no value for the organisation (Gerow et al., 2014). Therefore, it is no surprise that decades of research have been conducted to understand the phenomenon in order to exploit the benefit that comes from business and IT strategy alignment. These benefits include but are not limited to, having a competitive advantage, improving customer experiences, being agile in order to respond to opportunities in the market, and maximising the return on IT investment (Avison, Jones, Powell, & Wilson, 2004; Byrd, Lewis, & Bryan, 2006; Gerow et al., 2014, 2015).

It cannot be overemphasised that IT, without the presence of a business goal, in itself has little to no value. The value comes from what IT enables through strategic intent (Masa'deh, Tarhini, Al-Dmour, & Obeidat, 2015; Peppard & Ward, 2016). For example, buying a smartphone because it happens to be available, trendy and affordable has no additional value if the user only uses the smartphone for performing the same activities, in the same manner, as a basic cell phone. Therefore, IT alignment is important, as the investment in IT will only yield results if the organisation understands the benefit the IT solution will and is expected to bring to the organisation (Sandberg, Mathiassen, & Napier, 2014). This notion is not only applicable to *what* IT is being invested in but also extends to the size of the IT investment. Westerman et al. (2014) note that even in the context of IT investment size, the reason for investing weighs more than the magnitude of the investment itself.

Moreover, all organisations have an equal opportunity to IT solutions, bar capital, therefore IT solutions in isolation cannot provide the organisation with many benefits (Gerow et al., 2014) or long-term



competitive advantage (Zhyganov, 2014). The point is, the type of benefits that organisations want to achieve in the digital era, would be very difficult to achieve without a technological solution, hence the importance of business and IT strategy alignment (Peppard & Ward, 2016) as one cannot effectively exist without the other.

In brief, business and IT strategy alignment in the digital era positively impact organisational performance. For this reason, it is important to explore what alignment is. The next section will describe alignment as a concept.

### **2.3.1 What is business and IT strategy alignment?**

While the literature on business and IT strategy alignment asserts that alignment improves organisational performance (Kahre et al., 2017), there, however, is no consensus on the meaning of the term alignment itself (Gerow et al., 2015; Wagner et al., 2014). Consider the case of Cragg et al. (2007) who defines alignment as the coalition between business and IT processes and infrastructures while Tan and Gallupe (2006) refer to alignment as the fit between business and IT strategy. Henderson and Venkatraman (1999) created the Strategic Alignment Model (SAM) that is based on the definition that alignment is the degree to which IT infrastructure and processes, business structure and processes, business strategy and IT strategy fit with or integrate with each other. While there are multi-dimensions of alignment which includes intellectual, structural, cultural and social alignment, most research focusses on intellectual and structural alignment. This, however, does not mean that social and cultural alignment should be discarded (Chan & Reich, 2007).

For the purposes of this study, alignment will encompass intellectual and structural alignment as defined by Henderson and Venkatraman (1999), social alignment as defined by Reich and Benbasat (2000) as the shared understanding and commitment to the organisation's goals by both business and IT management, and cultural alignment which is focused on the cultural fit between business and IT (Chan & Reich, 2007). The inclusion of social and cultural alignment stems from the fact that organisations are not perfect systems that seamlessly adjust to external factors such as competition and customer demand but exists within a social context. As such, to understand the organisation, one must also understand the social context (Hinings, Gegenhuber, & Greenwood, 2018).

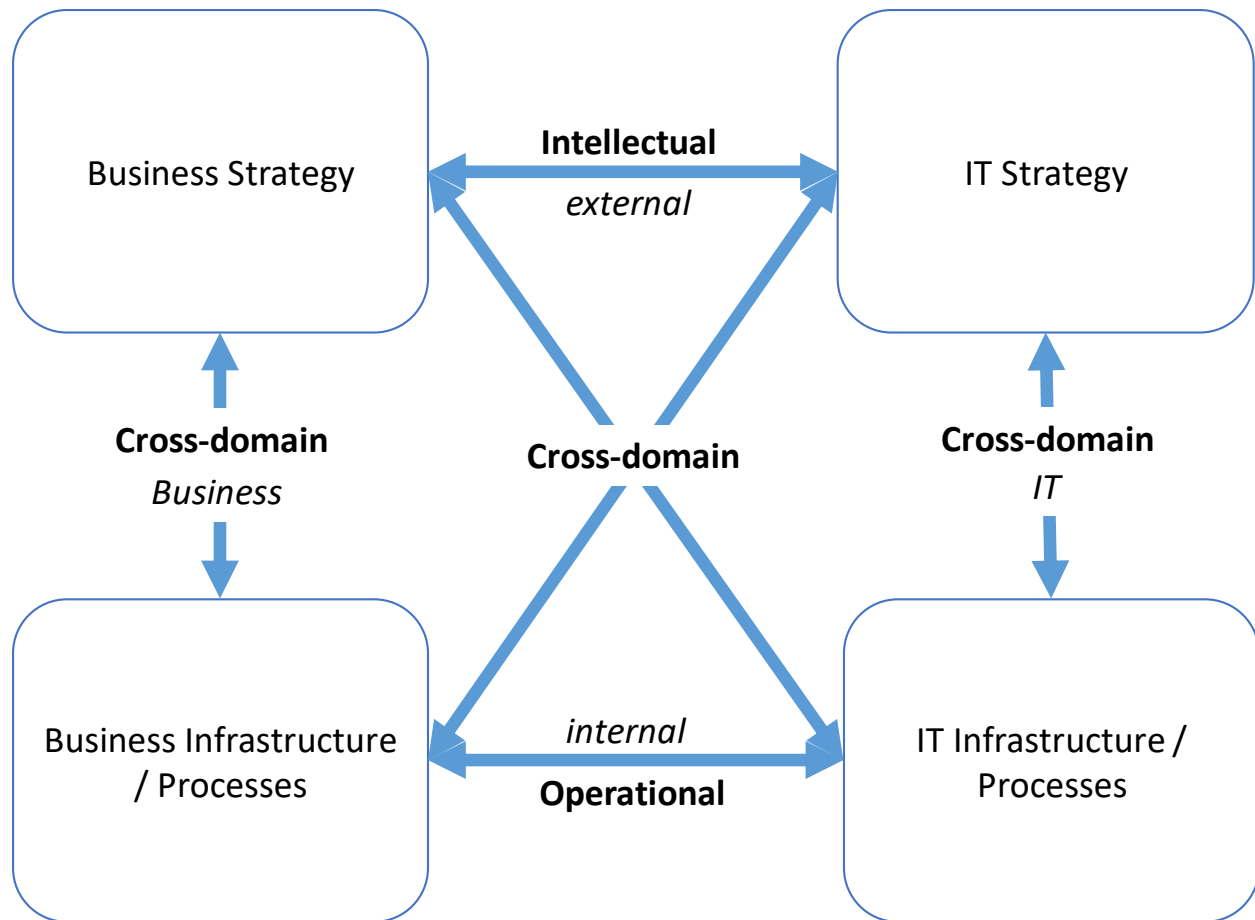


### 2.3.1.1 Intellectual and operational alignment

Intellectual or strategic alignment is the business and IT plan integration on a strategic level while the structural or operational alignment is the IT platform and organisation structure integration. For the purposes of consistency with the SAM model, structural alignment will be referred to as operational alignment throughout this study. In addition to intellectual and operational alignment, as per Henderson and Venkatraman's SAM, there will be cross-referencing of strategic level (intellectual) and functional level (operational) domains through cross-domain alignment, which is the integration between business and IT on both a strategic and functional level simultaneously (Gerow et al., 2015; Henderson & Venkatraman, 1999).

Intellectual alignment is externally orientated and focusses on the degree of integration between business and IT on a strategic level with the emphasis on the organisation's strategic plans, mission and objectives (Gerow et al., 2014). In contrast, operational alignment is internally orientated and focusses on the degree of integration between business and IT processes and infrastructure (Chan & Reich, 2007; Gerow et al., 2014; Henderson & Venkatraman, 1999). This view of alignment places emphasis on business administration, IT infrastructure, business and IT processes and business and IT skills (Gerow et al., 2015).

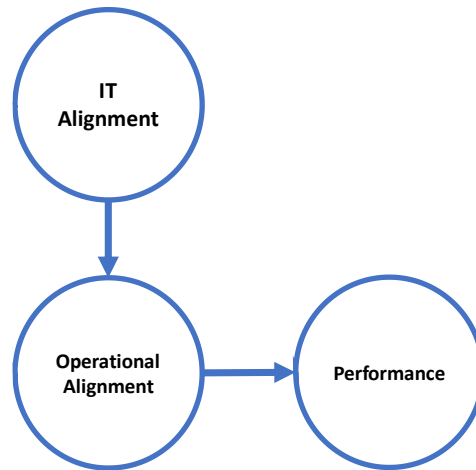
While intellectual alignment and operational alignment focus on different aspects of the organisation, these acts of alignments are done between elements at the same level. In contrast, cross-domain alignment is focused on alignment between the same and different levels simultaneously. This includes IT alignment which is the alignment between external and internal IT, business alignment which is the alignment between external and internal business structures, external business and internal IT structures, and external IT and internal business structures (Gerow et al., 2014, 2015; Henderson & Venkatraman, 1999). Figure 2.3 shows the six different relationships between intellectual and operational constructs as adopted in this study.



**Figure 2.3: Strategic Alignment Model (SAM)**  
Source: (Henderson & Venkatraman, 1999)

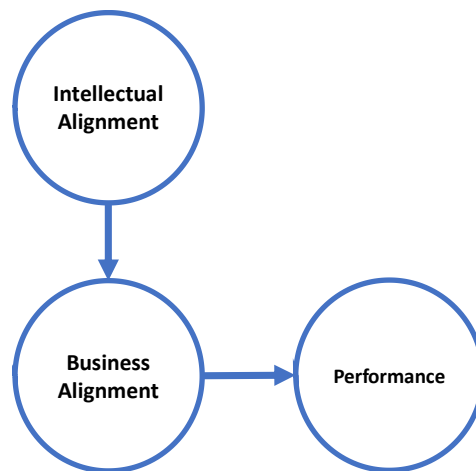
To understand the alignment between business strategy, IT strategy, business infrastructure and processes, and IT infrastructure and processes, combinations between cross-domain elements must be tested in unique ways. These unique combinations are service level, competitive potential, technology transformation and strategy execution (Gerow et al., 2015). Since the premise is that alignment has a positive effect on organisational performance, cross-domain alignment must be done against organisational performance as the dependent construct (Gerow et al., 2015).

First, the service level approach is a product of IT alignment that has an impact on organisation performance through operational alignment (Gerow et al., 2015). Figure 2.4 shows the service level approach in graphical terms.



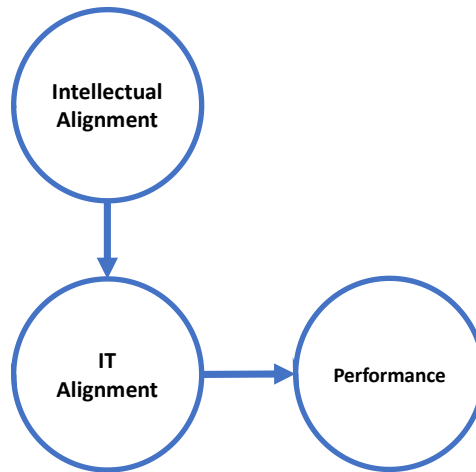
**Figure 2.4: Service level approach to alignment**

Second, the competitive potential approach is a product of intellectual alignment that has an impact on organisation performance through business alignment (Gerow et al., 2015). Figure 2.5 shows the competitive potential approach in graphical terms.



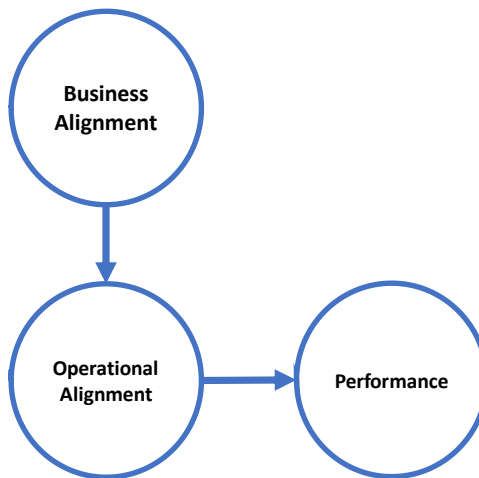
**Figure 2.5: Competitive potential approach to alignment**

Third, the technology transformation approach is a product of intellectual alignment that has an impact on organisation performance through IT alignment (Gerow et al., 2015). Figure 2.6 shows the technology transformation approach in graphical terms.



**Figure 2.6: Technology transformation approach to alignment**

Last, the strategy execution approach is a product of business alignment that has an impact on organisation performance through operational alignment (Gerow et al., 2015). Figure 2.7 shows the strategy execution approach in graphical terms.



**Figure 2.7: Strategy execution approach to alignment**

### 2.3.1.2 Social and cultural alignment

Social alignment focuses on the actors making the decisions and executing the processes to achieve alignment (Zhyganov, 2014). By adding the social dimension of alignment to the intellectual and operational alignment, a richer picture of the complexities of alignment can be studied (Chan & Reich,



2007; Reich & Benbasat, 2000). Social alignment does not only refer to the relationship between business and IT executives but focusses on all business and IT staff relationships on all levels as individuals are working in partnership to achieve a shared vision (Chan & Reich, 2007).

Cultural alignment is focused on the visible cultural and behavioural changes in the business. It is also focused on business and IT executives and how they are creating the conditions where staff on all levels can see the commitment senior leadership has to alignment. These conditions include but are not limited to aligning strategic planning approaches, having a “mindset that encourages shared networks and common IT procurement policies, and an across-the-board willingness to give up incompatible best-of-breed systems” (Chan & Reich, 2007, p. 301).

As shown in this and the previous section, business and IT alignment have been a struggle for senior leadership over many decades and the importance thereof has not diminished over time. In fact, it is becoming more challenging as the business environment continuously changes due to technological innovation (Yeow, Soh, & Hansen, 2018). Before exploring the challenges of alignment in an increasingly digitally-enabled world that gives rise to the notion of a DBS, the following section delves into how the concept of DBS came to be.

## 2.4 Business and IT alignment concept evolution

This well-established concept of business and IT strategy alignment has been rethought and revamped over the last few decades (Bharadwaj et al., 2013; King, 1978; King & Zmud, 1981; Teo & King, 1997) due to the ever-changing business environment and is and should be continuing its transformation for businesses to solve its business challenges through IT (Horlach, Drews, & Schirmer, 2016). In practice alignment requires several activities from senior executives, including, using IT innovatively, embedding IT in business processes, and creating flexibility through IT (Karpovsky & Galliers, 2015).

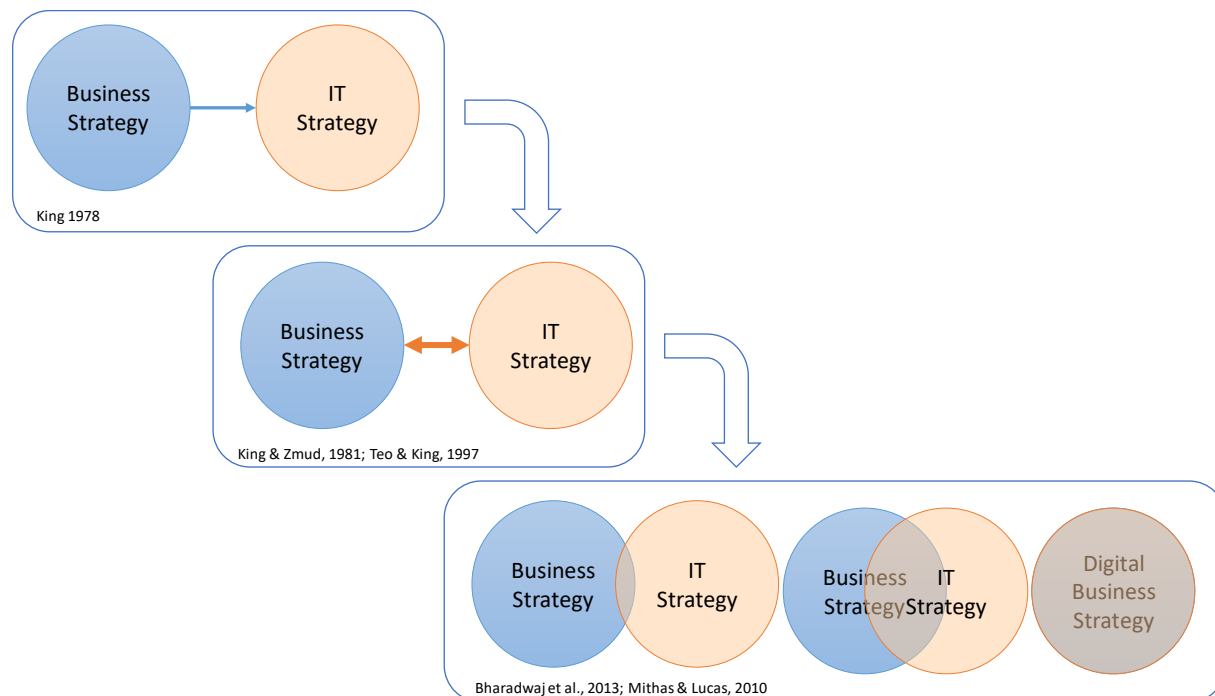
The alignment approaches between business and IT strategy have evolved throughout the years, from a one-way sequential integration, where business strategy sets the direction for IT strategy (King, 1978), to a two-way reciprocal alignment, where business strategy and IT strategy co-exist and are integrated (King & Zmud, 1981; Reich & Benbasat, 2000). In the last thirty years though, with organisational infrastructure becoming a digital infrastructure, more revised approaches to business and IT strategy alignment have emerged (Holotiuk & Beimborn, 2017; Kahre et al., 2017; Mithas & Lucas, 2010; Sawy et al., 2016; Yeow et al., 2018). To explain, digital infrastructure is the assembly of networks, processes, systems, human and



technological components contributing to an information system as it relates to achieving a specific goal (Henfridsson & Bygstad, 2013).

These new approaches to business and IT strategy alignment could be classified into three themes namely micro-foundations of IT alignment, innovation ecosystem and IT alignment, and DBS (Coltman et al., 2015). Micro-foundations of IT alignment is concerned with understanding the actions individuals undertake regarding alignment (Karpovsky & Galliers, 2015) in a changing environment. Innovation ecosystem and value co-creation are concerned with investigating how suppliers, partners, and customers create value by collaborating (Coltman et al., 2015). DBS is concerned with understanding how business can leveraging digital resources (Bharadwaj et al., 2013; Mithas & Lucas, 2010) where IT *is* the strategy (Coltman et al., 2015; Mithas, Tafti, & Mitchell, 2013). This study will only focus its efforts on the DBS theme.

Consider illustration 2.8 that visually represents the evolution of business and IT strategy alignment since 1978 from a one-way sequential integration between business and IT strategy to a fusion between business and IT strategy in the DBS theme.



**Figure 2.8: Business and IT strategy alignment evolution**



The most noteworthy alignment approach variance between the integrated business and IT strategy and DBS is that the integrated alignment approach refers to the business strategy and IT strategy as two separate entities. These two entities are aligned through executing the development processes of the two strategies in parallel (Teo & King, 1997). While these entities have influences on each other using this view, the business strategy is still seen as the strategic directive and IT strategy as the functional-level directive. I.e. IT is but one element of support for the business strategy (King, 1978). This is in contrast to the DBS approach, which supposes that business strategy and IT strategy become one entity (Bharadwaj et al., 2013), which means developing one is to develop the other as IT *is* the strategy (Coltman et al., 2015).

Essentially the alignment between business strategy and IT strategy alignment is moving away from a socio-technical view, where the phenomenon of alignment is investigated when the two entities interact. In other words, the socio-technical view, and in this case historic view of alignment, supposes that the business strategy and IT strategy are two separate entities that happen to interrelate. Recently the view for examining alignment has moved to a socio-material view, where the two entities are not merely co-existing as two separate entities, but co-constituting (Boell & Cecez-Kecmanovic, 2015).

In summary, since the 1970s business and IT alignment has been investigated by many researchers and has evolved in response to changes in the business environment. This evolution has manifested itself in a DBS, which will be discussed in the context of organisational performance in the coming sections, but first, in [section 2.4.1](#), the working definition of a DBS is discussed.

### 2.4.1 Working definitions of a DBS

The term DBS was first coined by Mithas and Lucas in 2010 and was later expanded by Bharadwaj et al. 2013 (Kahre et al., 2017). While many authors over the last years have created their own variation on the definition of a DBS (Zhyganov, 2014), the underlying assumption is that in the modern world the traditional business strategy is no longer the most appropriate approach.

Table 2.1 is a comparative summary of the explicit definitions that different authors have ascribed to the DBS.



Definition	(Bharadwaj et al., 2013)	(Grover & Kohli, 2013)	(Holotiuk & Beimborn, 2017)	(Kahre et al., 2017)	(Mithas, Agarwal, & Courtney, 2012; Mithas et al., 2013; Mithas & Lucas, 2010)	(Sawy et al., 2016)	(Woodard, Ramasubbu, Tschang, & Sambamurthy, 2012)
Creating a differential value or source for competitive advantage	x			x			
Deliberate competitive actions							x
Digital technology incorporation into business strategy			x			x	
Leverage a firm's ability to rapidly deploy systems		x					
Leverage digital resources	x		x		x		x
The extent of any IT activity engagement					x		
The fusion between business and IT strategy	x		x	x	x		
Strategic management of IT resources					x		

**Table 2.1: DBS definition variations**



As evident in Table 2.1, there are many definitions of a DBS as documented over the last ten years. But, in essence, irrespective of the DBS's working definition, the DBS encompasses the organisational elements that are reliant on leveraging IT. In addition, the DBS promotes digital maturity (Aldarbesti, 2016) to create differential value (Bharadwaj et al., 2013; Kahre et al., 2017). The DBS highlights the impact of IT on the way organisations have to conduct their business in response to digitisation (Holotiuk & Beimborn, 2017).

The underlying assumption of a DBS is tethered to the impact it has on organisational performance. After all, the reason for an organisation's existence is to meet customer demands in order to turn a profit (Von Leipzig et al., 2017). As a consequence, the DBS and its relationship to organisational performance are important and is discussed in the next section.

## 2.4.2 DBS and organisational performance

Leveraging digital resources, to gain competitive advantage, requires the coordination between business and IT strategy (Byrd et al., 2006). As previously mentioned, empirical studies over the years have illustrated that business and IT strategy alignment has a positive effect on organisational performance (Byrd et al., 2006; Sabherwal & Chan, 2001). The lens of causal effect was, however, mainly based on the premise that IT strategy is subordinate to business strategy (Bharadwaj et al., 2013; Chi et al., 2016; Holotiuk & Beimborn, 2017; Kahre et al., 2017; Masa'deh et al., 2015) and would have to be coordinated in order to ensure organisations realise a return on IT investments in the short- and long term. The lens was also positioned at a level where performance improvements, based on IT initiatives, were situated at a functional-level such as processes, thus viewing business and IT strategy alignment on an operational excellence level (Coltman et al., 2015; Drnevich & Croson, 2013).

While IT strategies are undergoing a transformation to generate value from digital infrastructure, so too are business strategies to effectively respond to globalisation (Coltman et al., 2015; Tallon & Pinsonneault, 2011). The emergence of the DBS is due to the IT strategy role transformation from functional to strategic (Chi et al., 2016; Mithas & Lucas, 2010). This transformation is blurring the lines between business strategy and IT strategy, making the merging of the two strategies into a DBS a logical step.

This merging of business and IT strategies into a DBS can be explored from four perspectives or themes, namely boundaries or scope, scale, speed and value creation. The scope of the DBS is concerned with how an organisation leverages their resources to expand on the products and services they offer the customer



and how they extend their reach in the market (Bharadwaj et al., 2013; Mithas & Lucas, 2010). The scale of the DBS is concerned with how an organisation leverages technology to lower their operating and production costs of their products and services offering. The speed of the DBS is concerned with how an organisation can leverage technology to quickly launch new products or services into the market (Bharadwaj et al., 2013; Grover & Kohli, 2013), evaluate an abundance of data and make decisions, and coordinate activities across their value chain (Bharadwaj et al., 2013). The last perspective, value creation of the DBS, is concerned with how an organisation leverages technology to derive value from information (Bharadwaj et al., 2013) and optimising existing or designing new innovative products and services (Bharadwaj et al., 2013; Reijnen, 2018). Value can be derived in both non-financial and financial forms. Non-financial value could be in the form of the ability to adapt quickly to customer and market changes, improving on how organisations differentiate itself from competitors, and being agile in adapting to markets and responding to customer needs. Financial value could be in the form of improved productivity, new organisational capabilities, and enhanced resources (Kahre et al., 2017). As defined in [section 1.3](#) this study primarily focusses on exploring the first perspective which is the boundaries or scope of the DBS.

The concept of the DBS could reduce misalignment that results in an organisation losing its competitiveness and agility in their chosen market (Coltman et al., 2015). This also means that measuring the value from IT in an organisation at a functional level may no longer be sufficient. Therefore, exploring the link between IT initiatives at an organisational level performance, as it relates to economic rents, would be more appropriate in modern society.

In order to understand the impact of IT initiatives on the organisation as a whole, first, the concept of competitive advantage as it relates to a digital business must be explored. This includes elements such as transparency strategies and market response strategies as it relates to the organisation in modern society.

### **2.4.3 DBS in the Schumpeterian context**

Schumpeterian rents are derived from innovative services or products (Schumpeter, 1934), which allows an organisation to charge for services and products above the cost price of said services and products. For an organisation to be positioned appropriately within the market in the Schumpeterian context, competitive actions such as innovation must be taken. In the context of exploiting value derived from digital infrastructure, organisations must be aware that competitive advantage, through IT initiatives, may



be short-lived, as IT initiatives that create competitive advantage, are visible to competitors, thus making it easy to replicate or exceed (Dehning, Richardson, & Stratopoulos, 2005; Grover & Kohli, 2013; Mithas et al., 2013). With this in mind, organisations must define and execute their DBS to exploit short-term value but also maintain long-term strategic value (Chi et al., 2016; Woodard et al., 2012). To create both short- and long-term value, organisations must ensure they understand their digital posture within a market (Mithas & Lucas, 2010; Mithas et al., 2013) and understand trade-offs in system visibility and value (Grover & Kohli, 2013).

To clarify, digital posture within a market refers to where an organisation is positioned, in relation to digital infrastructure, compared to its competitors within a market. As mentioned before, IT initiatives are visible to actors outside of the organisation, which creates valuable input into defining a DBS, which could mean to diverge from or converge toward the norm of the industry based on the competitive advantage the organisation desires (Mithas et al., 2013). Equally important to understanding the digital posture based on existing visibility of IT competitive actions as it relates to IT, the organisation must evaluate which IT initiatives should be strategically hidden for long-term strategic competitive advantage (Grover & Kohli, 2013). To re-iterate, achieving efficiency without compromising competitive advantage or flexibility is the purpose of a DBS (Markus & Loebbecke, 2013).

For organisations to manage how they are going to pursue the execution of a DBS, which includes digital posture and their position in the industry, they must consider the managerial insights or logic that is most appropriate for what the organisation aims to achieve. The managerial insight or logic, most aligned with the Schumpeterian view of rents is the logic of opportunism. To clarify, managerial insights within the context of this study refer to how organisations can formulate and execute a DBS. Logic refers to the guide to managerial insights. Three logics guide managerial insights namely the logic of positioning, the logic of leverage and the logic of opportunism (Woodard et al., 2012). The logic of positioning is concerned with where an organisation positions themselves in the market, through differentiation or cost leadership (Porter, 1980, as cited in Al-Debei, 2008). In contrast, the logic of leverage is concerned with sustaining a competitive advantage through rare, unmatched resources. Last, the logic of opportunism is concerned with an organisation being innovative to maintain a competitive advantage. This is a continuous cycle of innovation and seeking of opportunities as the competitive advantage in this logic is fleeting (Woodard et al., 2012).



While the logic of opportunism seems to be a fit for developing and executing a DBS, there has been conceptual frameworks which suggest that the DBS may have a distinct logic called the logic of DBS or the fusion view of IS. This logic consists of two elements named design capital and design moves, where design capital refers to the organisation's IT architecture and the design moves refer to the strategic moves the organisation makes to modify the organisation's IT architecture. Design capital creates strategic value for the organisation through the innovation it enables and can be an enabler or hindrance to the design moves the organisation would like to make (Woodard et al., 2012). This new logic encompasses the logic of opportunism.

#### **2.4.4 DBS in the resourced-based view context**

While this study will be focusing on the Schumpeterian view of economic rents, the resource-based view (RBV) cannot be ignored as the components of alignment includes the element of skill. The RBV supposes that there are scarce resources within the organisation that can be leveraged to gain and sustain competitive advantage. In the modern society where IT is the strategy, the IT skills of an organisation are considered a strategic resource (Pavlou & Sawy, 2006; Wang, Chiu, & Chen, 2013) as it would be difficult to execute any strategy if the organisation does not have access to the right hard- and soft skills, at the right time to understand the business demand and perform any configuration in order to respond to the market (Teece et al., 1997). These IT skills are not limited to IT personnel though. The need for IT skills is also required in that of business executives and business staff (Holotiuk & Beimborn, 2017).

While all of section 2.4 demonstrates how the concept of alignment has evolved over the years, it does not yet explain why this evolution was necessary. The following section provides the context that necessitated the evolution of alignment to a DBS.

### **2.5 Traditional versus digital business**

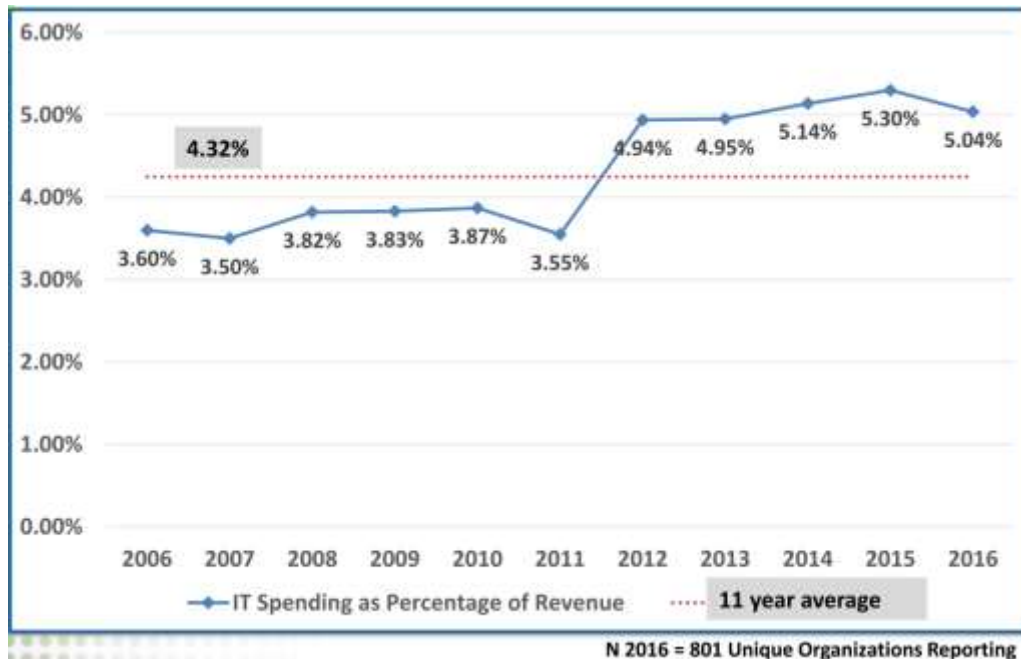
Before delving into the detail of the elements of a DBS, it is important to understand what a digital business is as digitisation is the reason for a DBS's existence. Digital business refers to the degree to which an organisation's infrastructure is reliant on technology. With the use of software, hardware and standard protocols such as connectivity through the internet and mobile webs, the manner in which organisations executes business processes are becoming more digital than traditional, hence the rise of the concept of a digital business (Bharadwaj et al., 2013). The rapid growth of the digital business phenomenon can be



attributed to the exponential evolution of the internet (Iivari, Ahokangas, Komi, Tihinen, & Valtanen, 2016) and technologies alike which have created opportunities for business transactions to be digitised. The fast-paced technological advances caused a market disruption (Veit et al., 2014), which caused a discontinuity and created the divide between traditional and digital business.

Not only are technological advances reshaping the way organisations are conducting business it is also influencing strategies for creating a competitive advantage (Bharadwaj et al., 2013). In other words, for organisations to successfully compete in this digitised environment, they are leveraging IT as a strategic instrument (Gerow et al., 2015; Granados & Gupta, 2013). Since IT component prices are decreasing (Weinrich, 2017) and IT infrastructure such as architecture and networks are diffusing, it is no surprise that IT is steadily becoming the key driver for business innovation (Fichman, Dos Santos, & Zheng, 2014) thus elevating IT to a strategic instrument as opposed to merely a functional tool.

While IT components prices may be decreasing, IT investments are increasing. That is understandable considering digital transformation cannot happen without investing in digital solutions (Westerman et al., 2014). To demonstrate how IT has steadily become more important over the last decade the statistics on the average IT spend as it relates to revenue is provided in Figure 2.9.



**Figure 2.9: Percentage of revenue allocated to IT budget (2006 – 2016)**

Source: (Kappelman et al., 2017)



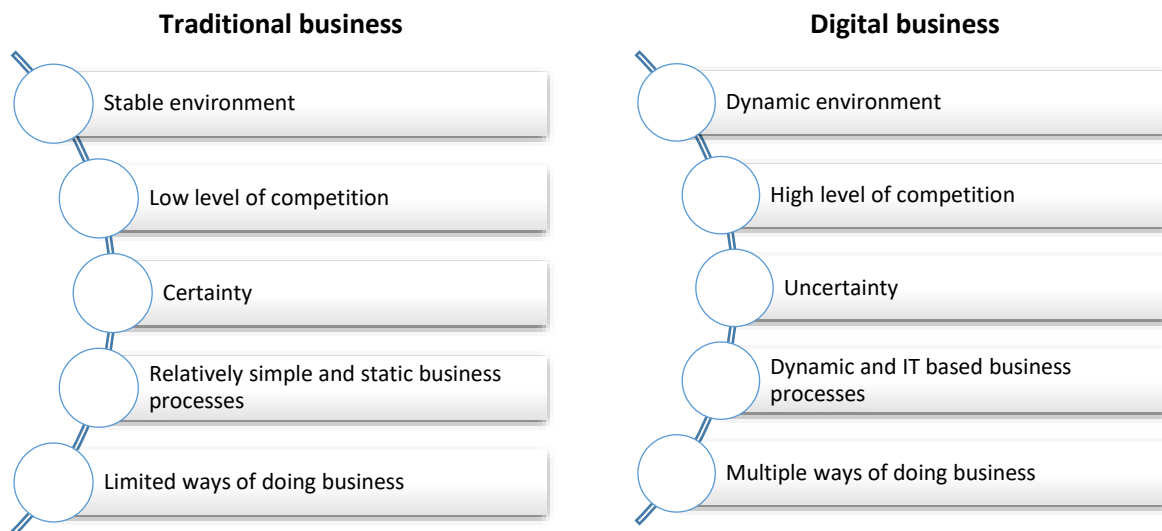
In addition to impacting business operations, the digital era also influences everything from the entry of an organisation to industry, surviving in the industry to outsmarting competitors in order to remain in and dominate the industry. First, the cost of setting up a traditional business is much higher than that of a digital business. While the high setup costs for a traditional business contributed to a strategic barrier of entry into an industry for organisations, the digital business organisation does not have the same strategic barrier (Al-Debei, El-Haddadeh, & Avison, 2008).

Moreover, operating a traditional business is very different from operating a digital business. Since the barrier of entry into the industry is different for traditional and digital businesses, traditional businesses face a lower level of competition while digital businesses have a higher level of competition. Furthermore, with greater competition levels and with fast technological advances, digital business operates in a dynamic or even turbulent environment (Giannoulis, 2014; Pavlou & Sawy, 2010) and of course, IT-based processes (Bharadwaj et al., 2013), while a traditional business enjoys a more stable environment where business processes are well-established and lends to performing business functions in a limited way.

The emergence of new fast-paced technologies in a dynamic and ever-changing environment where there is a high level of competition results in a level of uncertainty (Pavlou & Sawy, 2010) that was last seen in the Industrial Revolution era (Holotiuk & Beimborn, 2017; Westerman et al., 2014). While the traditional view of digital uncertainty is as external factors, organisations may use this as an opportunity to create the market turbulence themselves to capitalise on the confusion from competitors (Kahre et al., 2017; Mithas et al., 2012). Consider the case of Netflix that created a disruption in the film rental industry market by offering consumers a new way of watching movies. This disruption transformed the movie rental industry so much so that it displaced a giant such as Blockbusters.



Figure 2.10 summarises the differences between a traditional business and a digital business according to Al-Debei et al. (2008).



**Figure 2.10: Key differences between traditional business and digital business**

Source: (Al-Debei et al., 2008)

While there is a definite difference in the way that traditional and digital businesses are operating it is important to remember that the forces that drive the traditional business are the same forces that drive the digital business. However, the major difference is that value in a traditional business are limited to the products or services provided, while a digital business drives value through increasing the ‘choice space’ for customers (Keen & Williams, 2013). The following section discusses the impact of the digital business on the end-customer.

### 2.5.1 Digital Business and the end-customer

Increasing choice space is where the organisation has the flexibility and ability to move beyond the limitation or constraint of offering value through asset-specific offers. In the case of IT alignment under the theme of an innovation ecosystem, digital businesses have the flexibility to broaden the dimension of value to customers by encroaching on other industries’ products and services (Keen & Williams, 2013; Pagani, 2013). E.g. Apple has successfully infiltrated the music and gaming industry, without developing any games or creating any music themselves. They have done this by leveraging IT to create partnerships with various suppliers and have increased the choice space for customers.



In the case of IT alignment under the theme of DBS, organisations make use of an technologically enabled omnichannel (Sebastian et al., 2017) to get closer to their customers and generating value for both the customer and the organisation by creating a differentiated customer experience (Westerman et al., 2014). This differentiated experience for the customer encompasses integrating both the physical and digital experiences of the customer into one seamless engagement (Holotiuk & Beimborn, 2017; Piccinini, Hanelt, Gregory, & Kolbe, 2015). It also includes building a direct communication line with the customer, without the presence of third parties, in order to create and maintain an ongoing relationship with customers and in so doing establishing an emotional brand connection (Holotiuk & Beimborn, 2017). Irrespective of the theme lens applied to digitisation, it means that IT is influencing the business scope. That is, the strategic leveraging of IT is impacting the offer the organisation can present to its intended customer. Therefore, in a modern society, IT is becoming the strategy for organisations.

In addition to the change in business operation that comes with technological advances, so too does technological advances influence both internal and end-customer expectations (Horlach et al., 2016; Peppard & Ward, 2016; Piccinini et al., 2015; Westerman et al., 2014). For instance, before the mid-2000s the typical end-customer had no expectation that airlines had any easily accessible airfare information available. Information of this nature required great effort on behalf of the customer. Today, however, customers have come to expect visibility and transparency of airfare and other relevant information when booking a flight through an online portal. This evolution in customer expectation increases the pressure on organisations to respond to such demands (Horlach et al., 2016; Piccinini et al., 2015; Sousa & Rocha, 2019; Von Leipzig et al., 2017) to remain relevant in the industry.

Moreover, the expectation of the customer is not only limited to current explicitly voiced demands but also includes the expectation that organisations will anticipate their wants and needs in the future before the customers themselves knows what they want or need (Sebastian et al., 2017; Von Leipzig et al., 2017). The case of Apple is a great example of anticipating the needs of the customer before the customer themselves realised what they wanted or needed. This was made possible by Apple understanding their current competences and understanding what possibilities digital innovation can create (Sebastian et al., 2017).

With technology enabling organisations to improve customer engagement experiences, and customer expecting improved engagement experiences, organisations must, now more than ever before, focus on



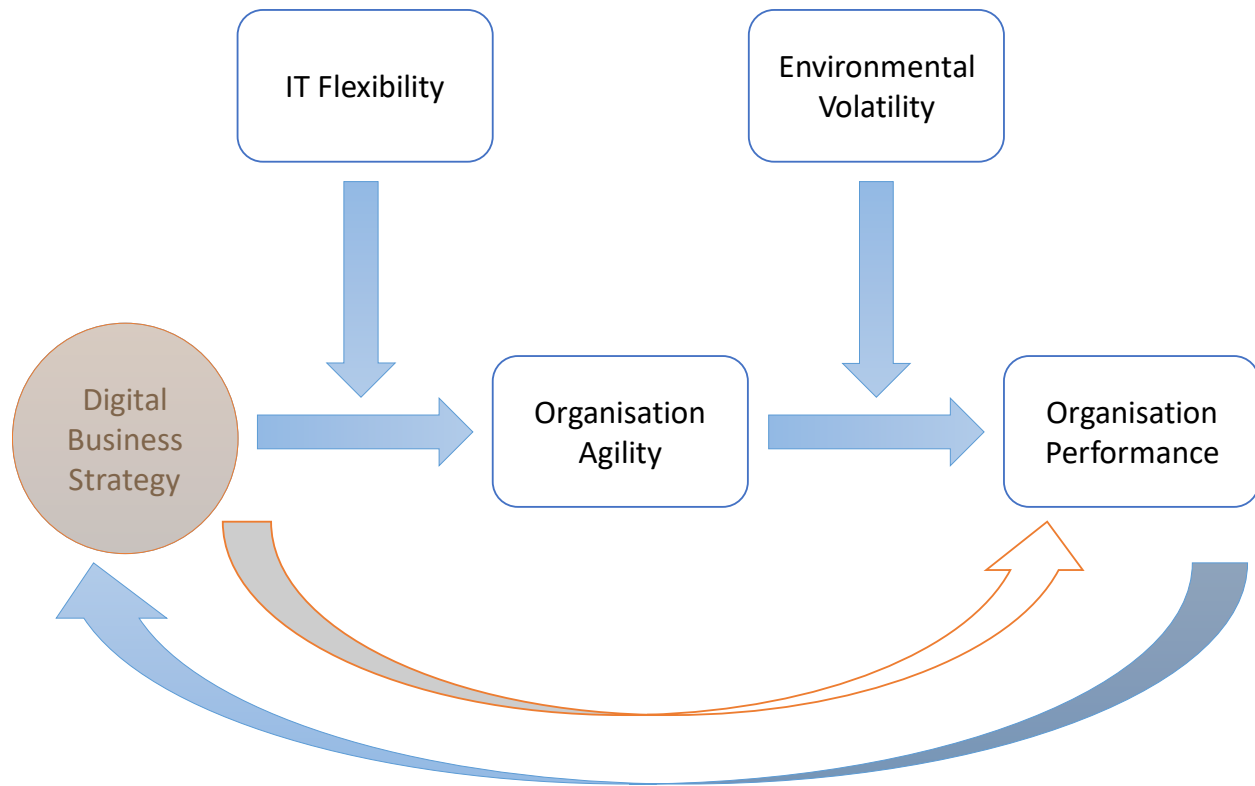
understanding customer requirements in order to design a customer experience that will align with the customer's expectation (Westerman et al., 2014). To this end, not only are business practices impacted in an effort to meet customer demands and expectations but internal to the organisation, there is more and more pressure on the IT department to respond to these demands in a digital business with agility (Kahre et al., 2017).

## 2.5.2 Flexibility and agility in a digital business

As previously indicated, a digital business creates the opportunity for choice space and choice space provides the platform to derive value. Since the aim of a digital business is to cater to the ever-changing needs of the customer through IT, organisations must create the foundation in architecture to be able to respond to the ever-changing needs and expectations (Kahre et al., 2017; Kappelman et al., 2014; Keen & Williams, 2013; Lowry & Wilson, 2016; Wang et al., 2013). In brief, agility is described as how quickly an organisation can identify and respond to the shift in the market disposition in order to revise and adjust their behaviour (Tallon & Pinsonneault, 2011). The agility to respond to the market, through IT, is an enabler for a digital business executing its value proposition (Kappelman, McLean, Johnson, & Gerhart, 2015) and contributes to an organisation achieving competitive advantage (Tallon & Pinsonneault, 2011; Wang et al., 2013), or at the very least prevent an organisation to fall into a disadvantage (Peppard & Ward, 2016).

For an organisation to be agile in responding to the market, their IT infrastructure must be adaptable (Richardson, Kettinger, Banks, & Quintana, 2014) and scalable. Adaptability refers to how well the infrastructure can support the IT needs of the organisation, for example having a system that can integrate information from satellites systems without the need for data translation. Whereas scalability refers to the ease by which organisations can adjust by adding or removing IT infrastructure or components as required (Tallon & Pinsonneault, 2011).

Figure 2.11 shows how IT flexibility influences organisation agility and how it relates to a DBS and organisational performance.



**Figure 2.11: DBS and organisation agility**

Source: Adapted from (Tallon & Pinsonneault, 2011)

While IT is required to be agile to effectively respond to market trends, this transformation of IT itself lends to the emergence of managerial issues such as strategic tension that previously have not been so prominent (Masa'deh et al., 2015; Woodard et al., 2012; Yeow et al., 2018). The following section discusses the advent of these tensions.

### 2.5.3 Agility and the duality of IT

For organisations to respond to the demands of a digital business, IT is required to add value greater than just cost reduction (Peppard & Ward, 2016) and must have agility and speed when introducing these value-added solutions (Horlach et al., 2016; Lowry & Wilson, 2016; Pavlou & Sawy, 2010). This is in addition to being at the forefront of providing stable and reliable solutions that are focussed on improving organisational efficiency at a core (Dehning et al., 2005; Fichman et al., 2014; Kappelman et al., 2015). This shows that an organisation's use of IT is becoming a strategic factor and it is thus understandable that IT leadership is focussing less on operational and tactical matters and is focussing more on strategic



elements such as agility and innovation (Kappelman et al., 2014, 2015). It also shows that IT is no longer solely complimenting the business strategy on a functional level focussing on operational effectiveness but is raised to a strategic element that conforms to Porter's (1996) definition of strategy.

As such, IT in a digital business must practically fulfil two modes of operation, namely traditional IT and agile IT (Horlach et al., 2016). This is done in order to meet the current demands of the organisation but also anticipate and respond to future demands of the market (Grover & Kohli, 2013; Holotiuk & Beimborn, 2017; Woodard et al., 2012). The characteristics of two IT modes are summarised in Table 2.2, as described by Horlach et al. (2016).

Traditional Vs. Agile IT Characteristics		
Traditional IT		Agile IT
Stability	<i>Goal</i>	Agility and speed
Centred around IT	<i>Culture</i>	Centred around business
Distant from customer	<i>Customer proximity</i>	In close proximity to the customer
Security and performance improvement	<i>Trigger</i>	Short-term market trends
Performance of service	<i>Value</i>	Customer-focused branding
Reliability and security	<i>Focus of service</i>	Innovation
Waterfall development	<i>Approach</i>	Iterative and agile development
Systems focused on records	<i>Applications</i>	Systems focused on engagement
Slow	<i>Speed of service delivery</i>	Fast

**Table 2.2: Traditional and agile IT characteristics**

Source: (Horlach et al., 2016)

It is important to note that one IT mode does not preclude the existence of the other. Having contradictory strategies in place in an effort to align business with IT strategy, may cause tension in the organisation (Yeow et al., 2018). Having two speeds of IT in the organisation to cater to long- and short-term market trends are two such conflicting strategies. As such, organisations may try to address this tension by wanting to choose one over the other. However, in the digital business, the resolution of this tension should be in organisations accepting the paradox and focusing on both IT modes (Kahre et al., 2017; Yeow et al., 2018). The importance of relieving the tension is to promote alignment that can ultimately lead to ensuring that the digital business performs to its best by keeping abreast with market trends and implementing the right IT solutions at the right time to gain competitive advantage (Daniëls, 2017; Rahimi, Møller, & Hvam, 2016).

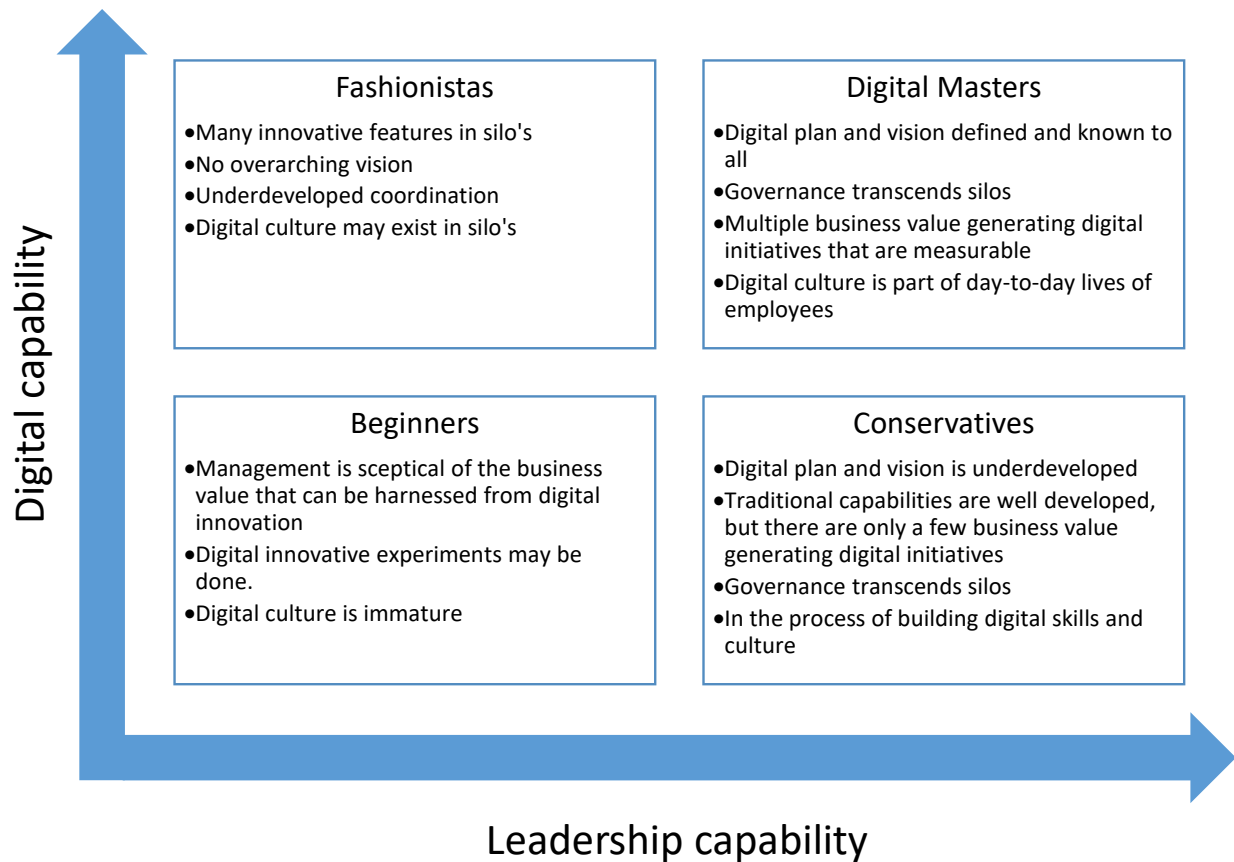


For example, while traditional IT encourages exploiting IT investment for as long as possible to gain the most return on investment (ROI) as it relates to the sunken IT cost during implementation, organisations must consider the trade-offs between extracting value from as-is existing IT and adjusting the strategy in order to respond to environmental changes (Tallon & Pinsonneault, 2011). Trade-offs in this instance do not equate to choosing one over the other, but recognising the prospect of being creative while pursuing both simultaneously (Yeow et al., 2018).

As there are clear differences between traditional businesses and digital businesses, so too are there various dimensions of digital businesses. Westerman (2014) identifies four levels of digital businesses, namely beginners, conservatives, fashionistas and digital masters.

#### **2.5.4 Dimensions of a digital business**

Beginners are classified as organisations with an immature digital culture and that has managers who are not convinced of the value of innovative technological solutions. Conservatives have a principal digital vision and may have a few innovative technological solutions. Fashionistas, on the other hand, have many innovative technical solutions but does not have a principle digital vision. Last, the digital masters have a robust principle digital vision, solid digital culture and have many innovative technologies creating value (Westerman et al., 2014). Figure 2.12 illustrates the dimensions of digital businesses.



**Figure 2.12: Digital business dimensions**

Source: (Westerman et al., 2014)

Whether a digital business falls into a beginner or digital master dimension, certain conditions are pre-requisites for the formulation of a DBS (Kahre et al., 2017). The following section explores these conditions.

## 2.6 Preconditions for DBS formulation

As mentioned in [section 1.1](#), IT strategy is no longer subordinate to business strategy and should be viewed as strategic as opposed to merely functional. In other words, IT strategy should be viewed as business strategy's coequal. As a result, an important precondition for DBS formulation is a mindset change of the understanding of IT (Kahre et al., 2017). This mindset change must be attuned to the DBS characteristics which are to be inviting of change and encouraging of transformation (Holotiuk & Beimborn, 2017).



Another precondition for the formulation of DBS is a fit for purpose organisational structure. IT must be represented in the organisational hierarchy appropriately for the IT executive to have a line of sight of business executives tactical and strategic planning (Kahre et al., 2017; Wagner et al., 2014). Equally important, business executives must have a line of sight into the digital plans. After all, “digital governance” requires synchronised prioritisations of initiatives between business and IT executives (Kahre et al., 2017, p. 4709).

A third precondition is that an organisation is obligated to use technology effectively and innovatively. This is due to technology becoming so abundant that technology itself cannot be a differentiator but the *use* of the technology becomes the innovator (Kahre et al., 2017; Peppard & Ward, 2016). As mentioned before in [section 2.5.1](#), digital innovation has an impact on the service portfolio of an organisation. As such, another precondition for the formulation of a DBS is the acceptance that strategy content will change due to technology (Bharadwaj et al., 2013; Kahre et al., 2017).

[Section 2.4](#) illustrated the evolution of the alignment concept that lead to the rise of the DBS. [Section 2.5](#) and [section 2.6](#) explored the conditions in which the DBS exists in. The following section is going to focus on the impact the fusion of business and IT strategy has on alignment and how organisations should approach alignment in the context of the DBS.

## 2.7 DBS alignment process

While the rise of the DBS may be a logical step in the modern world, it is not without its challenges. With the merging of business and IT strategy, thus becoming the DBS, the variables contributing to alignment may be affected. Furthermore, what it means to be aligned could also be affected. In addition, it appears as though there is a diminished need for alignment between business and IT strategy from the perspective of a DBS, as it will effectively be one strategy. However, this view may be short-sighted (Bharadwaj et al., 2013; Coltman et al., 2015), as the merging of a business and IT strategy does not automatically prevent poor decision making which could result in organisations investing in inappropriate IT solutions and thusly causes sub-par organisational performance (Coltman et al., 2015).

New approaches to assist business and IT executives align business and IT strategy have been developed over the years to respond to the evolution of alignment itself. According to Yeow et al. (2018), alignment should not be viewed as an event or an end-state goal, like it was perceived in the past, but should be treated as a process to respond to the dynamic environment that is brought on by the exponential



technological advancements. In their empirical study, they have confirmed two patterns of alignment between business and IT strategy in the context of the DBS namely continuous adjustment and punctuated equilibrium.

Continuous adjustment is concerned with continuous small changes to one or more elements of alignment over a period of time, which can be changes from the top-down and the bottom up (Karpovsky & Galliers, 2015; Yeow et al., 2018). Punctuated equilibrium refers to a change that is brought on by environmental changes (Yeow et al., 2018) which is causing the organisation to make a strategic move. For instance, a significant competitor entered the industry, or an existing competitor caused a disruption in the market, causing an organisation to make strategic changes as a reflexive response to the turbulence.

Whether the alignment follows the continuous adjustment or punctuated equilibrium pattern, alignment in the context of a DBS should be a process and not an event (Karpovsky & Galliers, 2015; Yeow et al., 2018). This process includes activities business and IT actors perform on a daily basis, on an individual level, such as alignment as adapting, where adjustments are made to fit into a new environment, alignment as translation, where business and IT actors create a shared language to better understand each other, and alignment as integration where business and IT actors find ways to work well together (Karpovsky & Galliers, 2015). Creating a shared language and finding ways to work well together can only happen when IT executives take on the role of an educator and teach business executives and vice versa (Preston & Karahanna, 2009; Zhyganov, 2014).

### 2.7.1 DBS alignment process phases

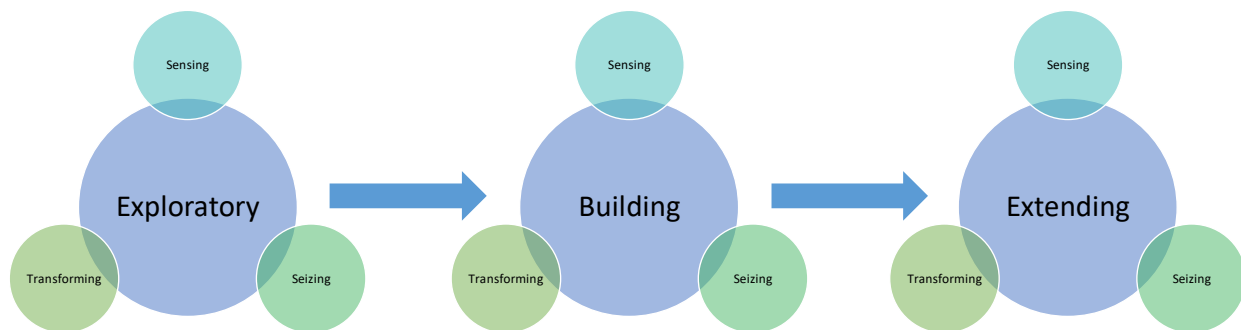
There are three distinct phases in the alignment process namely exploratory, building and extending (Yeow et al., 2018). The exploratory phase concentrates on the initiation of the alignment process, where organisations sense current and potential threats and new digital opportunities (Holotiuk & Beimborn, 2017; Yeow et al., 2018). As technology is breaking down conventional barriers between industries, organisations may find competition from organisations that, prior to technological advances, were not operating in the same space as they were. Conversely, this barrier breakdown also allows organisations to make alliances with companies not previously even thought of. As such, it requires organisations in the digital era to fervently scan the market for emerging opportunities and threats (Holotiuk & Beimborn, 2017). Phase two focusses on developing or acquiring the resources to support the new strategy and the



extension phase, phase three, focusses on transforming the organisation to sustain the new strategic direction (Yeow et al., 2018).

During these phases, three distinct alignment sub-processes are performed namely sensing, seizing and transforming. These processes are different to the activities identified by Karpovsky and Galliers (2015) as these processes are not aimed at the activities performed by business and IT on an individual level but are focused on the processes that are followed on an organisational level.

Sensing includes scanning and learning about new opportunities that present itself and formulating strategies for the new organisational direction. The seizing process encompasses identifying requirements and designing processes that could be used for the new direction of the organisation. It also includes obtaining a commitment from decision making heads to pursue the opportunity and selecting the most appropriate route for implementing the new direction. While the transforming processes involve creating the hierarchical structures in support of the strategic move and leveraging existing infrastructure and processes and creating new ones. Figure 2.13 shows, in graphical terms, the phases and processes in unison. It is important to note that while the same processes are present in each phase, the effort required per process depending on the phase it is in (Yeow et al., 2018).



**Figure 2.13: Alignment process phases**

Source: (Yeow et al., 2018)

To effectively execute alignment to improve organisational performance in the context of the DBS, organisations must ensure that both business and IT executives have digital literacy capability (Holotiuk & Beimborn, 2017; Mithas & Lucas, 2010; Ukko, Nasiri, Saunila, & Rantala, 2019). This means that the leaders of the organisation must be able to have an understanding of how the components of a DBS



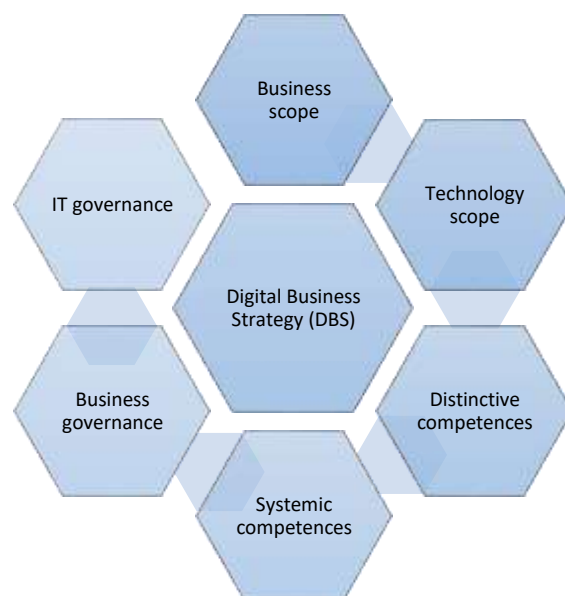
synchronise with each other, how the organisation manages IT projects and infrastructure, and how IT governance will be managed (Mithas & Lucas, 2010).

Thus far the evolution of the DBS has been explored as to the preconditions for the existence of a DBS. The following section explores the components of a DBS.

## 2.8 Components of a DBS

As mentioned before, this study adheres to the definition of alignment as the degree to which IT infrastructure, business structure, business strategy, and IT strategy fit with or integrate with each other which is intellectual and operational alignment. It will also focus on the individuals involved with alignment which is covered under the social and cultural alignment.

Henderson and Venkatraman's (1999) SAM model indicates three elements within the business strategy and three elements within the IT strategy that needs to work together in order to align on an intellectual level. Business scope, distinctive competences, and business governance are the elements within the business strategy. Technology scope, systemic competences, and IT governance are the elements within the IT strategy. As a DBS is a fusion between business and IT strategy, it stands to reason that a DBS should encompass all six elements as illustrated in Figure 2.14.



**Figure 2.14: DBS elements**

Source: Adapted from (Henderson & Venkatraman, 1999)



### 2.8.1 Business scope

Business scope or corporate portfolio refers to the products and services the business provides to its customers. This also includes the activities that an organisation perform that is “within a company’s direct control and ownership” (Bharadwaj et al., 2013, p. 473). The business scope also includes market information such as known and potential competitors (Peppard & Ward, 2016). There is substantial evidence that an IT-enabled organisation is in a better position to offer new products and services to its customers (Bharadwaj et al., 2013; Mithas & Lucas, 2010). This is because the use of digital technology affords organisations the opportunity to diversify their corporate portfolio.

An organisation’s corporate portfolio is closely related to its strategy as the strategy houses information as to how the company will offer its corporate portfolio to its customers (Bharadwaj et al., 2013). To this end, since digital technologies are impacting an organisations corporate scope, the range or scope of traditional business strategy is not as broad as the range or scope of a DBS. Similarly, the incorporation of business strategy elements with IT strategy elements into a DBS also means that the DBS has a broader scope than a traditional IT strategy (Reijnen, 2018).

With the interconnectivity between business functions in the organisation, for example, order management, customer management and logistics, and with parties outside of the organisation such as suppliers and customers, which is afforded to the business scope through IT, the DBS is considered “*transfunctional*” (Bharadwaj et al., 2013, p. 473). This characteristic of the DBS invites the organisation to not only draw its borders around the parameters of the organisation itself but extend the borders to include these actors into an ecosystem (Reijnen, 2018).

### 2.8.2 Technology scope

Technology scope is an organisation’s information and IT technology portfolio (Peppard & Ward, 2016). According to Mithas et al. (2012), IT can shape business strategy by taking on five forms. This section describes each form of IT including highlighting its potential and challenges for executives through each form. In the DBS context, business and IT executives plan how the organisation will manage the five forms of IT.



## **2.8.2.1 IT form one – Innovative**

### **2.8.2.1.1 Potential**

In the context of the DBS, leveraging IT can result in disruptive or sustaining innovation or both (Mithas et al., 2012). Disruptive digital innovation is technology such as Internet of Things (IoT), big data, and cloud computing that is drastically changing the face of the business world (Sousa & Rocha, 2019). Where sustaining innovation focuses on creating a space for an organisation to have longevity (Mithas et al., 2012). Irrespective of organisations using IT as an enabler for disruptive or sustaining digital innovation it is needed for organisations to excel in their chosen industry or at the very least remain relevant (Sebastian et al., 2017).

### **2.8.2.1.2 Executive challenge**

On the one hand, business and IT executives may be oblivious to the power of technology and may not recognise how disruptive the effective use of technology may be in the industry. On the other hand, executives may view every opportunity as disruptive, which can be as damaging as not seeing the potential at all (Mithas et al., 2012). This means that IT and business executives must increase their knowledge of IT in order to recognise IT-enabled threats and opportunities and of course how to mitigate and exploit them respectively (Sousa & Rocha, 2019). This also means that organisations should focus on capitalising on short-term opportunities in the market but also focus on operational excellence (Alsolamy, Khan, & Khan, 2014).

## **2.8.2.2 IT form two – Reshaping and adaptive**

### **2.8.2.2.1 Potential**

IT can reshape the market and force competitors to adapt or perish (Mithas et al., 2012). Take the cases of Amazon and Google with their self-driving car initiatives. Even an industry traditionally dependent on physical materiality is being reshaped by technology and the reshaping is not even done by car manufacturing giants but digital-born giants (Piccinini et al., 2015). As great as IT is at reshaping markets it also affords the competition with the opportunity to make it easier for them to adapt to a changing market. This duality of IT must be effectively managed (Mithas et al., 2012) by business and IT executives to seize opportunities that would not exist without digital innovation.



### **2.8.2.2.2 Executive challenge**

In the context of the DBS, executives must decide if they would like to shape the market, i.e. create the disruption or alternatively, if they would like to use IT to adapt to the market. Both approaches have benefits and disadvantages (Mithas et al., 2012).

### **2.8.2.3 IT form three – Competitive advantage**

#### **2.8.2.3.1 Potential**

Based on IT form one and two, IT could provide the organisation with a competitive advantage, however, due to the nature of IT, there will be transparency to the strategic moves which are visible to all competitors (Mithas et al., 2012). Since the competitive advantage is time-bound (Pavlou & Sawy, 2006), a DBS must take into consideration that differential value extracted from products and services is not long-lasting. As a result, the organisation must be very aware and must plan for the obsolescence of their offer to the customer (Bharadwaj et al., 2013), considering the ever-evolving technological advances and replication of offers by competitors (Granados & Gupta, 2013). This means that organisations must speed up their product launches to remain competitive (Bharadwaj et al., 2013). To achieve this, the organisation must focus on both process efficiency and product effectiveness simultaneously. To promote product effectiveness, the organisation must understand customer preferences (Pavlou & Sawy, 2006).

Speeding up product launches in the context of the DBS requires a change in the method of delivering products to the market (Pavlou & Sawy, 2006). This includes adopting a minimum viable product (MVP) release model where the core product is released into the market and any additional features or improvements can be made later based on the continuous loop of customer feedback. This new way of product delivery also allows business and IT executives to foster a culture for continuous improvement based on learnings from quick releases and failing fast but cheaply (Holotiuk & Beimborn, 2017).

#### **2.8.2.3.2 Executive challenge**

Executives must decide whether to be first to market or if they would like to be a “fast follower” (Mithas et al., 2012, p. 2). Both of which have advantages and disadvantages in that first to market provides the organisation with a competitive advantage but also saddles to organisations with the risk and cost associated with being first to market.



Whereas the fast-follower can take the learnings from the first mover and enjoy lower risk and less IT investment (Bakos & Kemerer, 1992), but lose out on the competitive advantage. [Section 2.13](#) has a more comprehensive description of IT transparency. It is important to note that being first to market and shaping the market, as per IT form two, are not the same. This is because an organisation does not have to be first to market in order to be a shaper (Mithas et al., 2012). Consider the case of Myspace versus Facebook. While Myspace was first to market, Facebook ended up being a shaper of the market in the long run (Woodard et al., 2012).

## **2.8.2.4 IT form four – Cost and economics**

### **2.8.2.4.1 Potential**

While exploiting economies of scale is not a new concept, considering organisations have been using this approach throughout the industrial era, leveraging technology in this regard is ground-breaking as technology significantly reduces the cost of transactions and unit costs of products (Bakos & Kemerer, 1992; Bharadwaj et al., 2013; Mithas et al., 2012). This reduction in transaction cost is causing the disaggregation of value chains (Holotiuk & Beimbom, 2017). Therefore, as technologies such as cloud computing, expanding networks, and sharing digital technologies with internal and external partners and even competitors, a DBS enables an organisation to quickly scale up or down depending on the strategic direction (Bharadwaj et al., 2013). The challenge a DBS, under the scale theme has, is sustaining effective relationships with all in the organisation's ecosystem in order to monitor their changes in strategic direction (Reijnen, 2018), that could impact the organisation.

As digital technology impacts the corporate portfolio of an organisation, it inevitably increases the sources an organisation can extract value from. A DBS leverages information gathered from the market and relays it into the development of products and services customised for its customers, increasing new ways of delivering said product and services (Reijnen, 2018). A traditional business strategy, with its smaller reach to the market, does not have as many dimensions and is not as complex as DBS as a DBS create value from multisided and coordinated business models (Bharadwaj et al., 2013; Holotiuk & Beimbom, 2017) that increases an organisation's performance (Gerow et al., 2015).



#### **2.8.2.4.2 Executive challenge**

Executives must be aware of the potential IT holds for using IT infrastructure across the organisation effectively enabling horizontal aggregation. Equally important, executives must also take notice of the effect IT can have on the disaggregation of the vertical value chain of the organisation. Thus, executives must learn how to exploit IT for both vertical disaggregation and horizontal aggregation simultaneously (Mithas et al., 2012).

#### **2.8.2.5 IT form five – Flexibility and agility**

##### **2.8.2.5.1 Potential**

IT has the potential to bring flexibility and agility to the organisation (Mithas et al., 2013), through reshuffling current resources. In other words, the organisation can quickly respond to market turbulence by reconfiguring, building and integrating its current competences (Kahre et al., 2017).

Flexibility and agility are also dependent on the speed of decision making, which is made possible by IT enabling the quick dissemination of information between decision-makers (Bharadwaj et al., 2013). Information is not only quickly disseminated but part of its origin stems from real-time data collected from customers. With customers given the technological platforms to share their experiences and demands through social media for instance (Westerman et al., 2014), organisations have rich contextual information provided by the customer itself (Kahre et al., 2017), which can be used to inform the strategic direction of the organisation (Bharadwaj et al., 2013). Of course, this information-gathering efforts also stretches to other actors in the market such as competitors.

With access to such rich information, a DBS can aid in the speed in which the organisation aligns its supply chain to effectively manage the organisation's current corporate portfolio based on current needs, but also allows the focus to be on the future product portfolio based on trends observed (Bharadwaj et al., 2013) through these technological platforms.

##### **2.8.2.5.2 Executive challenge**

While IT brings flexibility and agility IT also brings uncertainty by means of the strategic moves of competitors and innovative technology. Executives must learn how to take advantage of the flexibility and agility IT affords to the organisation and must also learn how to best deal with the uncertainty. One



approach to dealing with the uncertainty is to be the organisation that causes disruption in the market place (Mithas et al., 2012)

### **2.8.3 Distinctive competences**

An organisation's distinctive competence is the elements which lend the organisation with a competitive advantage, such as pricing structure and value chain optimisation (Peppard & Ward, 2016). These competences are distinctive in nature as an organisation's competition does not have them (Snow & Hrebiniak, 1980). In the context of the DBS, these distinctive competences can manifest itself in a variety of ways. For example, Amazon has a virtual inventory that is significantly bigger than any physical bookstore chain (Mithas et al., 2012) or Google with its powerful algorithm (Grover & Kohli, 2013).

### **2.8.4 Systemic competences**

Systemic competences refer to the organisation's IT-enabled capabilities (Peppard & Ward, 2016) that are distinctive for the organisation. One of the biggest critical success factors in the context of a DBS as it relates to systemic competences is the collection, analysis and usage of information (Holotiuk & Beimbom, 2017; Westerman et al., 2014) as information has economic value (Bakos & Kemerer, 1992). The collection of data is done through multiple methods and from multiple sources in both unstructured and structured forms and is placed into a single source (Holotiuk & Beimbom, 2017). Leveraging the analytics of this data enables information-driven decision making and is thus a competitive advantage (Sousa & Rocha, 2019). This is another way that the role of IT has significantly changed and is demonstrated to create business value as opposed to purely enabling the business as previously done under the umbrella of the traditional business strategy (Holotiuk & Beimbom, 2017).

### **2.8.5 Business governance**

Business governance is the process by which the organisation manages stakeholders and regulatory requirements issued by the government (Peppard & Ward, 2016). Governance is not solely about specific activities that must be performed to remain compliant, it is also about the fundamental principles for example who make the decisions and how these decisions are made (Luftman & Kempaiah, 2007).



## 2.8.6 IT governance

IT governance refers to the effective communication between actors to make effective decisions about IT and the utilisation of said IT (Rahimi et al., 2016). This includes project selection and management (Peppard & Ward, 2016). If IT is managed poorly the organisation can expect poor business performance. Without reservation in the context of a DBS, it is not just the IT executives responsibility to perform IT governance (Mithas & Lucas, 2010) as IT governance is also the process by which the organisation shares the responsibility for IT between IT and business partners, including suppliers. Of course, business executives are not required to know as much about IT as IT executives, as such, it is critical that business executives have a great deal of trust in IT executives (Luftman & Kempaiah, 2007; Preston & Karahanna, 2009).

Other responsibilities of IT governance involve understanding what key IT decisions are and who must be involved in making those decisions, how IT should be arranged in the organisation, how much would be invested in IT and what type of projects should be invested in. Furthermore, this also includes prioritising IT projects in such a way that the combination of IT projects chosen will allow the organisation to achieve its goals and deciding which IT components to outsource or keep inhouse (Mithas & Lucas, 2010).

As covered in [section 2.8.2.4](#), one of the forms of IT is IT as an instrument for driving economies of scale and by extension, the DBS encompass this element (Reijnen, 2018). This form of IT is a key driver for IT governance as this impacts the decisions the business and IT executives take surrounding the arrangement and use of IT. For instance, organisations may choose to share the cost of data management with many other companies by investing in cloud computing (Reijnen, 2018) as opposed to hosting their own servers.

To have good IT governance and promote alignment, an organisation must have an IT executive who is well-positioned within the organisation as part of the executive team (Preston & Karahanna, 2009) and focusses on the external environment to play a key role in alignment (Gerow et al., 2015).

## 2.9 Key differences between traditional business strategy and DBS

It is important to note that a DBS is not merely a result of joining elements within a business strategy with the elements within an IT strategy. According to Mithas et al. (2012), there are at least four major differences between a traditional business strategy and a DBS. First, a DBS uses digital uncertainty to its advantage, unlike traditional business strategy that merely accepts and is reflexive to digital uncertainty.



Second, the DBS anticipates breaking out into new markets, while the traditional business strategy focusses on known markets. Third, the DBS uses information-based tactics to find new sources of value while the traditional business strategy focusses on leveraging existing sources of value. In this instance, the DBS is trying to make its competitors sources of value a liability as opposed to an asset. Last, the DBS focuses on creating dynamic capabilities through IT, while the traditional business strategy focusses on making large investments that may render them inflexible. Thus, business and IT executives alike must understand the differences between a traditional business strategy and a DBS to proactively take advantage of the benefits that come from a DBS.

In keeping with SAM, and with the newly elevated status of IT strategy to strategic as opposed to functional, the components reflected in the DBS would be considered strategic or intellectual. In the following section, the operational elements the DBS interacts with will be described.

## **2.10 Business infrastructure and processes**

Business infrastructure and processes consist of administrative structure, processes and skills. The following section provides detail on each item.

### **2.10.1 Administrative structure**

Administrative structure refers to the method organisation arranges its business, for instance, functional or horizontal (Peppard & Ward, 2016). As mentioned before, with the impact technology has on business, there is a need to ensure that IT is appropriately situated to enable an optimal leveraging of IT. Equally important, with the DBS transcending functional silo's (Bharadwaj et al., 2013), organisation-wide restructuring may be needed to ensure the overall organisation's structure supports the DBS (Reijnen, 2018). Organisations may find it difficult to execute a DBS if they are constraint by pre-digitised silo structures (Sebastian et al., 2017)

### **2.10.2 Business processes**

Business processes refer to the way the organisation executes its operations through people (Peppard & Ward, 2016). IT innovation and implementation are of the key enablers of business process innovation, through informing, transforming and automating the organisation. Equally important, effective and



efficient business processes, which echo business requirements, as directed by an organisation's strategy, enables achieving strategic goals (Rahimi et al., 2016).

### 2.10.3 Business skills

Business skills are the way the organisation performs Human Resource (HR) activities, such as hiring and retention (Peppard & Ward, 2016). In the context of the DBS there is a great need to ensure that business executives have the fundamental understanding of business and IT alignment, how to govern IT in the organisation and how to implement IT projects, manage IT infrastructure (Mithas & Lucas, 2010) and understand the influence of technology (Holotiuk & Beimbom, 2017). As previously indicated, IT executives must also have a deep understanding of the business and the industry of operation to effectively use technology to create value.

Skills are considered a resource the organisation can use to be competitive and deal with a turbulent market. These skills include being innovative and creative, having the ability to exploit new opportunities, being able to adapt to new ways of working and having knowledge of different types of technology (Sousa & Rocha, 2019). In fact, it is not only the c-suite employees of an organisation that is required to adjust their skills set to be able to effectively work in the modern world, but all employees must also learn to be adaptive, have digital know-how, be willing to be innovative and be willing to fail occasionally (Sawy et al., 2016).

Another consequence of fast-paced changing of the environment is the rise of the importance of applying appropriate change management to promote buy-in and support for the transformation the organisation is undertaking (Holotiuk & Beimbom, 2017) where the successful deployment and sustainability of a change is people dependent.

## 2.11 IT infrastructure and processes

IT infrastructure and processes consist of IT architecture, processes and skills. The following section provides detail on each item.

### 2.11.1 IT architecture

IT architecture is the way organisations select and manage hardware, software, data and applications to work together as a cohesive unit (Peppard & Ward, 2016). Organisations must ensure that their IT



architecture does not end up being a hindrance to achieving changing business goals (Bakos & Kemerer, 1992; Gerow et al., 2014). For instance, coupling IT architecture too closely with the current strategic direction could be detrimental to the success of the organisation in the long run (Gerow et al., 2014).

Consider the case of Myspace. The creators of Myspace created their IT infrastructure around the strategic mission being faster than their competition at the time such as Friendster and Tribe.Net. However, their chosen IT architecture could not sustain their growing popularity and they could not transform their IT architecture to keep up with market turbulence with agility and was displaced by up and coming competition (Woodard et al., 2012).

### 2.11.2 IT processes

IT processes refer to the way the organisation manages applications and IT infrastructure (Peppard & Ward, 2016). IT processes, in a mature aligned organisation, are managed not only by IT but is managed organisation-wide, with formal IT steering committees who focus on strategic, tactical and operational levels (Luftman & Kempaiah, 2007).

### 2.11.3 IT skills

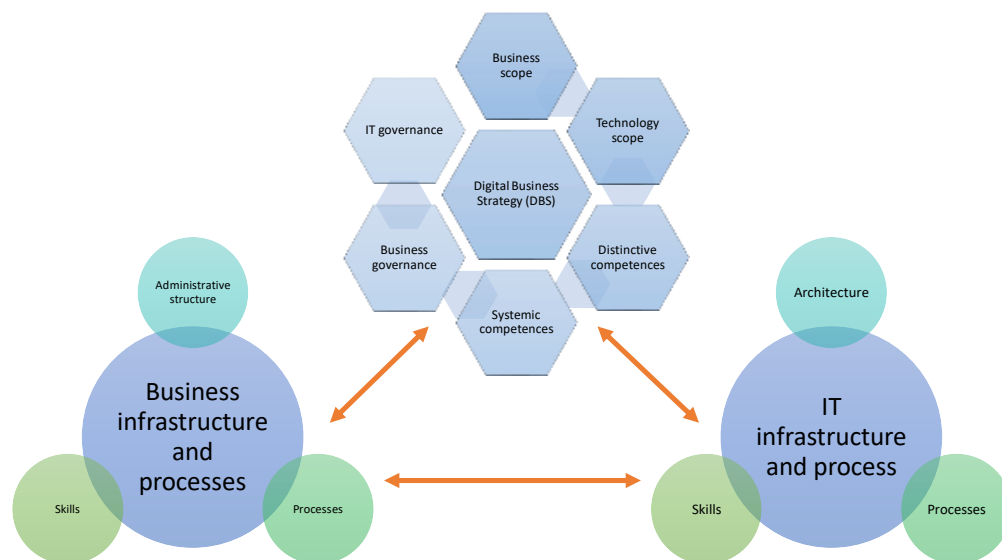
IT skills are the way the organisation performs Human Resource (HR) activities, such as hiring and retention for IT-specific resources (Peppard & Ward, 2016). It is important to bear in mind, while there is a positive causal effect of IT flexibility in relation to competitive advantage in a digital business, organisations also require IT personnel with the relevant skills to enable IT infrastructure flexibility to achieve organisational agility. These skills include soft skills in understanding business requirements (Holotiuk & Beimborn, 2017), hard skills in understanding the technical requirements and to configure IT infrastructure (Sandberg et al., 2014; Wang et al., 2013). For an organisation to realise the best of its strategic intent through IT, there must be clearly defined roles and responsibilities. This makes for good IT governance (Horlach et al., 2016). To execute IT governance in the modern society the necessary skills must be available in the organisation, and roles and responsibilities must be clear among all actors.

Responsibilities and accountabilities of previously clearly defined roles, such as the Chief Information Officer (CIO), are shifting to meet the demands of modern society. As such, the managerial landscape of an organisation has changed, and the skills of these executives in itself can be a source of competitive



advantage. These are skills that have been developed over time, refined through socially intricate processes and that assist the organisation in responding to external market needs and internal IT infrastructure needs (Dehning & Stratopoulos, 2003). These responsibilities include digital leaders having to keep abreast with digital innovation, such as big data, robotics and automation in and around their industry of operation. They also have to be honest about their limitations and acquire knowledge that is absent and must actively contribute to the organisation's knowledge of technology (Reddy, 2018).

In summary, the DBS is a fusion of the business and IT strategy which comprises of six elements as listed in this section. It an effort of alignment as per Henderson and Venkatraman's SAM (1999), it must integrate with business infrastructure and processes, and IT infrastructure and processes. Figure 2.15 illustrates what this integration looks like.



**Figure 2.15: 12 Components and integration of business and IT strategy alignment**

Source: Adapted from (Henderson & Venkatraman, 1999)

As previously noted, the fusion of business and IT strategy does not automatically lead to the alignment between business and IT in order to positively impact performance. The following section will investigate what makes alignment such a trying goal and what factors contribute to organisations inching closer to becoming better at business and IT alignment.



## 2.12 Business and IT strategy alignment challenges

For IT executives to pursue perfect alignment between business and IT strategy, for more than thirty years, and still having alignment as a top concern, could be an indication that alignment is a moving target (Coltman et al., 2015; Gerow et al., 2015; Yeow et al., 2018). Indeed, alignment, even free from the context of business and IT, is an ongoing and continuous act (Chen, Mocker, Preston, & Teubner, 2010) that requires effort to readjust various aspects of the organisation at many different levels which means the feat of alignment in itself is dynamic (Kappelman et al., 2014; Karpovsky & Galliers, 2015), and thus a moving target.

Furthermore, strategising, if followed pedantically and with rigidity, can have a negative impact on the organisation (Avison et al., 2004), therefore the activities performed while aligning at a strategic level should be dynamic also. Moreover, alignment in itself, especially in the digital era, should not be treated as an end state or a single incident (Karpovsky & Galliers, 2015; Yeow et al., 2018). Much like Porter's (1980 as cited in Tassabehji 2003, p. 277) definition of strategy that refers to a set of related processes which culminates in strategy, so too is alignment a set of integrated activities that is continuously adjusted (Yeow et al., 2018), because of changes in or outside the organisation (Avison et al., 2004). In the following sections, factors that negatively impact business and IT alignment are discussed:

### 2.12.1 Fast-paced changes in the business environment

Technology is considered the biggest source of change in today's business (Westerman et al., 2014) and its growth is exponential (Veit et al., 2014). As mentioned before, alignment is a process of continuous adjustment based on external conditions such as technological innovation, and any direction an organisation may move into strategically. This fast-paced continuous shifting, makes perfect equilibrium at any given point improbable (Chan & Reich, 2007), as found in the empirical evidence presented by Yeow et al. (2018).

### 2.12.2 Alignment itself as a challenge

Notwithstanding the evidence that alignment has a positive effect on organisational performance as previously indicated, alignment in itself can also be a hindrance to competitive advantage (Gerow et al., 2014) if actors in the organisation view alignment as a once-off as opposed to a dynamic activity (Gerow



et al., 2015). To explain, the acts of alignment are lengthy and tiresome processes. And, if business and IT executives achieved alignment, perhaps not perfect, but to a satisfactory scale on strategic intent once, there may be a reluctance to re-align if necessary, as this would require a repeat of said lengthy and tiresome processes. Furthermore, coupling IT solutions to a specific strategic move too closely could result in an inflexible IT infrastructure for quick adjustments as demanded from the environment (Gerow et al., 2014).

Therefore, having alignment between business and IT strategy could place the organisation in a myopic state, where business and IT executives are unwilling to update their strategy as required by environmental changes. In the end, this unwillingness to let go of the once found acceptable level of alignment could hinder the very outcome of alignment's intentions (Gerow et al., 2015; Tallon & Pinsonneault, 2011), which is to effectively respond to the changing market place in order to have a competitive advantage.

### **2.12.3 Alignment is perceived as unimportant**

While empirical evidence supporting the notion of business and IT alignment is well-documented, it does not guarantee that executives in an organisation are automatically aware of the positive impact alignment can have on organisational performance. Similarly, even if they are aware, they may not believe that technology can solve their specific organisation's issues (Chan & Reich, 2007).

### **2.12.4 Legacy systems and processes**

Alignment can be especially difficult if the organisation has been in existence for a number of years. To explain, organisations are more and more becoming dependent on technology, effectively digitising their ways of operations (Sawy et al., 2016). For the more established organisations, the digitisation has been done over time with many short-term, sometimes operational and not strategic, technological implementations (Peppard & Ward, 2016). These implementations are fast becoming legacy systems, which are not necessarily in a position to support the new strategy of the organisation (Peppard & Ward, 2016; Yeow et al., 2018), thus adding to the barrier of business and IT strategy alignment.

While existing legacy systems may create an additional complexity to business and IT strategy alignment, the absence of this issue, i.e. an organisation starting on a clean slate where IT is concerned, does not



guarantee automatic alignment as there are many other contributing factors to misalignment, including miscommunication between business and IT actors.

### **2.12.5 Miscommunication between business and IT executives**

While it is important to view alignment from a strategic perspective, the process of alignment requires fit for purpose conversations between business and IT actors. For the conversations to be meaningful, each actor within the organisation must speak a common language. This includes understanding the differences between Information Technology (IT), Information Systems (IS) or simply understanding terms such as digital or automation (Peppard & Ward, 2016; Preston & Karahanna, 2009; Tallon & Pinsonneault, 2011; Tan & Gallupe, 2006).

In addition, actors must also be willing to share information with each other. In other words, business actors must keep IT actors abreast of any changes in the internal or external environment, while IT actors must inform business actors of any IT challenges and opportunities. The constant sharing of information creates an opportunity for collaboration on the appropriate responses to the external environment using IT as an instrument, contributing to the agility of the organisation (Avison et al., 2004; Byrd et al., 2006; Tallon & Pinsonneault, 2011) which is ultimately a contributing factor when it comes to achieving a competitive advantage through IT.

### **2.12.6 Insufficient business and industry knowledge**

A prerequisite for business and IT actors to willingly share information is having information to share, to begin with. A hindrance to IT alignment is when either/or business and/or IT actors does not have a deep knowledge of the industry they are operating in. For IT to solve business problems, both business and IT actors must have a clear understanding of the problem itself before any IT solution could be explored or deployed. In addition, a lack of knowledge about IT among senior business executives is also a hindrance to alignment (Chan & Reich, 2007).

### **2.12.7 Unclear roles and responsibilities**

Of course, fit for purpose conversations are much easier if there are clear roles and responsibilities among the actors in the organisation. However, in most organisations, there is not a Single Point of Accountability



(SPA) (Granados & Gupta, 2013), which also contributes to the issue of alignment. Moreover, roles within organisations are not static. For example, in the digital era, the role of the CIO has evolved from a tactical manager into an executive that is required to be proactive and a strategic leader (Dehning & Stratopoulos, 2003; Kappelman et al., 2015; Singh & Hess, 2017). These evolving roles add to the alignment issue as accountability between actors becomes blurry.

### 2.12.8 Organisational structure changes

Not only are the roles in the organisation changing due to digitisation, so too is there a requirement to update the organisational structure to accommodate the DBS (Bharadwaj et al., 2013; Reijnen, 2018). As mentioned in [section 2.6](#), IT is becoming strategic and requires IT to have an appropriate place within the organisational hierarchy there is a need to review the organisation's hierarchy, to ensure that IT has a place in the top management team and is in close proximity to the Chief Executive Officer (CEO) (Wagner et al., 2014).

The organisational structure changes are not merely a reshuffling of roles or creating new roles. Its intention is to break down silo thinking and to encourage cross-functional views on the strategic direction in an effort to promote innovative and creative ideas. This requires leadership to create an environment where all actors are encouraged to have a founder's or entrepreneurial mindset, understand the important role digital technology and innovation has in the organisation, be forward-thinking and be tolerant of failure in pursuit of success (Holotiuk & Beimborn, 2017).

### 2.12.9 Technological paradoxes

As previously noted, alignment is a process of constant adaptation and constant adapting in the digital era is as a result of fast-paced technological advances. In an effort to continuously align, certain decisions that may have made sense at the time may look like it could be in direct competition with others that were made in response to different market changes. This gives rise to paradoxes in the organisation. For instance, exploring new opportunities for technology versus exploiting current technology for maximum return on investment, or flexibility to be able to respond to the market in an agile fashion versus assigning resources to improve internal efficiencies are technological paradoxes. This causes tension in the organisations (Smith & Lewis, 2011; Yeow et al., 2018), which is a hindrance to alignment.



### 2.12.10 Tension in the organisation

Four main dimensions of tension could arise from changes in the market, namely belonging, learning, organising and performing (Smith & Lewis, 2011). While tension can be associated with both individuals and organisations, this study focuses on organisational tension.

The tension of belonging is concerned with the tension created between the organisation's current identity and its future identity as defined by the new strategy. By the need to have a new identity, there is a need for new skills to be acquired in the organisation. This gives rise to the learning tension. The learning tension highlights the tension caused between conserving the competences the organisation honed while the organisation was at the height of their success and learning new competences to support the organisation's new direction. The organising tension refers to the tension created through the organisation making changes to its current operations to new ways of working in order to execute the organisation's new vision. Last, the tension of performing refers to the organisation's need to satisfy contradicting demands from stakeholders both internal and external to the organisation (Smith & Lewis, 2011; Yeow et al., 2018).

In summary, many challenges hinder business and IT strategy alignment. But, with aligning being a moving target, many new approaches to alignment have been developed over the years to continuously assist business and IT executives to work towards alignment. Thus, it is important to investigate the boundaries of the DBS, in order to have a better understanding of how the rise of the DBS affects alignment, which could inform how organisations can effectively leverage a DBS to remain competitive.

### 2.13 Transparency strategy

As shown in previous sections, there are many aspects of the DBS from a managerial perspective that the organisation must take into consideration when leveraging IT as a strategic instrument. Considering the transparent nature of strategic moves when using IT (Mithas et al., 2012), it is imperative to call out how important it is for business and IT executives to be aware of the benefits and disadvantages transparencies afford the organisation.

Organisations should be proactive in understanding how IT affects what is kept hidden and what is disclosed to parties outside of the organisation. The focus for transparency has shifted from only creating



and managing information (traditional) to creating, managing and disclosing information (digital) (Granados & Gupta, 2013; Grover & Kohli, 2013).

There are four options organisations can consider regarding the controlling of information (Granados & Gupta, 2013). These options are described in Table 2.3.

Option	Explanation
Disclose	Giving easy access to information which needs little or no deciphering and is easy to understand.
Bias	Display a selection of information in such a way that when used can be of a disadvantage to competitors.
Distort	Displaying partial data that could be outdated and / or inaccurate.
Conceal	Hide information completely.

**Table 2.3: Transparency options**  
Source: (Granados & Gupta, 2013)

Table 2.4 provides an example of an organisation's transparency strategy.

Option	Disclose	Distort	Bias	Conceal
Product Features			x	
Product Quality	x			
Price			x	
Cost				x
Inventory		x		
Processes				x

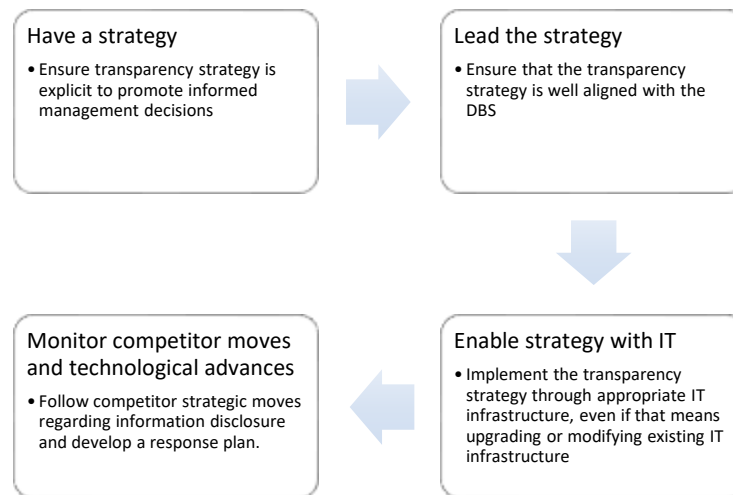
**Table 2.4: Transparency strategy example**  
Source: (Granados & Gupta, 2013)

Depending on the strategic intent of the organisation, deciding the strategy for each element of a product or service must be considered knowing that there are advantages and disadvantages for each option (Granados & Gupta, 2013; Grover & Kohli, 2013; Lim, Mak, Tang, & Raghavendra, 2018). E.g. an organisation may make pricing information of a product easily accessible to attract customers, however,



competitors will have access to that information too. Giving the competition the opportunity to give customers a better deal. (Lim et al., 2018).

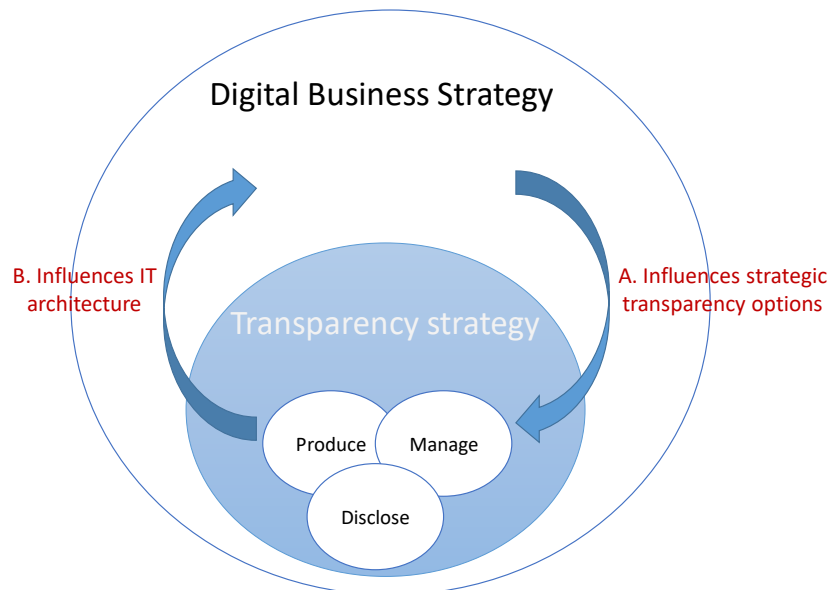
Briefly, there are a number of factors to consider regarding a transparency strategy which is described in Figure 2.16.



**Figure 2.16: Transparency strategy guide**

Source: (Granados & Gupta, 2013)

Figure 2.17 is a model of how the DBS and transparency strategy constructs interact with each other.



**Figure 2.17: Transparency strategy framework**

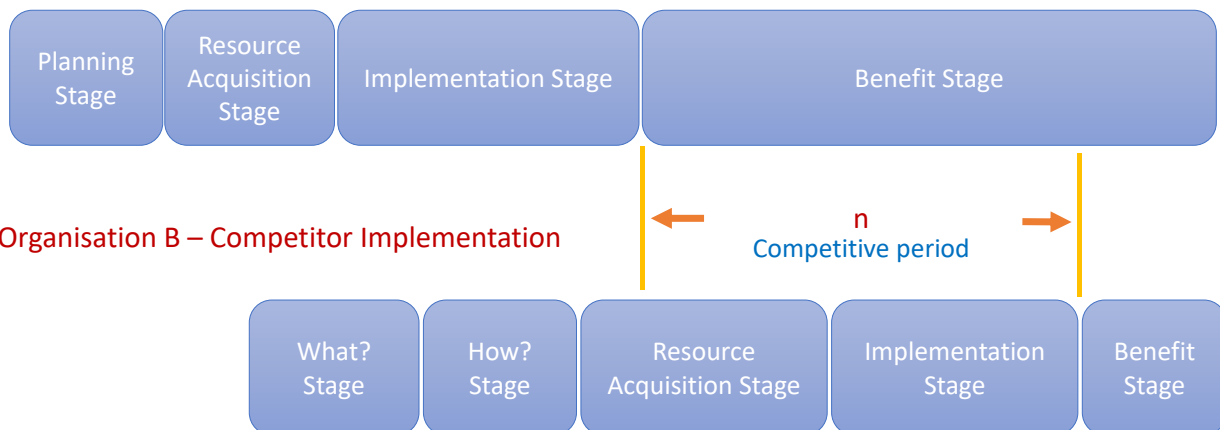
Source: Adapted from (Granados & Gupta, 2013)



Of course, transparency does not only apply to information but also to other systems elements such as processes and software. This means that organisations must, as with information, proactively think about the visibility of systems, as they are prone to be studied, replicated and even improved on (Grover & Kohli, 2013). For instance, Google's search engine can be viewed by anyone who has access to the internet, however, the algorithms that power the search engine is concealed from the public. Thus, providing their customers with the benefit of their product, but denying their competitors the technique for instant replication.

System transparency is very closely related to competitive advantage, as visible digital technology allows competitors to observe said technology to either replicate or improve on (Mithas et al., 2012). To illustrate, Figure 2.18 is a model by which an organisation can observe visible digital technology. It is important to note, that observation is not only restricted to visible digital technology as information may also be obtained from other sources such as persons who were privy to the information, for example, previous employees, suppliers, etc. (Dehning et al., 2005).

#### Organisation A – Initial Implementation



**Figure 2.18: IT competitive response model**  
Source: (Dehning et al., 2005)



In brief, Table 2.5 explains what the competitor does in an effort to catch up to the initial implementation of the first organisation:

Stage	Description
What?	The competitor is establishing precisely what organisation A is doing. This can happen at any time from planning to implementation through the help of persons in the know or by visibly observing the change in the market and competitor setting.
How?	The competitor is establishing the method of responding to organisation A. This could be through replicating (reverse engineering) the initiative or even through acquiring organisation A.
Resource Acquisition	Obtain the resources, including capabilities necessary to implement the response.
Implementation	Implement the method established in the “how” stage. This implementation may be shorter than organisation A as lessons from the initial implementation may be available and taken into consideration.
Benefit	Regain competitive equilibrium by reducing the competitive advantage of organisation A.

**Table 2.5: IT competitive response model description**

Source: (Dehning et al., 2005)

To conclude, the DBS has many challenges that business and IT executives must be aware of. To investigate this phenomenon, including its benefits and challenges, the study employed two frameworks namely Complex Adaptive Systems (CAS), as explained in more detail in the following section, and the SAM as described in [section 2.3](#).

## 2.14 Theoretical frameworks

As discussed in [section 2.3](#), this study will use the SAM framework as a lens for analysing the alignment between business and IT. However, intellectual and operational alignment does not cover all of the perspectives of the DBS as a phenomenon and as a result, another theoretical framework was required.



As covered in [section 2.5](#), digital businesses have high levels of uncertainty, is dynamic, and is complex (Al-Debei et al., 2008). It has interdependencies and interconnectedness afforded by IT (Grover & Kohli, 2013; Kahre et al., 2017; Reijnen, 2018) which inherently discards a static environment and thus calls for a theoretical framework that is appropriate for viewing complex and dynamic systems. While many theoretical frameworks were considered for contributing to the study of complex systems, the one found most appropriate was the CAS.

Complexity within a system is derived from the interconnectivity between- or intertwining of the agents within a system. These complexities are a result of non-linear interaction between the agents, which means that minor changes may have unexpected and unforeseen effects on the overall behaviour of the system, and vice versa (Chan, 2001). In other words, the result of one agent's actions changes the context for the other agents within the system, creating new patterns as a result of self-organising that are unanticipated. Self-organising refers to a new emerging pattern within the system which is not controlled by a centralised source (Holden, 2005). This means that the system is adapting to new information introduced into the system by agents within the system and the environment the system finds itself in. Figure 2.19 is an illustration of a CAS.

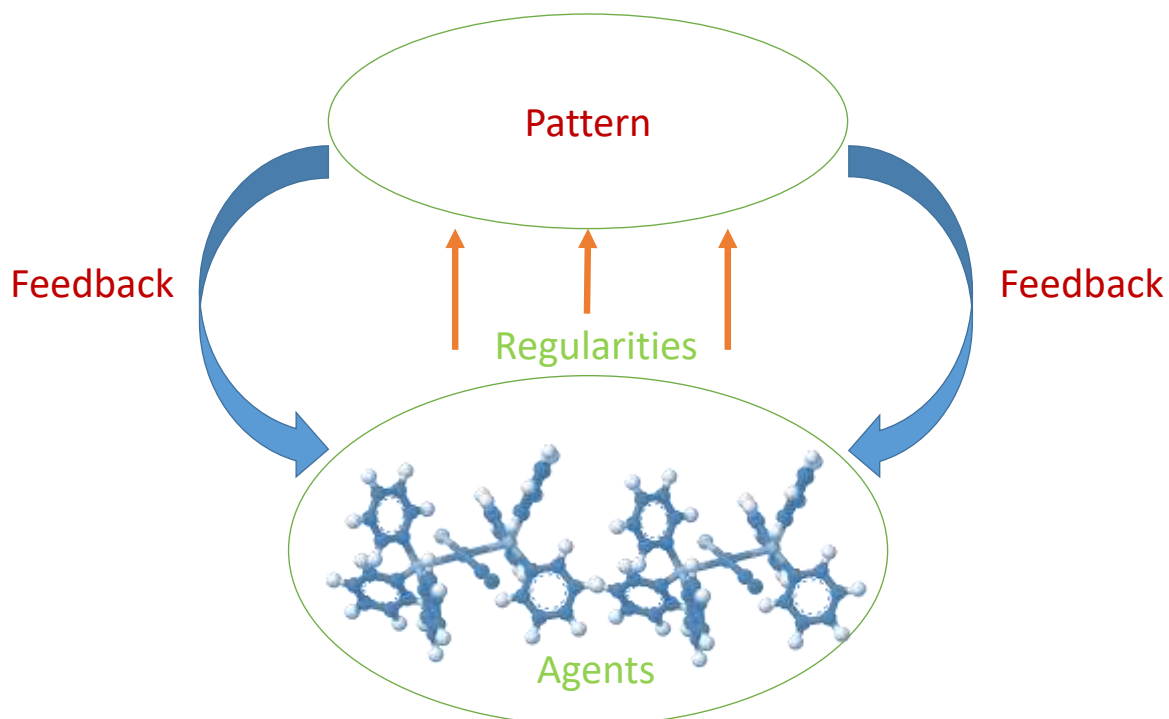


Figure 2.19: Complex Adaptive System



Table 2.6 is a summary of the properties of CAS and its relevance to this study.

Property	Explanation	Relevance to this study
<b>Co-evolution</b>	The system is part of the larger environment and exists within their own environment. Thus, their survival is dependent on the system's adaptability to the changing environment.	The adaptability of the organisation depends on, not only market information obtained, but also the responses of agents within the organisation to the market information. In addition, the organisation's response to the market, inevitably changes the market, therefore creating a continuous process of feedback and response.
<b>Connectivity</b>	The survival of the system is dependent on the connectivity between agents, as connectivity allows for feedback loops which in turn allows for adaptability.	The organisation creates open channels between business and IT to allow feedback loops which result in better response to the market.
<b>Emergence</b>	Agents interact with each other at random, which forms emergent patterns. Which supports the system's adaptability.	Business and IT entities are agents that interact with each other to ensure the organisation adapts to their environment.
<b>Iteration</b>	Feedback loops occur often to allow for emergent patterns.	Continuous interaction between business and IT.
<b>Requisite variety</b>	Greater diversity within the system allows for a stronger system.	The organisation ensures agents from different backgrounds, in both business and IT, works together to create a stronger response to the market.



Property	Explanation	Relevance to this study
<b>Self-Organising</b>	There is no centralised control within CAS, however, there is a continuous alignment to the environment in order to respond effectively to changes.	Neither business nor IT is controlling the strategy. The strategy is adjusted to ensure the best match between the organisation and the environment despite the fact that each agent may only be able to look after its own interest.
<b>Simple rules</b>	The function of CAS is governed by simple rules, irrespective of the variety of the emerging patterns.	The organisation has robust processes and procedures for agents to follow which gives direction but not necessarily directives.
<b>Sub-optimal</b>	The system does not rely on being perfect, however, concentrates on being better than its competitors to prosper in its given environment.	The organisation understands that any effort exerted into being more than slightly better than its competition is wasted effort. The organisation may favour effectiveness over efficiency as it relates to outperforming its competition.

**Table 2.6: Complex Adaptive System property definitions**

Sources: (Chan, 2001; Henfridsson & Bygstad, 2013; Holden, 2005; Holland, 1992)

CAS theory is often confused with chaos theory, but it is important to note that chaos theory is a subset CAS theory (Holden, 2005).

## 2.15 Theoretical frameworks contextualized

### 2.15.1 CAS

The application of the CAS framework in this study focuses on three levels, namely agents, their relationships with each other and the environment (context) (Nan, 2011).



### 2.15.1.1 Agents

As mentioned earlier, agents are actors within the CAS framework, and as per Nan (2011) these actors, within the context of IT, could be people or IT features. Within this study, the focus will be on both the persons creating the DBS and the IT resources available upon which the DBS relies on.

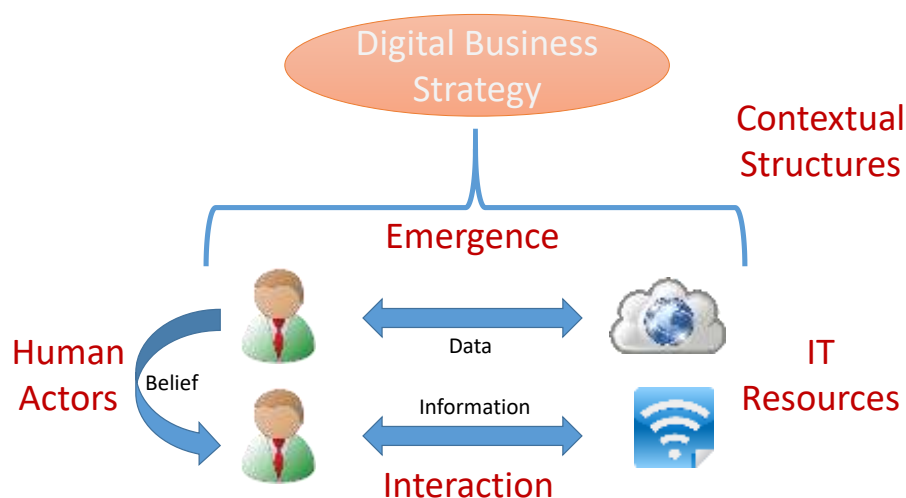
### 2.15.1.2 Agents relationships (interaction)

Interaction refers to the interconnectivity between agents within a CAS (Chan, 2001). Within the context of this study, the focus is on the interactions and effect of agents on each other whether the agent is human or an IT resource. This will be done to observe the “social construction of technology” (Nan, 2011), that may lead to transformation on an organisational level, which after all, is the aim of the DBS. Agents are not just restricted to resources within the organisation itself but also includes competitors, regulators and even media (Hinings et al., 2018).

### 2.15.1.3 Environment (context)

Within the context of the CAS model, environment or context refers to the situation the agents exists within and interact with each other (Nan, 2011). As the environment is a critical factor in the CAS model, this study focuses on the organisation environment the DBS is developed and executed in.

Figure 2.20 depicts a summary of the levels within the CAS system the proposed study will be focused on.



**Figure 2.20: CAS Model Context**  
Source: Adapted from (Nan, 2011)



## 2.15.2 SAM

The application of the SAM framework in this study focuses on three levels, namely intellectual, operational and cross-domain (Henderson & Venkatraman, 1999).

### 2.15.2.1 Intellectual

The intellectual level refers to the alignment between business and IT on a strategic level (Gerow et al., 2015; Henderson & Venkatraman, 1999). Within this study, the focus is on the relationships and interactions between the organisation's business and IT scope, distinctive and systemic competences and business and IT governances.

### 2.15.2.2 Operational

The operational level refers to the alignment between business and IT infrastructure and processes (Gerow et al., 2015; Henderson & Venkatraman, 1999). Within this study, the focus will be how an organisation's changing infrastructure impacts their business infrastructure and vice versa. Furthermore, this study also focuses on what changes the organisation is making from an infrastructure, processes and skills perspective in an effort to adapt to their digital environment.

### 2.15.2.3 Cross-domain

The cross-domain level refers to the alignment between the strategic and operational level simultaneously (Gerow et al., 2015; Henderson & Venkatraman, 1999). Within this study, the focus is on the unique relationships between strategic and functional levels and its effect on organisational performance.

## 2.16 Chapter summary

In summary, the premise of a digital business is to create value through IT, not only at an operational level through operational efficiencies, but to innovate in order to be a leader in the industry. This innovation includes creating strategies, capabilities, and structures that are digitally enabled and is done through significant and novel ways of using IT solutions (Fichman et al., 2014; Setia, Venkatesh, & Joglekar, 2013). While the innovation is done through the creation of many digitally-enabled constructs, the main focus is, and this is the main difference between a traditional and a digital business, is the creation of "choice space" (Keen & Williams, 2013) for customers.



## Chapter 2: Literature Review

To effectively respond to the ever-changing needs of the customer, business and IT must work towards alignment. The alignment of business and IT strategy has been explored for over thirty years in the IS field and is still a problem among business and IT executives. While there have been studies that have expressed that there are positive causal effects between business and IT strategy alignment and organisational performance, the benefits have been measured at a functional and operational level and not on an organisational level.

With the digitisation of organisational infrastructure and the concept of alignment evolving, there has been a movement to explore the merging of the business and the IT strategy, in effect becoming the DBS. The aim of this study is to understand the boundaries of a DBS in order for organisations to have insights into the relationships between functional areas, organisations, industries and the external environment. This will, as a result, assist in organisations formulating and executing a DBS, to leverage digital resources to gain competitive advantage. The CAS and SAM theoretical frameworks were used as a guide to complete the proposed study.

Chapter 3 provides an overview of the research design and methods that were used for this study.



## Chapter 3

### 3. Research Design and Methods

#### 3.1 Introduction

The foregoing chapter was a review of literature relevant to this study. This chapter describes the research philosophy, description of inquiry strategy and broad research design or strategic plan used for the study.

Figure 3.1 provides an overview of Chapter 3.

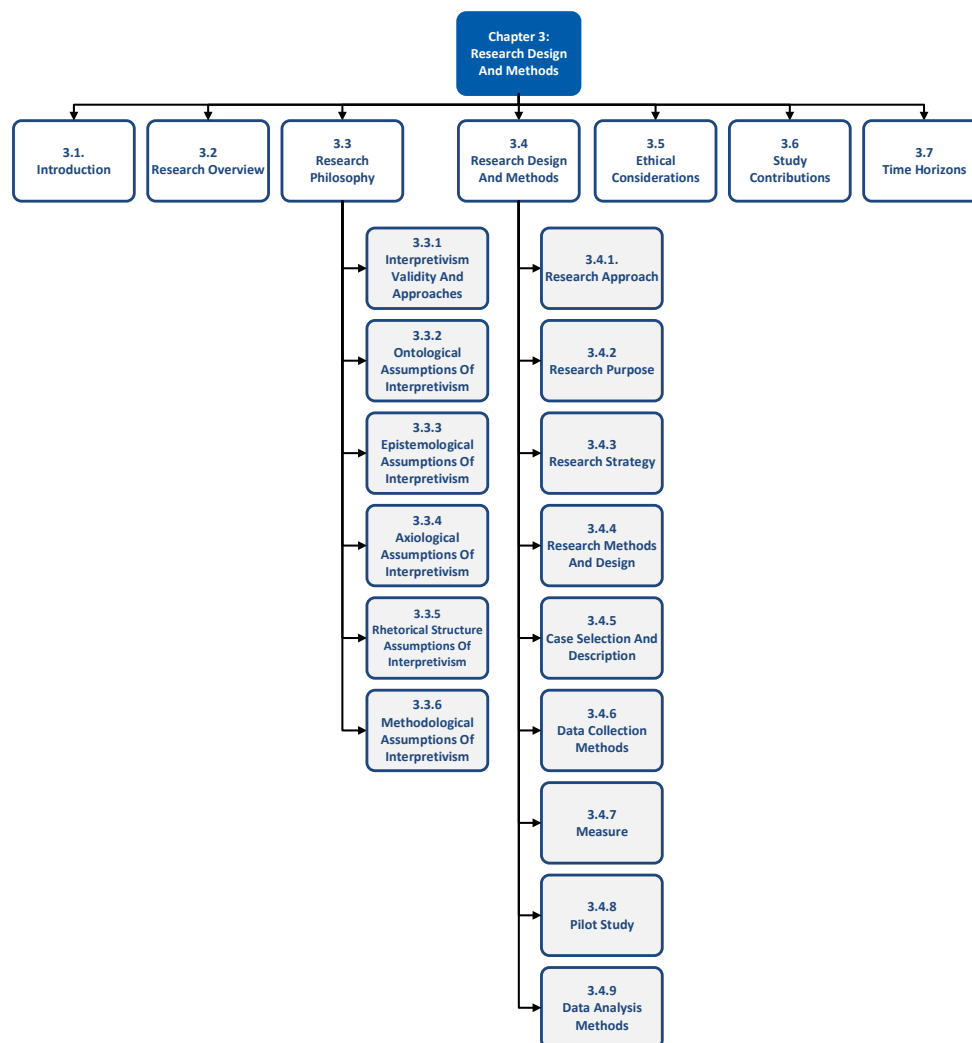
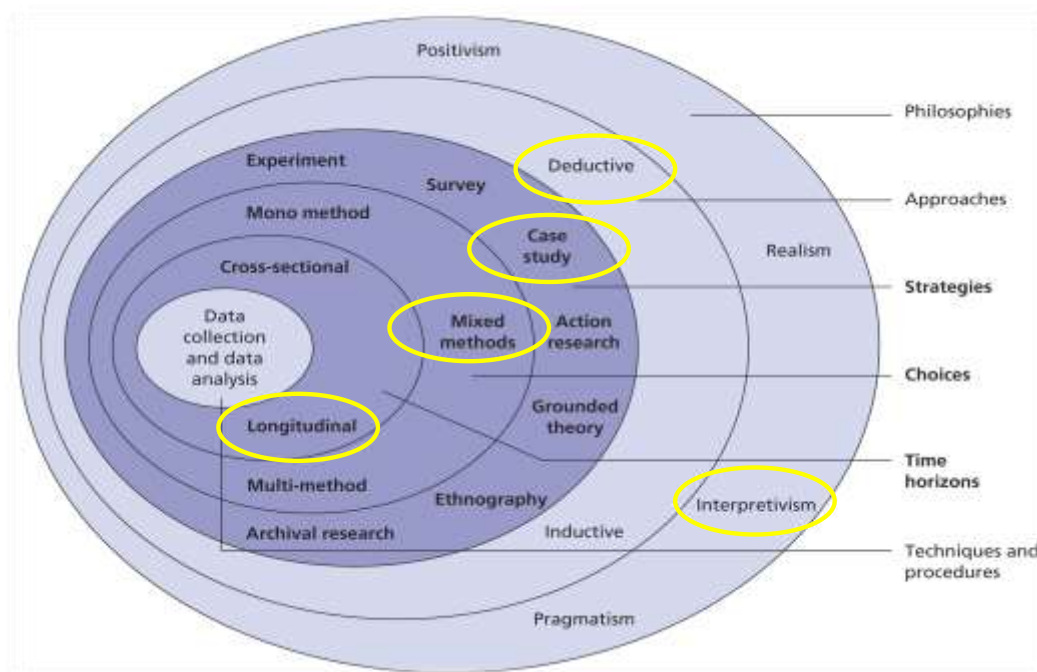


Figure 3.1: Chapter 3 overview



## 3.2 Research overview

Depending on the question the researcher wants to answer, the researcher has the flexibility in the research process to adjust the lens of inquiry, based on six elements as defined by Saunders, Lewis, and Thornhill (2009) and their 'onion' model. These elements consist of research philosophy, research approaches, research strategies, method choices, time horizons, and data collection methods. For this study, the researcher adjusted each element to provide a platform for collecting data in such a way that it would be able to answer both the primary and secondary questions. Figure 3.2 depicts the combination of these elements, effectively making up the lens the researcher selected through which this study was conducted.



**Figure 3.2: Research overview**

Source: (Saunders, Lewis, & Thornhill, 2009)

## 3.3 Research philosophy

The research philosophy or paradigm is an interconnected set of beliefs about the world (Guba & Lincoln, 1994; Ponterotto, 2005) that governs the research process through conceptual and philosophical frameworks (Ponterotto, 2005). 'Valid' research is guided by an underlying philosophical assumption (Myers, 2013), which should be explicitly stated by the researcher (Creswell, Plano Clark, Gutmann, &



Hanson, 2003), and its selection should be justified (Ryan, 2018). Three philosophical assumptions were considered for this study namely positivism, interpretivism, and critical theory as defined in Table 3.1.

Philosophical assumption	Definition
<b>Positivism</b>	<p>The aim of positivism is to demonstrate clear-cut causal relationships through the use of statistical analysis nested in focusing on big sample sizes in order to attempt the solving of real-world problems. In addition, it focusses on discovering “law-like generalisations” (Plack &amp; George, 2005, p. 226). The positivist researcher subscribes to the ideology that reality is rooted in scientific experiments, math or logic and is free of social context (Plack &amp; George, 2005). The positivist researcher also believes that they are not influencing the participants of the study nor are the study participants influencing them (Ponterotto &amp; Grieger, 2007; Ritchie &amp; Lewis, 2003). In summary, positivism implies that knowledge or reality is objective and has measurable or quantifiable properties.</p>
<b>Interpretivism</b>	<p>The aim of interpretivism, on the other hand, is to understand social context and worldviews as understood by people. Interpretivism implies that knowledge is based on the understanding people have on their lives through reflection (Ponterotto, 2005; Ritchie &amp; Lewis, 2003). In other words, understanding is created through thinking about the lived experiences and not merely living through the experience. As a consequence, the interpretivist researcher believes that reality is socially constructed (Kelliher, 2011) and that multiple realities are equally valid (Ponterotto, 2005).</p> <p>As a result, the interpretivist researcher favours acquiring data through qualitative methods in order to gain and contribute to the contextual depth of a unique situation (Chowdhury, 2014; Kelliher, 2011). To summarise, interpretivism implies a reality where gaining knowledge is only through social constructions.</p>
<b>Critical theory</b>	<p>The aim of critical theory research is to bring about transformation through empowerment or emancipation (Ponterotto, 2005). The critical researcher critiques</p>



Philosophical assumption	Definition
	the current conditions or the status quo and is trying to uncover “structural contradictions”(Myers & Klein, 2011, p. 19). In other words, critical research focusses on changing conditions that are viewed as a constraint. Therefore, critical research is vastly different from positivist and interpretivist research as it aims to change a situation, while the latter aims to explain or predict a situation (Myers & Klein, 2011). Therefore, critical research implies a reality that is produced by people and is historically constituted.

**Table 3.1: Philosophical stances considered**

It is important to note that one philosophical stance is not elevated above the other based on its assumptions, however, based on the intellectual goal the researcher is aiming for, the assumptions and delimitations of the philosophical stance inform the perspective the researcher should adopt to meet the research objectives (Bahari, 2010; Guba & Lincoln, 1994). As this study is focused on understanding a DBS, which, much like the organisation that employs it, could be described as a complex adaptive system, the most appropriate philosophical assumption chosen for this research is that of interpretivism. A DBS and the use thereof is dependent on the actors or agents involved when creating, executing and maintaining it. As interpretivist researchers focus on the “complexity of human sense-making as the situation emerges” (Myers, 2013, p. 38), this philosophical assumption is most appropriate for this study.

### 3.3.1 Interpretivism validity and approaches

Interpretivism finds its roots in anthropology and could be considered anti-positivistic (Chowdhury, 2014; Ryan, 2018) as the interpretivist researcher believes that truth is subjective (Ryan, 2018) while the positivist researcher believes truth is objective (Plack & George, 2005). While interpretivism is praised for its contribution to the depth of knowledge, it is not free from criticism, especially around its reliability, validity and generalisability. Reliability refers to the stability of the measures used in the study, validity refers to the quality of the findings and generalisability refers to how the findings can be applied to situations outside of the study (Kelliher, 2011). [Section 3.4.3.1](#) and [section 3.4.4](#) provides a detailed description of how this study addressed the concerns associated with interpretivism and a single case study research approach as used by this study.



There are four main approaches to interpretivist research namely, hermeneutics, phenomenology (Chowdhury, 2014), verstehen (Ritchie & Lewis, 2003), and interactionism (Ryan, 2018). First, hermeneutics refers to understanding the deeper meaning in documents or texts (Ryan, 2018; Schwandt, 1998). Second, phenomenology refers to the interpretation and accounting for people's experiences (Bahari, 2010; Ryan, 2018) including the understanding of the subjective experiences people have through everyday life (Fereday & Muir-Cochrane, 2006). For this approach of interpretivism, the researcher must observe the human behaviours in person in order to understand it (Bahari, 2010), this includes understanding the meaning humans attach to their actions (Guba & Lincoln, 1994). Third, verstehen focusses on understanding a phenomenon from the viewpoints of the participants in the study (Ryan, 2018; Schwandt, 1998). In this approach, data free from the researcher and participants values cannot be obtained (Chowdhury, 2014), as both, the researcher and participants influence each other's view of reality throughout the research process (Ponterotto, 2005). Last, symbolic interactionism focusses on how people's behaviour is influenced by their own meanings that stem from social interactions (Ryan, 2018) via communication, which is symbolic as it is done through language and other symbols. Symbolic interactionism also includes the meaning people associate with objects (Schwandt, 1998). In other words, this approach to interpretivism focuses on understanding the *motives* of why people behave the way they do through understanding their interactions with others and the meaning they attach to things. Symbolic interactionism should be studied as an organic "working system" (Chowdhury, 2014, p. 433). The primary approach this study will adopt is that of verstehen.

Philosophical stances come with a set of assumptions and delimitations. The assumptions related to interpretivism is discussed in the following sections in the form of ontology, epistemology, axiology, rhetoric structure and methodology.

### 3.3.2 Ontological assumptions of interpretivism

The ontological underpinning of interpretivism is relativism. This means that reality is socially constructed and there is not a single shared reality (Chowdhury, 2014; Ponterotto, 2005; Ryan, 2018). Since the reality is constructed based on the meaning that each individual assign to their experiences of the world, multiple realities exist, are equally valid and are subjective. This view is based on the belief that the world is complex and dynamic and can therefore only be imperfectly grasped. From an interpretivist perspective, reality is influenced by both the participant and the researcher (Ponterotto, 2005).



In contrast to a positivistic study, where the goal of the research is to find a single truth based on a large sample, interpretivist are more likely to engage with a smaller number of participants without attempting to uncover a single truth or seeking consensus in the themes uncovered during the analysis, as the researcher accepts that a different set of themes may be uncovered when a different researcher reviews the same data set (Ponterotto, 2005).

Since this study aimed to describe the DBS in its natural context, which both the DBS and its context is created and maintained by a collective of people, it is not feasible for the researcher to search for a single truth, as the truth would inevitably look different from each of the participants' perspective. This difference in reality, however, does not mean that there is an automatic absence of shared values and beliefs. Hay (2016) mentioned that it is these shared values and beliefs that enact value and meaning to what we create. Throughout this study, the researcher aimed to understand the differences in realities and also uncover these shared values and beliefs. This is made evident by using direct quotes from multiple individuals, in their own words, to underpin findings.

In addition, to ensure the focus remained on the depth as opposed to the breath of the case, which is generally the difference between intensive and extensive research (Bahari, 2010), the researcher maintained a smaller sample to engage with to uncover underlying rules or hidden patterns that cannot be observed from a positivistic perspective (Chowdhury, 2014).

### 3.3.3 Epistemological assumptions of interpretivism

The word epistemology is derived from epistēmê which is the Greek term for knowledge (Ponterotto, 2005). As mentioned in [section 1.6](#), epistemology is concerned with what knowledge is, how it is acquired (Myers, 2013; Plack & George, 2005; Ponterotto, 2005), and the relationship between the person in the know, who is the participant, and the person who would like to know, who is the researcher (Guba & Lincoln, 1994; Ponterotto, 2005). In an interpretivist study, the researcher uncovers knowledge and insights from interactively engaging with participants (Ponterotto, 2005). To this effect, the researcher made a concerted effort to be as close to the participants as possible through visiting participants in their own environment.



### 3.3.4 Axiological assumptions of interpretivism

Axiology refers to the role the researcher's own values plays in the research process. Considering the epistemology of interpretivism requires the researcher to interact with the participant over a period of time, it makes sense that in an interpretivist study the values of the researcher cannot be separated from the researcher. While it is accepted that the researcher's bias is present in the study it should still be explicitly acknowledged and described (Ponterotto, 2005). The issue of researcher bias is addressed in [section 3.4.3.1](#) and [section 3.4.5.2](#).

### 3.3.5 Rhetorical structure assumptions of interpretivism

Rhetorical structure refers to how the information uncovered in the study is presented to the intended audience. This is closely related to the axiological and epistemological lens that is associated with the philosophical stance the researcher has selected for the study. Since interpretivism is reliant on the interactive engagement between the researcher and participant, the language used often embodies emotion and is reflective of the researcher's biases and experiences (Ponterotto, 2005).

As mentioned before, the researcher's biases will be addressed in [section 3.4.3.1](#) and [section 3.4.5.2](#). To display as much of the DBS as it is understood by the participants in this study, the researcher relied heavily on bringing the participant voices across by keeping what the participants were saying in the first person and in the exact words that were used. While significant statements made by the participants were written in first person, the researcher, for the sake of consistency, chose to keep the sense-making of those statements in the third person.

### 3.3.6 Methodological assumptions of interpretivism

The methodology is concerned with the processes and procedures the researcher will follow throughout the research (Guba & Lincoln, 1994; Ponterotto, 2005). Similar to the rhetorical structure, methodology follows on from the study's ontology, epistemology and axiology. Since the researcher is interacting with the research participants, where the focus of knowledge is embedded on the researcher trying to understand the viewpoint of the participant, the methodological assumptions are that the researcher will most likely use qualitative methods to collect data such as observations and interviews (Ponterotto, 2005).



While qualitative research methods are historically more closely associated with an interpretivist study, it does not naturally exclude quantitative research methods. For many years an either/or view in terms of qualitative versus quantitative approach has been the norm but at the turn of the century, the mixed-method approach became a research method in its own right. This, of course, is not to say that mixing methods didn't exist prior to the 21<sup>st</sup> century, but it has matured into a recognisable approach, a little over fifty years since it was first introduced in the late 1950s (Creswell, 2009; Ritchie & Lewis, 2003). Mixed-methods studies refer to any of the following; the researcher has employed both qualitative and quantitative methods, the researcher has two types of questions, the study has two types of sampling procedures, the researcher collected both textual and numerical data, the researcher performed both thematic and statistical analysis, and/or the researcher drew both subjective and objective conclusions (Tashakkori & Creswell, 2007). There are many advantages in having a mixed-method study as the advantages of the mixed-method study cancels out the disadvantages of a single- method study (Creswell et al., 2003).

This study subscribed to a mixed-method approach where both qualitative and quantitative data was collected, both thematic and statistical analysis were performed and both subjective and objective conclusions were drawn. This mixed-method approach was chosen to understand the underlying structures that make the DBS what it is and to test the theory of the importance of having a DBS in the digital era as it relates to competition. Using either a qualitative or quantitative approach would have subjected this study to the limitations of using only one method. The following sections provide a deeper description of the research approach, purpose, strategy and methods, including the rigour and validity that a mixed-method approach brings to a single study.

## 3.4 Research design and methods

### 3.4.1 Research approach

For a study to contribute to knowledge the researcher ordinarily creates a theoretical explanation of a specific phenomenon or phenomena. These theoretical explanations can be achieved by exploring four different types of inferential logics namely induction, deduction, abduction and retroduction (Ngwenyama, 2014).



A researcher that subscribes to the inductive research approach commence the process with observation and aims to find patterns in the data. These patterns are determined through measurements and experiments and are usually repeated until the researcher is convinced that their findings can be ascribed to a broader context (Ryan, 2018). Essentially the researcher is making an inference of a rule by conjecturing social rules based on their observation of phenomena (Ngwenyama, 2014). Whereas a researcher that subscribes to the deductive research approach follows the inverted process, where the starting point is finding a theory, making a prediction about the theory and thereafter testing if the prediction of the theory is valid (Ryan, 2018). In other words, the researcher is making an inference of a result by conjecturing the logical consequences of social rules (Ngwenyama, 2014). The abductive inferential logic assists the researcher to make an inference of the case by sorting and categorising phenomena and finally the retroductive inferential logic assist the researcher to make an inference of the cause by defining what the underlying causes are for social behaviour (Ngwenyama, 2014).

For the purposes of understanding the characteristics and boundaries of a DBS this study subscribed primarily to the deductive approach. While the DBS is a novice notion there are a few publications that, as a by-product of their primary goals, inferred characteristics of a DBS (Bharadwaj et al., 2013; Holotiuk & Beimborn, 2017; Mithas et al., 2012, 2013; Mithas & Lucas, 2010; Reijnen, 2018). This study's primary goal was to test the existence of these characteristics and more importantly *how* and *why* these characteristics exist. This testing of theory also included confirming if the concept of a DBS has a positive impact on organisational performance. This, however, did not exclude an element of an inductive research approach as the DBS was observed in its natural habitat which led to the researcher inferring social rules, based the observation of the DBS, as a clear definition and overview of its boundaries and characteristics were lacking.

This study subscribed to a case study research approach which supports both inductive and deductive reasoning for the development of theory and the confirmation thereof (Baškarada, 2014). The justification for selecting a case study research approach can be found in [section 3.4.3](#). Figures 3.3 and 3.4 is a graphical depiction of the stages of deductive and inductive reasoning respectively.

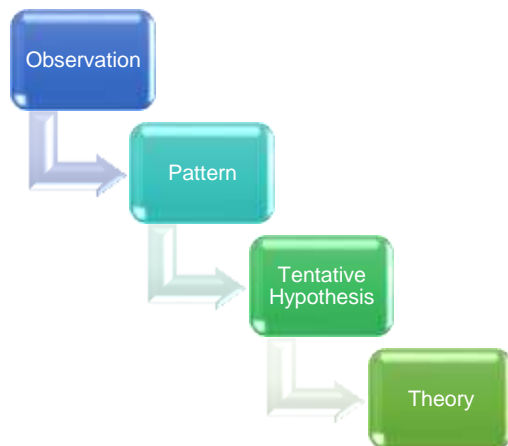


Figure 3.3: Induction reasoning

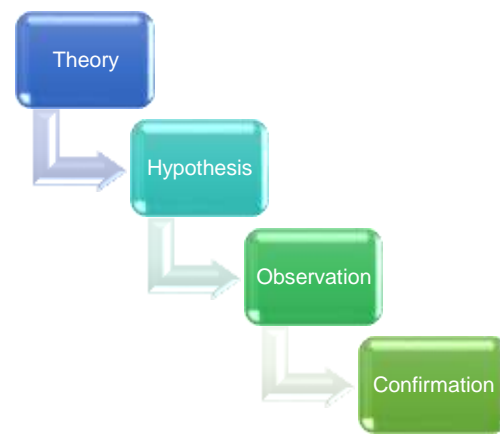


Figure 3.4: Deductive reasoning

### 3.4.1.1 Overview of hypotheses

Table 3.2 describes the hypotheses, derived from literature, for this study that were tested during this study.

	Hypothesis	Literature reference
H <sup>1</sup>	Merging business and IT strategy into a DBS <i>does not</i> automatically result in perfect intellectual alignment	(Bharadwaj et al., 2013; Coltman et al., 2015)
H <sup>2</sup>	IT alignment has a positive effect on performance through operational alignment (Path: IT alignment → operational alignment → performance)	(Gerow et al., 2015)
H <sup>3</sup>	Intellectual alignment has a positive effect on performance through business alignment (Path: Intellectual alignment → business alignment → performance)	(Gerow et al., 2015)
H <sup>4</sup>	Intellectual alignment has a positive effect on performance through IT alignment (Path: Intellectual alignment → IT alignment → performance)	(Gerow et al., 2015)
H <sup>5</sup>	Business alignment has a positive effect on performance through operational alignment (Path: Business alignment → operational alignment → performance)	(Gerow et al., 2015)



	Hypothesis	Literature reference
H <sup>6</sup>	DBS has a positive effect on performance through IT alignment, business alignment, and operational alignment.  (DBS → IT alignment, business alignment, operational alignment → performance)	(Gerow et al., 2015; Tallon & Pinsonneault, 2011; Yayla & Hu, 2012)
H <sup>7</sup>	DBS alignment must include social alignment	(Chan & Reich, 2007; Hinings et al., 2018)
H <sup>8</sup>	DBS alignment must include cultural alignment	(Chan & Reich, 2007; Hinings et al., 2018)
H <sup>9</sup>	A DBS has the following characteristics: <ul style="list-style-type: none"> <li>• Creates differential value</li> <li>• Is organisation-wide</li> <li>• Is strategic, not just functional</li> <li>• Is dynamic / flexible / agile</li> <li>• Is customer-centric</li> <li>• Is disruptive</li> <li>• Is exploratory and adaptive</li> </ul>	(Bharadwaj et al., 2013; Kahre et al., 2017; Mithas & Lucas, 2010)

Table 3.2: Research hypotheses

### 3.4.2 Research purpose

Three research types were considered for this study, namely exploratory, descriptive and explanatory.

Table 3.3 summarises the characteristics of the three research types.

Type of study	Characteristics
<b>Exploratory</b>	This type of research is used to offer the researcher a basic understanding, which can include the magnitude or extent, of a new phenomenon. Exploratory research can also give the researcher a basis to generate a hypothesis for a phenomenon that already exists (Bhattacharjee, 2012).
<b>Descriptive</b>	This type of research is used to offer the researcher the basis to describe the characteristics of a phenomenon based on observations, which can be through



Type of study	Characteristics
	<p>either quantitative or qualitative analysis. This is can be used to define and describe relationships between constructs (Bhattacharjee, 2012; Crabtree &amp; Miller, 1999).</p> <p>There are at least three different types of descriptive studies which are normative, quantitative and qualitative. Normative refers to the values and norms of the phenomenon. Quantitative refers to the frequency, size or prevalence of the phenomenon. Last, qualitative refers to exploring the holistic nature of the phenomenon (Crabtree &amp; Miller, 1999)</p>
<b>Explanatory</b>	<p>This type of research is used to offer the researcher a platform to explain the causes of the phenomenon or to explain the phenomenon itself. This can also be used to examine causal relationships between constructs (Bhattacharjee, 2012).</p>

**Table 3.3: Research purpose summary**

The purpose of this study is descriptive in nature as the primary goal is to define the boundaries and characteristics of a DBS. Furthermore, this study subscribed to both the qualitative and quantitative description branch of the descriptive study type. An element of exploratory research is also present in this study, as the secondary aim is to have a clear definition of a DBS.

### 3.4.3 Research strategy

Seven research strategies were considered for this study as per the 'onion model'. These are an experiment, survey, case study, action research, grounded theory, ethnography, and archival research. Table 3.4 shows a summary of the definition of the different research strategies considered for this study.

Research strategy	Definition
<b>Experiment</b>	Experimental studies aim to provide a "causal study of a number of cases under highly controlled conditions" (Mouton, 2001, p. 155).
<b>Survey</b>	Survey studies aim to provide a wide-ranging overview of a sample that represents a larger population (Mouton, 2001). It essentially means generalising to a population, based on the results from the sample (Crabtree & Miller, 1999).



Research strategy	Definition
<b>Case study</b>	The case study aims at investigating a phenomenon in one or more real-life situation(Saunders et al., 2009). Data collected for this type of study is usually done through using an array of data collection methods over a long period of time (Creswell, 2009).
<b>Action research</b>	Action research aims to build on scientific knowledge whilst solving a problem. In other words, the researcher aims at creating change while conducting the study (Myers, 2013).
<b>Grounded theory</b>	Grounded theory aims to develop a theory based on data gathered and analysed (Myers, 2013). The theory is grounded in the views of the participants that partake in the study (Creswell, 2009).
<b>Ethnography</b>	Ethnography research is usually conducted over an extensive period of time aimed at obtaining, largely through observation, a rich description of a community or a group of people in their natural environment (Creswell, 2009; Mouton, 2001).
<b>Archival research</b>	Archival research refers to the use of artefacts such as documents and records as the source of data for the study (Crabtree & Miller, 1999; Saunders et al., 2009).

**Table 3.4: Research strategies and definitions**

This study did not use documents and records as a primary source of data thus making archival research as a primary source of information inappropriate. However, there was an element of document collection and analysis as a secondary source of information. Similarly, experiment and survey research were inappropriate as this could not be conducted in a controlled environment or focused on generalising to population.

In addition, this study did not attempt to solve a real-life problem as implied by action research as this study was only aimed at defining a phenomenon, not solving a problem relating to the phenomenon. Furthermore, ethnography research was inappropriate as it was not the aim of the researcher to immerse



them into the natural habitat of the actors creating, maintaining and executing a DBS as a means to study the phenomenon.

Since this study's underlying purpose was to establish the boundaries and characteristics of a DBS, which inherently also attempted to *define* a DBS, the researcher selected the research strategy that provided a platform to investigate the phenomenon within its natural and real-life context. This was specially chosen as going into this project the "boundaries between phenomenon and context were not clearly evident" (Yin, 1984, p. 13). As such, a case study was deemed the most appropriate method for obtaining a valid understanding of a DBS.

There were many types of case studies that were considered for this study as defined by Baxter (2008) and Yin (2003). Table 3.5 describes each consideration.

Case Study Type	Definition
<b>Explanatory</b>	This type of case study is used when the researcher is aiming to explain causal relationships in a real-life context that cannot be determined by using an instrument such as a survey.
<b>Exploratory</b>	This type of case study is used when the outcomes of the study are not clear.
<b>Descriptive</b>	This type of case study is used to describe a phenomenon in its natural habitat.
<b>Multiple</b>	This type of case study enables the researcher to find differences and similarities in cases.
<b>Single</b>	This type of case study can test a specific set of propositions.
<b>Intrinsic</b>	This type of case study is used to understand a case better. However, it is not used for developing theory.
<b>Instrumental</b>	This type of case study is used to provide inputs into understanding an issue but the case itself is secondary because the researcher does not want to particularly understand the situation of the case.

**Table 3.5: Case study approaches considered**

Source: (Baxter & Jack, 2008; Yin, 2003)

For this study, a single descriptive case study was selected. The rationale behind a single case study can be found in that a single case study can test a clear set of propositions within a specific setting, in order



to challenge, confirm or extend existing theory (Yin, 2003). The reader may recall that a set of propositions were described in [section 3.4.1.1](#), which this study was based on and aimed to build on.

### 3.4.3.1 Case study critique and limitations

The case study approach to research was previously thought of not being a proper scientific method, however, in the 1970s researchers began to argue the benefits of understanding a phenomenon and its context as there is great richness to understanding the interaction between the phenomenon and its environment (Dubois & Gadde, 2002; Flyvbjerg, 2006). While the case study approach is now thought of as a legitimate method of inquiry, it is still criticised in some aspects.

One of the biggest criticism is the issue of generalisation (Dubois & Gadde, 2002; Flyvbjerg, 2006; Yin, 2003). When looking at generalisation based on a case study the researcher must be well aware that the results of the case study will not be able to be generalised to population, but will make valuable contributions in generalising to theory (Yin, 2003). To increase the generalisability of a study the researcher must be strategic in the case selection, especially when the goal is to find the most appropriate possible information about a phenomenon. This can be done by finding an extreme case, as opposed to a generic case, as the extreme case will contain richer information (Flyvbjerg, 2006). With the unclear definition, characteristics and boundaries of a DBS, the researcher set out to find such an extreme case in order to gain as much information about the DBS as possible. Detailed information on how the case was selected is available in [section 3.4.5](#).

Another criticism of the case study approach is the lack of rigour. This refers to the possibility that the researcher will steer the findings of the study in a biased direction (Flyvbjerg, 2006; Yin, 2003). To address the issue of rigour the researcher followed the guidelines for case study research as defined by Benbasat et al. (1987) and Yin (2003), which comprises of making a choice between a multiple or single case study, selecting an appropriate unit of analysis, choosing a relevant site, selecting the right mix of data collection and performing integrative data analysis. All of which are described in detail in [section 3.4.4](#) through [section 3.4.7](#).

A third criticism is the element of bias due to the engagements between the researcher and the participants (Flyvbjerg, 2006; Yin, 2003). To address this bias the researcher followed the guideline from Yin (2003) and Benbasat (1987) to meticulously document processes and procedures applied throughout



this study. With such documented evidence it becomes difficult for the researcher to steer the findings of the study to fit the preconceived notions about the study the researcher had when commencing the research process (Flyvbjerg, 2006).

Since case study research is under the umbrella of interpretivism it is also criticised from a validity and reliability aspect. One way to address the validity limitation is through triangulation, which is the combination of both qualitative and quantitative methods (Chowdhury, 2014), effectively studying a phenomenon from different angles in order to create the opportunity for more “rigorous and convincing” (Myers, 2013, p. 11) findings and conclusions. Simply put, triangulation is a method in which to validate and cross-check data and findings to reduce data being incoherent and doubtful (Baxter & Jack, 2008; Tongco, 2007) and to decrease the impending biases that are inherent to single case studies (Bowen, 2009). As mentioned before, this study subscribed to a mixed-method approach in order to address validity. The limitation of reliability, which is the stability of the measure, is to develop a research protocol (Baškarada, 2014). The case study protocol for this study is described in the following section.

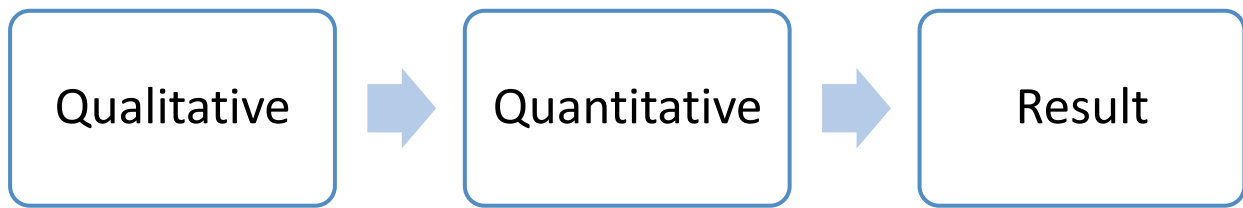
### 3.4.4 Research methods and design

As mentioned in [section 3.3.6](#), a mixed-method approach was taken for this study, consisting of both quantitative and qualitative data collection and analysis. Quantitative data refers to numerical data from which statistics can be derived whereas qualitative data refers to data that is non-numerical such as text (Myers, 2013). Four procedures can be followed in a mixed-method approach.

Method 1 follows the approach where the quantitative instruments and measures are created by using the qualitative method as depicted by Figure 3.5. Method 2 follows the approach where a primarily qualitative study is embellished by the quantitative methods as depicted in [Figure 3.6](#). Method 3 follows the approach where quantitative findings are explained by the qualitative methods as depicted in [Figure 3.7](#). Last, method 4 follows the approach where both qualitative and quantitative methods are used simultaneously and are equal as depicted by [Figure 3.8](#) (Creswell et al., 2003).



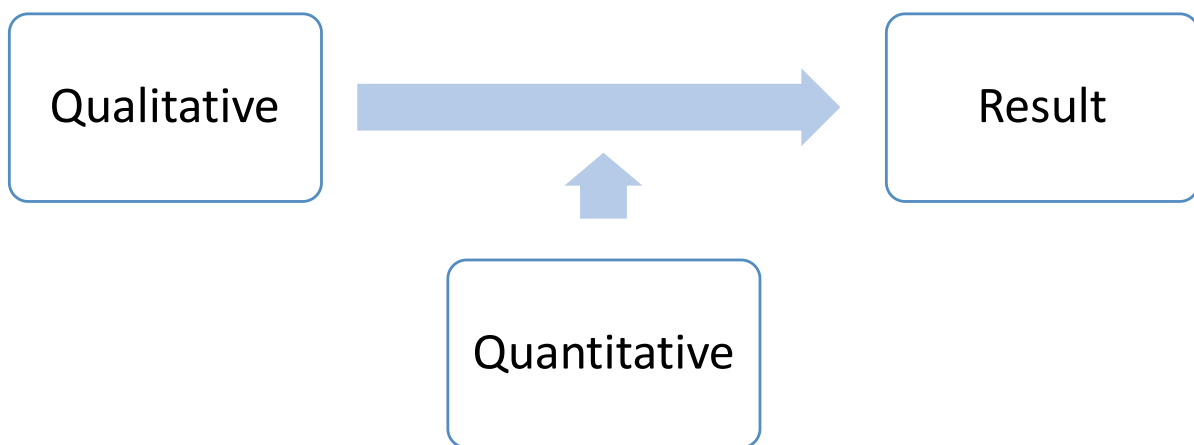
Method 1



**Figure 3.5: Mixed-method approach 1 – Qualitative informs quantitative**

Source: (Creswell et al., 2003)

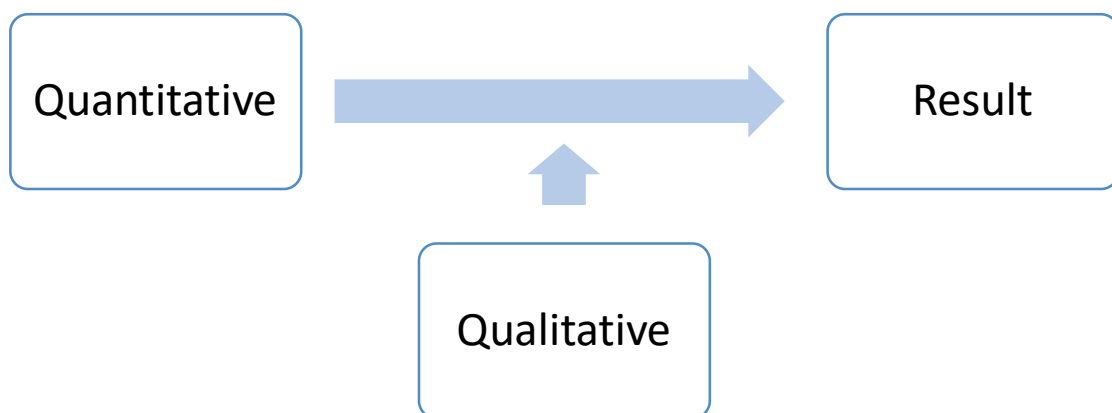
Method 2



**Figure 3.6: Mixed-method approach 2 – Quantitative embellishes qualitative**

Source: (Creswell et al., 2003)

Method 3

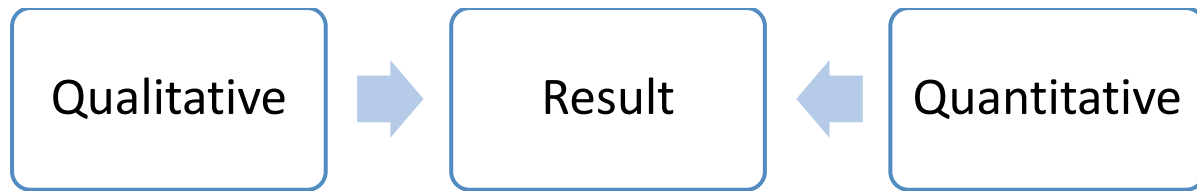


**Figure 3.7: Mixed-method approach 3 – Qualitative explains quantitative findings**

Source: (Creswell et al., 2003)



## Method 4



**Figure 3.8: Mixed-method approach 4 – Quantitative and qualitative methods are equal**

Source: (Creswell et al., 2003)

To understand the characteristics of a DBS, the *context* in which the DBS exists had to be understood. In this study, the *context* is the organisation and is influenced by the actions and decisions made by the persons within the organisation. As such, in an effort to understand *what* a DBS is, the study also focused on *why* people perform certain actions and make certain decisions to influence the DBS. Therefore, a qualitative approach was taken in this study. Myers (2013) suggests that to understand the *context*, qualitative research is the better option, as opposed to a quantitative approach, as qualitative research allows the researcher to understand the cultural phenomenon.

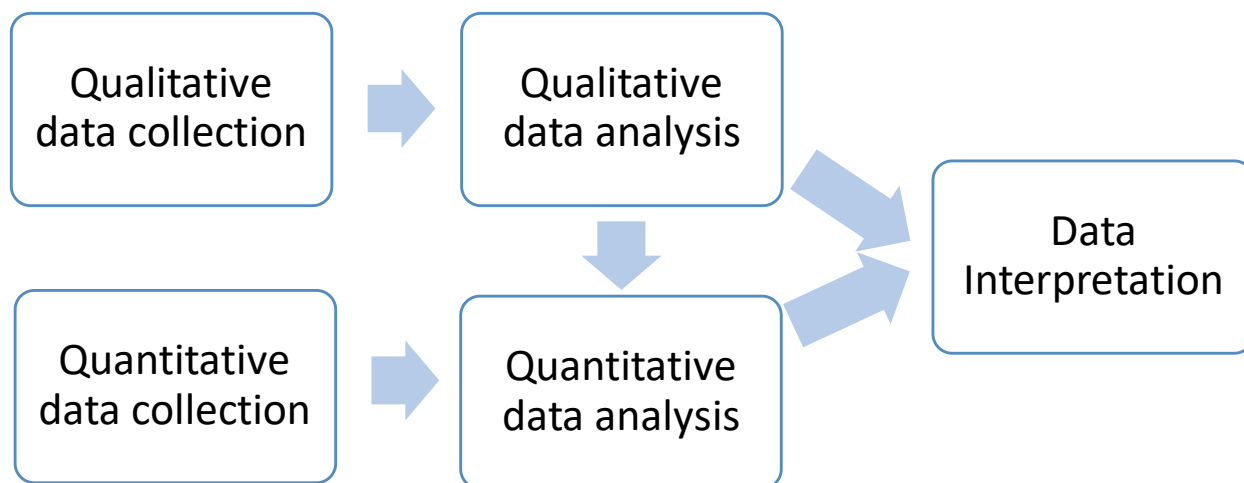
However, to understand the components that make up the DBS, which is the product of actions and decisions that are made by people, the state of the alignment between business and IT also needed to be determined. This was especially important as the theory going into the study was that the DBS creates differential value and has a positive impact on organisation performance. Since the goal of this assessment rested on finding a causal relationship between the DBS and organisational performance, quantitative methods were also appropriate. For this reason, the study subscribed to a mixed-method approach, where one method of inquiry complimented the other (Lieberman, 2005; Ritchie & Lewis, 2003) and in so doing followed Creswell's fourth mixed-method approach where the quantitative and qualitative methods had equal parts to play in the study.

#### 3.4.4.1 Case study validity

By following this mixed-method approach this study also followed the concurrent triangulation design as defined by Creswell et al. (2003) to ensure the validity of the study findings. This design states that quantitative and qualitative data is collected simultaneously and is done to offset each other's weaknesses. It also states that the integration of the data happens during the analysis or interpretation phase, which was the case in this study as described in [Chapter 5](#) and [Chapter 6](#). While the concurrent



triangulation design means a shorter cycle for data collection it does make integration difficult as the qualitative data must be converted to a quantitative form or vice versa (Creswell et al., 2003). For this reason, interpretations of the quantitative data were written in text and were then integrated with the qualitative findings in [Chapter 5](#) and [Chapter 6](#). Figure 3.9 shows the process of data collection and analysis as applied in this study.



**Figure 3.9: Concurrent triangulation**

Source: Adapted from (Creswell et al., 2003)

#### 3.4.4.2 Case study reliability

To ensure the stability and standardisation of the research instruments in the study, a research protocol was created to ensure method and instrument reliability (Baškarada, 2014). Table 3.6 describes the research protocol developed for this study.

Activity	Description	
Research question	<ul style="list-style-type: none"><li>• Define the boundaries and characteristics of a DBS</li><li>• What is the definition of a DBS</li></ul>	
Research method	A longitudinal single case study	October 2018 – November 2019



Activity	Description	
<b>Critical Incident</b>	Digitisation of a pre-digital organisation	
<b>Case selection process</b>	<ul style="list-style-type: none"> <li>• Must have a DBS that has been in existence for a number of years</li> <li>• Must be a pre-digital turned digital organisation</li> <li>• Must be a leader in their industry</li> </ul>	
<b>Case Access</b>	<ul style="list-style-type: none"> <li>• Identify a case that meets the criteria as defined in the research protocol. Identification to be done by discussing the research purpose and case prerequisites with organisational representatives</li> <li>• Obtain approval to gain access to the case</li> <li>• Appoint a senior manager to facilitate introductions and data collection on site</li> </ul>	January 2017 –  September 2018
<b>Research instrument</b>	The researcher is the research instrument applying research methods	
<b>Boundary device(s)</b>	Strategic Alignment Model (SAM) and Complex Adaptive System (CAS) framework	
<b>Research techniques</b>	<ul style="list-style-type: none"> <li>• Semi-structured interviews</li> </ul> <p><i>Field procedure of the researcher:</i></p> <ul style="list-style-type: none"> <li>○ Have a printed copy of the research question available for interviews</li> <li>○ Have a printed copy of the consent form available and have the interview participant sign it before commencing of interview</li> <li>○ Have a video recording device and audio recording device</li> <li>○ Take notes during the interview</li> <li>○ Conduct interviews in a meeting room for privacy</li> <li>○ Keep to the interview questions but explore avenues that are not on the</li> </ul>	



Activity	Description
	<p>interview questions, should the topic be related to the frameworks selected for this study. Preformulated questions can be found in <a href="#">Appendix E</a>.</p> <ul style="list-style-type: none"><li>○ Keep to the allotted time frame of the interview</li></ul> <ul style="list-style-type: none"><li>● Informal conversations (this technique was not part of the original research protocol. It was added after spontaneous conversations with participants arose, while the researcher happened to be on-site)</li></ul> <p><i>Field procedure of the researcher:</i></p> <ul style="list-style-type: none"><li>○ Audio record informal conversations with the participant's consent</li><li>○ Keep spare consent forms on hand and ensure participant signs a copy</li><li>○ Make retrospective notes immediately after the conversation including non-verbal cues</li></ul> <ul style="list-style-type: none"><li>● Research questionnaire</li></ul> <p><i>Distribution procedure of the questionnaire:</i></p> <ul style="list-style-type: none"><li>○ Have senior manager appointed to facilitate the process of data collection have collective or one on one conversations with potential participants to gauge their willingness to participation</li><li>○ Obtain e-mail addresses of willing participants</li><li>○ Distribute the link to questionnaire to the participants with a personalised e-mail</li></ul> <ul style="list-style-type: none"><li>● Documentary evidence provided by the research participants</li></ul> <p><i>Document collection procedure:</i></p> <ul style="list-style-type: none"><li>○ Collect documented evidence from participants after each interview</li></ul>



Activity	Description
	<p>where relevant</p> <ul style="list-style-type: none"> <li>○ Update the document register with artefacts collected</li> </ul> <ul style="list-style-type: none"> <li>• Documentary evidence retrieved via internet search</li> </ul> <p><i>Document retrieval procedure:</i></p> <ul style="list-style-type: none"> <li>○ Update the document register with artefacts retrieved</li> </ul>
<b>Data management</b>	<ul style="list-style-type: none"> <li>• Data received and self-collected to be well documented in the document database</li> <li>• Amendments to research instruments documented in an 'audit trail'</li> </ul>

Table 3.6: Research protocol

### 3.4.5 Case selection and description

In order to select a case that best fit the criteria for answering the researchers' objectives, the researcher must ensure that the selection is well thought through (Benbasat, Goldstein, & Mead, 1987). A crucial prerequisite for this study was to base a case on an organisation that has a DBS. It had to be an organisation with an infrastructure that is very reliant on technology, has been using digital innovation for a number of years and was a leading organisation in their industry of operation. Following a literature review it was evident that to obtain a richer picture of the DBS another prerequisite was that the organisation had to be a pre-digital organisation, i.e. an "established company belonging to a traditional industry" (Chanias, Myers, & Hess, 2019, p. 17) first and then transformed into a digital organisation. This was done to test the validity of the DBS statements that are in the existing literature. E.g. Kahre et al (2017) denotes that an organisation that has a DBS needs to ensure that they have a fit for purpose organisational structure. By analysing a pre-digital turned digital organisation the researcher could investigate if the organisation indeed had to change their organisational structure to accommodate the presence of a DBS. Another prerequisite was that the organisation must have been a leader in the industry in their pre-digital days. This was done to give the researcher the platform to investigate why a successful



organisation in the industry found it necessary to make the transition considering they were already prosperous without making the shift.

Targeting such an organisation enabled the researcher to delve deeper into what the triggers were for the organisation to make the transition, what difficulties they faced and what the maintenance of having a DBS is like in a pre-digital turned digital organisation. Since one of the rationales for a single case-study is to find an extreme case the researcher set out to find an organisation that went through a major transition, which included overhauling business models, architectures and processes (Bharadwaj et al., 2013; Chanias et al., 2019) as opposed to a digital-born organisation such as Apple or Facebook.

To find such an organisation, traditional industries such as the automotive, retail and financial services were considered. It is important to note that the industry was not as important as the case itself, therefore cases falling outside of these industries were also approached. The researcher approached their social and business networks to find an appropriate case, knowing that strategy is a sensitive subject and 'cold-calling' would not be appropriate. The researcher was placed in contact with six organisations, five of which rejected the request for being the host organisation. Table 3.7 depicts the profiles of these five companies. Real names are excluded to protect the entities from being identified.

Company	Industry	Reason for non-participation
A	Financial services	Do not want an outsider to have a line of sight of our strategic direction
B	Information Technology	Wanted the researcher to change their topic before they would participate
C	Information Technology	Do not want an outsider to have a line of sight of our strategic direction
D	Retail	Do not have the time to host a student
E	Retail	Strict policy to have only internal employees have a line of sight of any documents that are not published

**Table 3.7: Organisations approached to be a host organisation**



The organisation that was chosen fitted the prerequisites and provided the necessary context in which an in-depth analysis could be conducted, through a single case study. FinCo (a pseudonym) is a South African based financial services provider with less than 150 employees and is a subsidiary of a larger financial services provider, AfriBank (a pseudonym) that spans all over Africa. FinCo's business involves offering customers financial advice and investment portfolios directly or through financial intermediaries. In 2010, under the direction of their Chief Executive Officer (CEO), FinCo embarked on their digital journey.

### **3.4.5.1 Target population, context and units of analysis**

In order to decide on the unit of analysis, the researcher must clearly define the goal of the research and select what entity analysed will best answer said goals (Benbasat et al., 1987). As mentioned in the previous section, this study drew its sample from a single organisation, in a traditional industry of financial services. The unit of analysis in this particular research project is the organisation who creates, uses and maintain a DBS. This means that the research was confined to one organisation, focusing on their structures, relationships and processes as it relates to the DBS. This distinction of what the study will be focusing on helped the researcher bind the study to definition and context in order to prevent the study from exceeding its boundaries (Baxter & Jack, 2008).

The data collection target population was business executives, IT executives, senior managers and non-managers in FinCo. The rationale for targeting these specific groups of people was their involvement in setting or enabling the strategic direction of the organisation. Although data were collected from the individual business and IT personnel in the organisation, conclusions were drawn about the organisation as a collective.

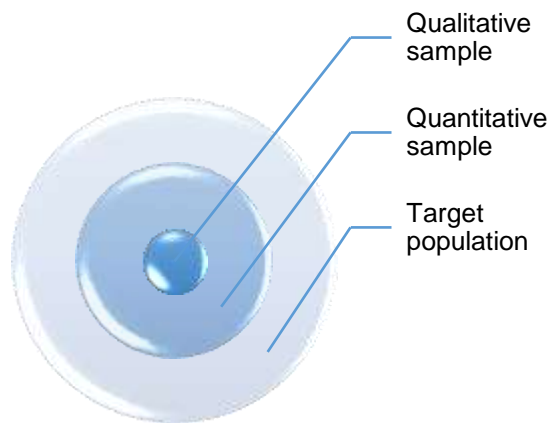
### **3.4.5.2 Sampling method and issues of bias**

The case for this study was selected using the purposive sampling technique which allowed the researcher to calculatingly select the type of organisation that met the prerequisites and possessed the qualities to inform the study (Tongco, 2007). Since the type of information required to inform the primary and secondary goals of this study was dependent on a specific type of organisation and specific actors within that organisation providing the information, random sampling was not appropriate. Considering the organisation that was chosen for this study was done so based on specific criteria as opposed to random sampling, an element of inherent bias had to be addressed. The researcher reduced this bias by applying



triangulation as previously indicated. In addition, the researcher also reduced bias by ensuring that they strive to understand the phenomenon of the DBS as opposed to providing assistance or solving any perceived problems during the collection of data (Goering & Streiner, 2013).

As mentioned before, this was a mixed-method study and, as such, required two sets of samples; however, these samples were closely related to each other as the individuals were all from the same organisation. For the quantitative section of this study, a larger sample size was identified through the purposive sampling technique. Similarly, for the qualitative section of this study, a smaller sample of a few individuals who were nested within the larger qualitative sample was identified through the purposive sampling technique. To illustrate, Figure 3.10 describes how the sample bases are related to each other.



**Figure 3.10: Sampling**

### **3.4.6 Data collection methods**

The researcher collected and analysed primary data; therefore, the study can be classified as empirical research. Primary data speaks of data that is collected and analysed for specific purposes of the study (Saunders et al., 2009). All raw data collected were arranged in a database as it improves the reliability of the case study (Baxter & Jack, 2008). In the next section, the measure and the variables of the data will be discussed.



### 3.4.7 Measure

#### 3.4.7.1 Questionnaire

A modified version of a questionnaire used in a previous study by Gerow et al. (2015) was used for this research to obtain the basic information regarding the status of the organisation's intellectual and operational alignment between business and IT. The change to the questionnaire was adding a "Not Sure" option on the Likert scale on all sections except demographic information. This modification was necessary as there were many incomplete questionnaires received during the pilot study due to the participants' inability to answer all the questions. The questionnaire addresses the issues regarding alignment between business and IT strategy, IT and business infrastructure and processes and how all these elements integrate with each other.

In an effort to be practical, cost-efficient and reduce the error rate of manually capturing the responses of the questionnaire, the use of an electronic questionnaire tool (Qualtrics) was used, as it allowed the researcher to collect data from multiple individuals at the same time.

The questionnaire consists of 8 main sections:

- Demographic information
- Business and IT strategy alignment (Intellectual Alignment (IA))
- Business infrastructure/process and IT infrastructure/processes alignment (Operational Alignment (OA))
- Business strategy and IT infrastructure/processes alignment (Cross-domain Alignment (CA))
- IT strategy and business infrastructure/processes (Cross-domain Alignment (CAb))
- IT strategy and IT infrastructure/processes (IT Alignment (ITA))
- Business strategy and business infrastructure/processes (Business Alignment (BA))
- Organisational performance

The questionnaire can be viewed in [Appendix C](#).



### 3.4.7.2 Interviews and informal conversations

In addition to the questionnaire, semi-structured interviews were used for the qualitative section of this study. Although there are three basic types of interviews to choose from, namely, structured, semi-structured and unstructured interviews (Crabtree & Miller, 1999), the semi-structured interview has been identified as the most appropriate. Table 3.8 presents a list of the advantages and disadvantages of the three interview types which lead to the choice.

Interview type and description	Advantages	Disadvantages
<b>Structured interview</b>  Pre-formulated questions asked in a specific order which can almost be considered as a spoken questionnaire (Crabtree & Miller, 1999).	Consistency across interviews	<ul style="list-style-type: none"><li>• Requires a considerable amount of planning</li><li>• Unable to pursue a new line of inquiry</li></ul>
<b>Unstructured interview</b>  Little to no pre-formulated questions and is almost the equivalent of everyday conversation that the researcher engage in when the desired topic of conversation comes up (Crabtree & Miller, 1999).	The interviewee has free reign to narrate	<ul style="list-style-type: none"><li>• The interviewer must be prepared to improvise on the spot</li><li>• No consistency across interviews</li></ul>
<b>Semi-structured interview</b>  Some pre-formulated questions that are asked of participants by the researcher outside the norm of everyday conversation. The guide used by the researcher leans towards having open-ended questions (Crabtree & Miller, 1999)	The interviewer can improvise to obtain richer information	Inconsistencies between interviews

**Table 3.8: Advantages and disadvantages of interview types**



Semi-structured interviews were conducted with senior-level IT and business personnel to understand the lived experience of a person and the meaning they attach to said experience (Seidman, 2006) as it related to the DBS. Business executives, IT executives, and managers who participated in the interviews were selected based on their involvement in strategy formulation and execution. All interviews were recorded digitally, and extensive notes were taken by the researcher. Thereafter, all recordings and notes were transcribed into a format that allows for analysis.

While informal conversations were not part of the original case design, it was later added based on the occurrence thereof when the researcher happened to be on site. Informal conversations are a form of participant observation and are part of the qualitative data collection method that may occur at any time at any place. This is different from an interview, as an interview requires preplanning and a prior agreement with a participant, whereas informal interviews are spontaneous (Myers, 2013). For these conversations, only audio recordings were made as opposed to both video and audio recordings as performed for the scheduled interviews. These conversations were also transcribed into the same format as the interviews, with the exception of retrospective notes created immediately after the conversations, as this type of conversation did not allow for note-taking during the engagement with the participant.

### **3.4.7.3 Internal document review**

Document reviews, in a single case study, provides the researcher with data that provide context and background and can verify findings obtained through other methods (Benbasat et al., 1987; Bowen, 2009). An initial list of documents required for the study was communicated to the host organisation before the start of the data collection process. This list was updated throughout the project as unexpected themes were generated through the thematic analysis of the interviews. Documentation such as IT policies and procedures, that were on the original request, could not be provided by the host organisation in full as many of them were not formally documented. In such cases, the participants explained the processes to the researcher and were documented retrospectively from interview recordings. Documents and archival records collected in this study are denoted in Table 3.9.



Name	Purpose
<b>Divisional strategies</b>	To review the components of a DBS and reach within the organisation.
<b>Financial reports</b>	To analyse organisational performance against competitors over the last 10 years.
<b>Job descriptions</b>	To analyse the impact of digitisation on roles.
<b>Official New Ways of Working staff communications</b>	To understand the rationale for the transition from pre-digital to digital.
<b>Organisation divisional structure</b>	To analyse the impact of digitisation on the organisational hierarchy.
<b>Organisational chart</b>	To analyse the impact of digitisation on the organisational hierarchy.
<b>Organisational strategy</b>	To review the components of a DBS.
<b>Policies and procedures</b>	To understand business and IT governance.
<b>Talent management framework</b>	To understand the characteristics of the personnel selected to be part of strategy development.

**Table 3.9: Documents and archival records**

Documents obtained through personnel at the organisation or retrieved via the internet were catalogued in a document database as an audit trail. An extract from the document catalogue is listed in [Appendix E](#).

### 3.4.8 Pilot study

The original design of this study did not include a pilot study, however, the first round of responses that were received via the quantitative instrument could not be used as many of the responses were not valid. These questionnaires were returned with unanswered questions as the participants did not know how to



answer it. Since the first round of questionnaires resulted in only nine valid questionnaires, the researcher could not run statistical analysis.

While the questionnaire in itself only required between 20 – 30 minutes to complete, the first round of questionnaires took a total of nine months to be collected as the majority of the participants advised they did not have the time to complete it.

As a result, the researcher enhanced the questionnaire to ensure every question was answerable by more than just the senior management in the organisation, the questionnaire was shortened to 10 – 15 minutes and was made mobile friendly. To ensure the next round of quantitative data collection did not take the same amount of time, the senior manager facilitator invited the researcher to multiple sessions where the researcher had the opportunity to speak to most of the participants face to face, informing them of the purpose of the study and their requested role.

### 3.4.9 Data analysis methods

All qualitative data collected during interviews were transcribed from analogue to digital in MS Word by the researcher. Thereafter it was imported to NVIVO for thematic analysis. A theme is an important data element that may be indicative of patterns with responses obtained. There are six steps to thematic analysis, as defined by Braun and Clarke (2006), and are depicted in Table 3.10.

Phase	Description of the process steps
<b>1. Familiarising yourself with your data</b>	<ul style="list-style-type: none"><li>• Transcribe data (if necessary)</li><li>• Read and re-read the data</li><li>• Note down initial ideas</li></ul>
<b>2. Generating initial codes</b>	<ul style="list-style-type: none"><li>• Code interesting points of data systematically across the full data set</li><li>• Collate relevant data to corresponding codes</li></ul>
<b>3. Searching for themes</b>	<ul style="list-style-type: none"><li>• Collate codes into potential themes</li><li>• Gather and collate relevant data to corresponding potential themes</li></ul>

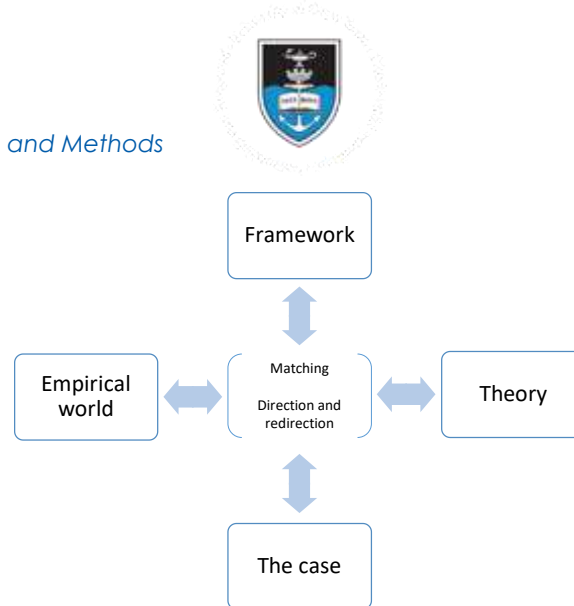


Phase	Description of the process steps
<b>4. Reviewing themes</b>	<ul style="list-style-type: none"><li>• Check the validity of themes as it relates to coded extracts (Level 1) and the full data set (Level 2)</li><li>• Generate a thematic “map” of the analysis</li></ul>
<b>5. Defining and naming themes</b>	<ul style="list-style-type: none"><li>• Refine the specifics of each theme and ensure the themes can tell a collective story as it relates to the research project</li><li>• Finalise the theme names and generate clear definitions for each theme</li></ul>
<b>6. Producing the report</b>	<ul style="list-style-type: none"><li>• Take advantage of the final opportunity for analysis</li><li>• Extract clear and compelling quotes (extracts) to support the story</li><li>• Analyse the selected extracts</li><li>• Relate extracts back to the research question and literature</li><li>• Produce a scholarly report of the analysis</li></ul>

**Table 3.10: Phases and description of thematic analysis**

Source: (Braun & Clarke, 2006)

Keeping true to the interpretive stance this study was built on, links between data collected and the philosophical stance were applied during the analytical phase as the goal of a descriptive case study is to describe the phenomenon and its context. This was done through the iterative process of collecting data and analysing said data (Kelliher, 2011; Yin, 2003). In other words, as themes were identified through the analysis process, more data was collected to satisfy the theme to the point where the researcher reached a point of saturation. Of course, in an effort to prevent breaching the parameters of the case study, additional data was only collected if it was related to the original set of propositions set out during the case design (Baxter & Jack, 2008; Yin, 2003). In addition, to gain a deeper understanding of the DBS and in an effort to build on existing theory, the researcher also followed an iterative process between analysing and interpreting empirical data and revisiting existing theory as one cannot be effectively understood without the other (Dubois & Gadde, 2002). Figure 3.11 illustrates the non-linear process the researcher was following.

**Figure 3.11: Systematic combining**

Source: (Dubois &amp; Gadde, 2002)

While thematic analysis is commonly used in qualitative data analysis it is only the first step (Bazeley, 2009). As a result, the researcher used the outcome of the themes generated during the thematic analysis to build and establish arguments as documented in [Chapter 4](#).

Data analysis for the quantitative data obtained via Qualtrics was imported into SPSS 25, a statistical analysis tool. The researcher also used MS Excel to illustrate responses for each alignment aspect. To understand the impact intellectual and operational alignment has on FinCo's performance, the researcher had to perform Structural Equation Modelling (SEM), which is a technique that can be used to draw relationships between "multiple predictor and criterion variables" and to perform confirmatory analysis against a priori assumptions (Chin, 1998, p. 297). SEM is most applicable when understanding the relationships between Latent Variables (LV), where the variable cannot be directly observed but can be determined through a set of indicators (Urbach & Ahlemann, 2010). While most of the required statistical data analysis could be done via SPSS 25, it was not equipped for performing SEM. As a result, the researcher investigated AMOS, a SEM-friendly plug-in for SPSS 25, but acquiring AMOS meant obtaining an additional license. Due to the cost implication, the researcher found that the RStudio statistical package was more suitable as it is freeware and is also on the recommended statistical tools by the University. The RStudio version that was used was 1.2.5001, R version 3.6.1 with the plspm package.

As described in [section 2.3.1](#), the state of alignment between business and IT was based on intellectual, operational, social and cultural alignment. Since the quantitative data only focused on the integration between intellectual and operational alignment, the researcher interpreted quantitative data and



integrated it with qualitative findings that also included social and cultural alignment, in order to analyse the effect of all four alignment elements on FinCo.

### 3.5 Ethical considerations

To conduct this research, permission was obtained from the University of Cape Town ([Appendix A](#) and [Appendix B](#)), and the organisation ([Appendix G](#)) where the study was conducted. Since the research was conducted on the property of the organisation, the researcher adhered to the schedule as indicated by the organisation, to ensure minimum disruptions to the operations of the organisation.

### 3.6 Study Contributions

The study aimed to contribute to the theory by drawing generalisations from an in-depth case study. This is consistent with Barrett & Walsham's (2004), fourth strategic concept: qualitative generalisations, which states "the construction of qualitative generalisations from interpretivist research, which we suggest are the *content* of contributions." (Barrett & Walsham, 2004, p. 298). The study focused on drawing rich insights from the qualitative case study and generalisations from the quantitative side of this study. This contribution provides future researchers with the fundamentals of a DBS in order to create practical guides for creating and executing a DBS, which includes concepts such as roles, responsibilities and accountabilities.

### 3.7 Time horizons

To increase the validity of data within a single case study, the proposed study was conducted through data collection and analysis over a longer period in time as opposed to an observation of the phenomena at a single point in time, thus making the proposed study longitudinal as opposed to cross-section. This was done to offer the utmost potential for research legitimisation as supported by Kelliher (2011). Figure 3.12 is a graphical representation of the timeline this study was on.

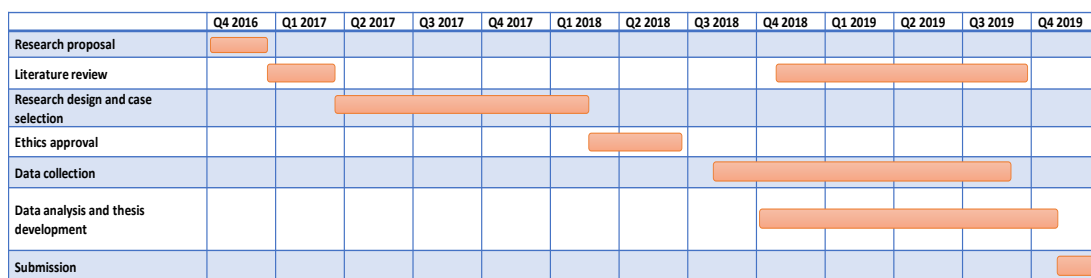


Figure 3.12: Study timeline



### 3.8 Chapter summary

In summary, this study subscribed to the interpretivism research philosophy, deductive research approach, and a descriptive research purpose. To provide rich contextual data on the DBS the study opted for a single case study research strategy that is descriptive in nature. To justify the selection of a single case study, the researcher set out to find an extreme case to provide a platform for understanding the DBS, including *why* and *how* the DBS exists.

To overcome the criticism related to case study research, the researcher subscribed to concurrent triangulation to combat the validity issues inherent to case studies. To support triangulation, the researcher employed a mixed-method approach, which included both qualitative and quantitative methods. This manifested itself in a quantitative questionnaire, and qualitative interviews and document reviews. Throughout the research process, the researcher kept meticulous notes on data collected in order to improve the reliability of the case study, which was combatting another case study critique.

Data collection on the case was from October 2018 to November 2019, essentially engaging with all levels of managerial staff and business and IT personnel that were involved with strategic development or execution.



## Chapter 4

### 4. Qualitative Research Analysis and Findings

#### 4.1 Introduction

The previous chapter discussed the research design and methodology employed in this study. This chapter details the analysis performed on the qualitative data collected from participants in FinCo, on the development and execution of their Digital Business Strategy (DBS). The sample population was both senior and mid-level management from the organisation. The qualitative data was collected over a ten-month period and was collected using semi-structured interviews, informal conversations and document analysis. Figure 4.1 provides an overview of Chapter 4.

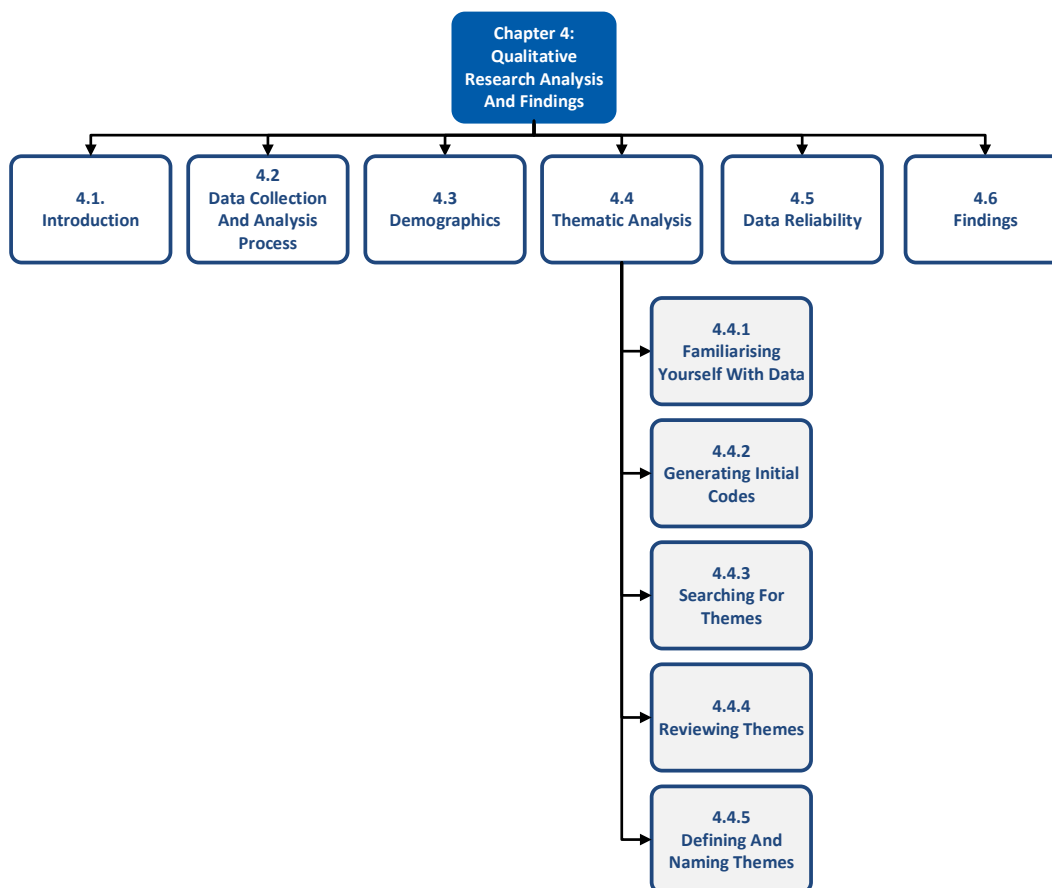


Figure 4.1: Chapter 4 overview



The fundamental purpose of collecting qualitative data was to obtain an in-depth understanding on the characteristics of the DBS, *why* and *how* it became to be, and how far within, or outside the organisation it reaches. Collecting this data through a case study allowed the researcher to analyse the DBS *and* the context in which it exists, which provided the researcher with insights on how its surroundings are influencing it, and how the DBS is influencing its surroundings. It also allowed the researcher to define the boundaries of the DBS as the researcher could analyse where the DBS ended and where its context began. In addition, the qualitative data also covered intellectual, operational, cultural and social alignment between business and IT strategy.

While this study also used a quantitative method of data collection and analysis, which will be discussed in [Chapter 5](#), the qualitative method overcame the limitations of the quantitative methods in that it could provide context into the existence and operation of the DBS, where the quantitative methods could only provide causal relationships between pre-defined constructs. Since the notion of the DBS is such a novice concept, the researcher had to allow for theory development from their observation, whether it be confirming or refuting existing theories or the development of emerging theory, in order to contribute the body of knowledge as it pertains to the DBS. The following sections, describes the demographics of the interview participants, thematic analysis process and results, data reliability, findings and last a summary of the findings.

## 4.2 Data collection and analysis process

A senior management representative from the host organisation identified persons who were in a position to participate in the interviews based on the topic of investigation. Ten people were approached and nine people participated. The interviews were held on the organisation's premises and were conducted over a period of ten months by the researcher. Interviews were semi-structured in nature and were guided by pre-formulated interview questions available in [Appendix E](#). Since the interviews were semi-structured in nature, the researcher also included probing questions based on the responses from the participants. Each participant signed a consent form before the interview commenced and the interviewer ensured each participant understood the process of the interview and why it was being conducted. Participants were provided with multiple opportunities to ask questions before and throughout the interview.

During the interviews, each participant shared their views on the changes technology had on their organisation on both strategic and operational levels. Each interview was recorded in both audio and



video formats, while the researcher took extensive notes. The interviews were transcribed into MS Word and were later analysed using NVIVO.

Informal conversations, with previously identified interview participants, were also digitally recorded via an audio recording device. Only one informal conversation was conducted with a participant that was not on the interview list. Since the informal conversations were all spontaneous, the researcher could not make video recordings, in addition to the audio recording, and could not take notes during the engagement. As a result, informal conversations were transcribed from the audio recording to MS Word immediately after the engagement, in order for the researcher to add field notes retrospectively. Similar to scheduled interviews, the informal conversations were analysed through NVIVO.

The researcher was also invited to observe how the different actors, in and outside of the organisation work together to solve customer issues relating to the technological items they are using. Table 4.1 is a summary of the number engagements with FinCo staff.

Engagement type		Number of engagements
Semi-structured interviews		10
Observations	Group observation	3
	Informal conversations	4
Total		17

**Table 4.1: Number of engagements**

To provide an overview of the participants who participated in the engagements, the section that follows will depict their demographic information.

### 4.3 Demographics

This section details the demographic information of the participants involved in the interviews and informal conversations in terms of roles, management position, strategy development and IT investment involvement.

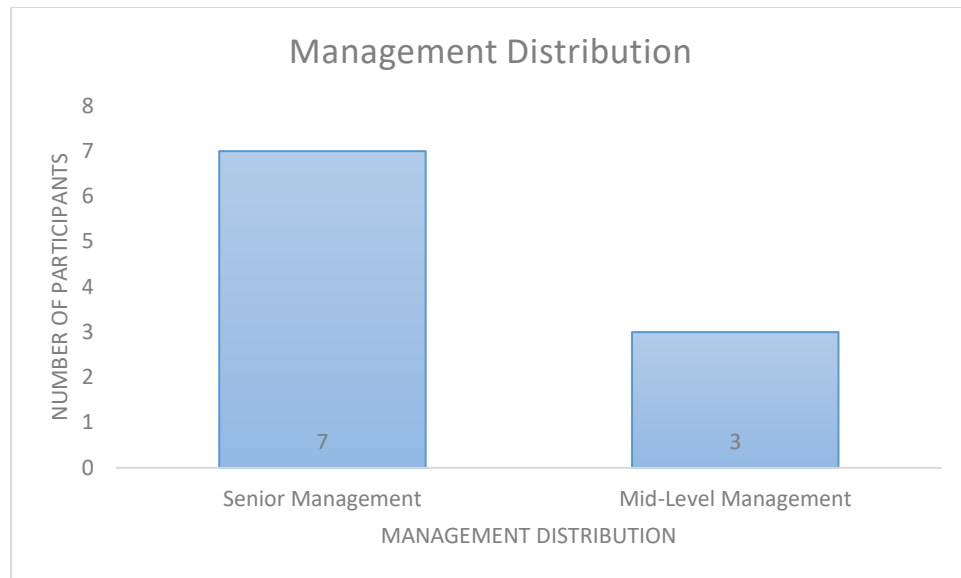
The roles of the ten participants who participated in the semi-structured interviews and informal conversations are depicted in Table 4.2.



#	Role	Number of interviews	Number of informal conversations	Number of engagements
1	Business Enterprise Architect	1	-	1
2	Chief Operating Officer	1	-	1
3	Executive Head: Client Services	1	-	1
4	Head of Direct Channel	1	-	1
5	Head of Strategy Execution	1	-	1
6	Head: Finance and Business Intelligence	1	-	1
7	Head: Information Systems	2	1	3
8	Head: Legal, Risk & Compliance	1	-	1
9	Learning and Development Consultant	1	2	3
10	Scrum Master	-	1	1
<b>TOTAL</b>		<b>10</b>	<b>4</b>	<b>14</b>

**Table 4.2: Interview participant roles and number of engagements**

Considering that the theme of this study is related to business and IT strategy, executive or senior management insights are critical as they are directly involved in the development and execution thereof (Reijnen, 2018; Ward & Peppard, 2002). As such, Figure 4.2 provides an overview of the interview participants' hierarchical position.



**Figure 4.2: Interview participant management distribution**

Tables 4.3 and 4.4 provide an analysis of the interview and informal conversation participant's involvement in setting the organisational strategic direction and IT investments decision making respectively.

Management Level	Direct Organisational Strategic Direction Involvement				Combined N=10	
	Yes		No			
	n	%	n	%	n	%
Senior Management	7	70%	-	-	7	70%
Mid-level Management	1	10%	2	20%	3	30%

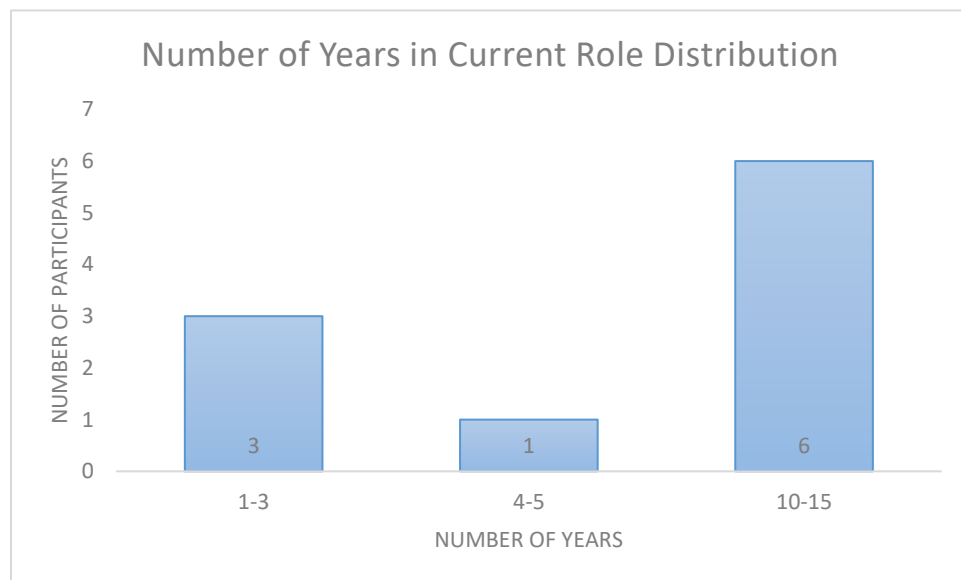
**Table 4.3: Interview participant involvement in setting organisational strategic direction**



Management Level	Direct IT investment involvement				Combined N=10	
	Yes		No			
	n	%	n	%	n	%
Senior Management	5	50%	2	20%	7	70%
Mid-level Management	2	20%	1	10%	2	30%

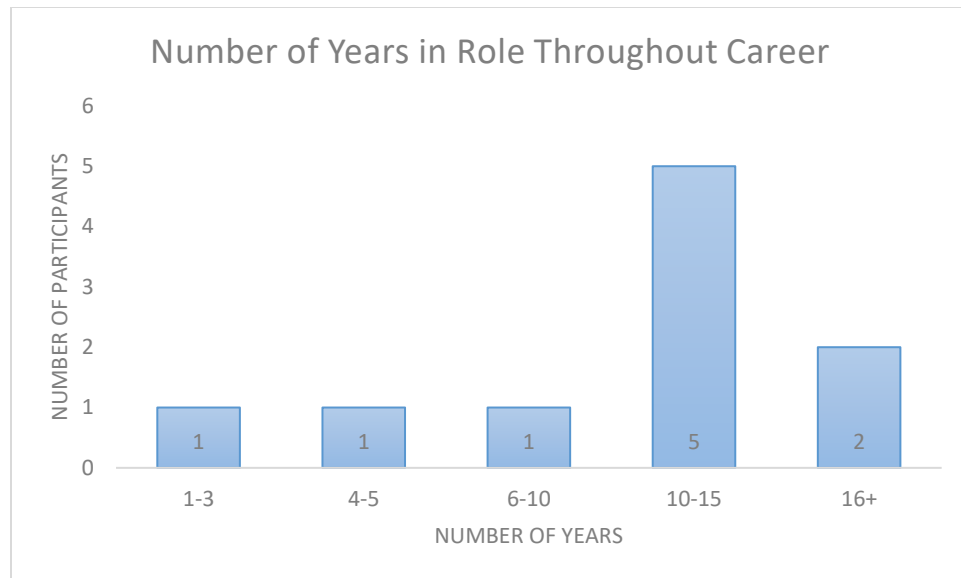
**Table 4.4: Interview participant involvement in IT investment**

A number of questions that were asked of the interview participants focussed on the organisation's performance and process evolution over the years. As such, demographic information about how long each participant have been in their current or similar role in the host organisation was collected and can be seen in Figure 4.3.



**Figure 4.3: Interview participant number of years in the current role in the organisation**

To gain a more holistic view of the interview participants' insights on strategy and its set of activities, demographic information about the number of years throughout their career they have been involved in their current or similar roles, including experiences outside of the host company, have been collected and can be seen in Figure 4.4.



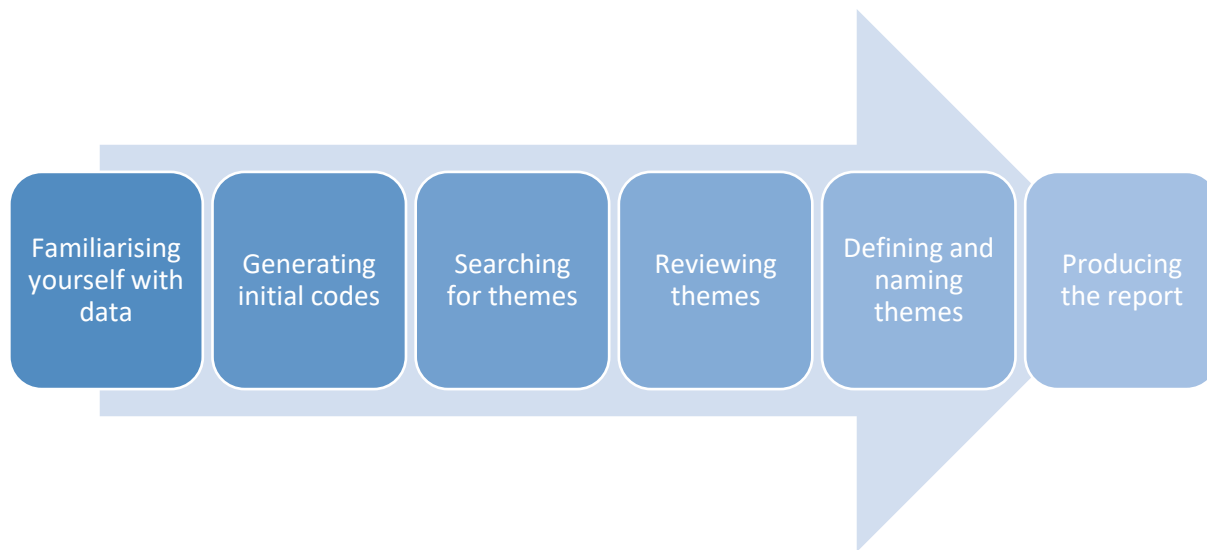
**Figure 4.4: Interview participant number of years in a similar role throughout their career**

## 4.4 Thematic Analysis

As mentioned in [section 3.4.9](#), the method of choice for analysing the qualitative data collected was thematic analysis. The thematic analysis allows the researcher to extract themes or patterns from qualitative data (Boyatzis, 1998; Braun & Clarke, 2006). Moreover, thematic analysis assists users in sense-making of data and increases the accuracy of the researcher's interpretation of phenomena (Boyatzis, 1998).

A theme is a significant piece of data that relates to the research objectives (Braun & Clarke, 2006). A theme may be deduced from theory prior to the commencement of the research or it can be extracted from raw data inductively (Boyatzis, 1998; Braun & Clarke, 2006). This study approached thematic analysis from a deductive approach, which made it researcher driven, aiming to find more detailed analysis (Braun & Clarke, 2006) of the DBS as guided by existing theory. However, since the DBS is still a novice idea, the researcher allowed for a richer set of data relating to the DBS, that was data-driven (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006), which did not necessarily fit into the frameworks employed by this study. In other words, this study had an element of abductive thematic analysis.

To perform the thematic analysis the researcher followed the six-step program Braun and Clark (2006) devised as depicted in Figure 4.5.



**Figure 4.5: Phases of thematic analysis**

Source: (Braun & Clarke, 2006)

#### 4.4.1 Familiarising yourself with data

To commence the thematic analysis process, the researcher has to immerse themselves in the data. This is done by repeatedly reading or listening to the data in an “active” way (Braun & Clarke, 2006, p. 87). In other words, the researcher has to review the raw data, critically and analytically. Another way to familiarizing oneself with data, where digital recordings are made, is through transcribing the data (Braun & Clarke, 2006).

To ensure the researcher understood the data before analysing it, the researcher had multiple active engagements with the data. First, the researcher collected all data themselves, which allowed the researcher to derive initial analytical interests (Braun & Clarke, 2006). Second, the researcher transcribed all data from audio recordings into MS word themselves, building on their initial analytical interests. Notes on any statements that stood out for the researcher was added to the notes already taken during the interviews. The researcher deliberately transcribed the data from only audio sources initially to focus on *what* was being said. To increase the creditability of the research, the researcher transcribed the data verbatim into text (Bhattacharjee, 2012), thereafter, the transcripts were imported into NVIVO where the researcher added notes taken throughout the interviews and first impressions to the transcripts via the ‘annotation’ function in NVIVO. Since there was a chance for data to be transcribed incorrectly (Forza,



2002), the researcher compared the transcribed data to the video recording, where available, and made any corrections to the transcripts. In addition, by watching the video recordings after the transcribing was already done, the researcher could also focus on *how* the information was relayed. These non-verbal cues also provided insights which were added to the transcribed data as notes.

Documents received from staff and acquired via the internet was also read and re-read in order to gain an understanding thereof. Any significant pieces of information were highlighted through the 'notes' functionality in MS Word, MS PowerPoint or PDF, based on the format the documentation was received or acquired in. An extract of adding notes to text is available in [Appendix H](#).

#### 4.4.2 Generating initial codes

Coding is the process by which the researcher reviews raw data to identify ideas, events, actions and perceptions that are relevant to the topic at hand (Bhattacharjee, 2012). At the very least a code describes the observation the researcher is making and the most it interprets characteristics of a phenomenon (Boyatzis, 1998). Coding can be theory-driven (deductive) or data-driven (inductive) (Boyatzis, 1998; Braun & Clarke, 2006). Since this study used a deductive approach, the researcher created a codebook which guided the researcher to ensure that a systematic approach was followed to collect relevant data as it relates to the frameworks used in the study (Boyatzis, 1998; Fereday & Muir-Cochrane, 2006). The codebook followed a simplified version of Boyatzis' (1998) guide of what good codes looks like, in that it should have a label, a definition of what the code entails, and a description of how the researcher will know when the theme occurs. The codebook has four broad categories, DBS, business infrastructure and processes, IT infrastructure and processes and Complex Adaptive System (CAS). A copy of the codebook is in [Appendix I](#).

A good code also provides a rich qualitative description of the phenomenon, which may or may not have been part of the original *a priori* codes (Boyatzis, 1998). As such, the researcher did the first round of coding without the constraints of the codebook, to allow for richer information that was not limited by the *a priori* codes (Bhattacharjee, 2012; Fereday & Muir-Cochrane, 2006). In order to do this, the researcher had to immerse themselves in the data and be open to perceiving patterns (Boyatzis, 1998; Fereday & Muir-Cochrane, 2006). The researcher performed the analysis on each interview and informal conversation, after each engagement in an effort to correct any potential defects in the interview protocol



or to make any adjustments to ensure relevant data was being collected (Bhattacharjee, 2012). In addition, the researcher also referred back to theory, the case, the empirical world and the frameworks, known as systematic combining (Dubois & Gadde, 2002), to build on the researcher's tacit knowledge on the subject (Boyatzis, 1998), in an effort to increase their ability to perceive patterns. This iterative and reflexive method of data analysis was also in service of increasing the "goodness" of the data (Fereday & Muir-Cochrane, 2006, p. 83).

The coding, free from the codebook, resulted in sixty-seven distinct codes, which consisted of any data that the researcher deemed relevant to the purpose of this study. To ensure there were no double counting of codes, the researcher combined codes that had the same meaning. Table 4.5 is an extract of data that was initially coded.

Data source	Data extract	Code(s)
<b>Documentation received</b>	"The business rationale for the agile transformation extends beyond a need for speed to market and greater client experiences"	Organisational agility
<b>Interview</b>	"Our business at the moment, that is where we are positioned at the moment [IT as a competitive advantage]. Because we are looking at growing our direct channel, which is our man on the street channel. Directly to the person in the to the end investor. It's having a relationship with those investors that don't come via our intermediaries, that channel we haven't really, really worked on. Part 1, [a] big part of the business strategy is as it is, is to grow that channel. And by growing that channel, you HAVE to use technology the mere fact is that you have to reduce cost because you have a direct relationship with the client. So, if you can use technology as part of your interact engagement	<ul style="list-style-type: none"><li>• Choice space (increasing service portfolio through technology)</li><li>• Customer excellence</li><li>• Cost reduction</li><li>• Competitive advantage</li></ul>



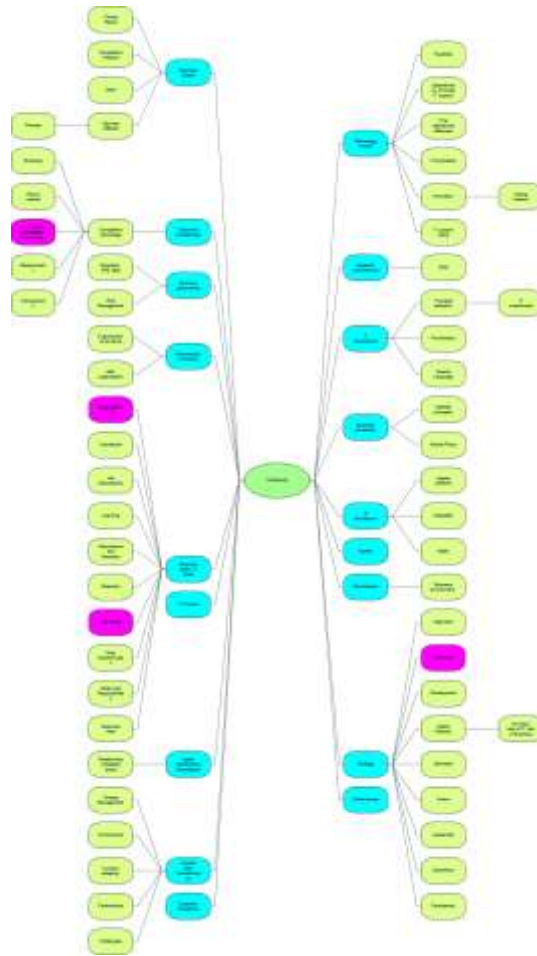
Data source	Data extract	Code(s)
	process, AS MUCH AS YOU CAN, you reduce your cost. And you also improve the client experience.”	

**Table 4.5: Data extract with codebook-free codes applied**

### 4.4.3 Searching for themes

This phase of thematic analysis is the commencement of interpretive analysis, where arguments are created about the phenomenon being studied. Codes generated in the ‘generating initial codes’ phase are sorted and combined into broader themes. Codes that do not fit into any theme may be labelled miscellaneous and saved in the event it is needed at a later stage (Braun & Clarke, 2006).

The sixty-seven codes generated in the previous phase were sorted and combined into themes as guided by the codebook that was created before the research process began. Before each code was assigned to a theme, the researcher reviewed the verbatim text that was assigned to the code to ensure accurate linking of codes to themes. The researcher categorised the codes into themes and linked themes to constructs using the mind map functionality in NVIVO. For example, codebook-free code ‘*Branding*’ was linked to the theme ‘*Competitive advantage*’ which was then linked to a *a priori* code, which became the main theme (Braun & Clarke, 2006) ‘*Distinctive competences*’. Codebook-free codes were only linked to codebook codes if they fit the definition and description of the codebook code. Code-book free codes that did not fit any of the definitions and descriptions, but that were still related to the phenomenon under investigation, was sorted and combined into their own themes. Codes that were unexpected, i.e. that was not originally encountered during the literature review, such as “empowerment” and “role-fluidity” were also categorised and were shown in a different colour on the mind map. The original codebook-free codes were combined into seventeen themes. Figure 4.6 is a screenshot (not meant for legibility, only for illustrative purposes) of the mind map.



**Figure 4.6: Initial thematic map**

Table 4.6 provides a closer look at how code-free codes were sorted into themes and how those themes were linked to codebook codes and constructs.



Codebook code	Description	Theme	Codebook-free codes	Source	Data extract
<b>Distinctive Competences</b>	Elements which lends the organisation with a competitive advantage, such as pricing structure and value chain optimisation.	Competitive Advantage	Branding	Interview	"I think I suppose there are two other aspects [that make customers choose us]. I think the brand is one, our brand has been very, I guess, has been very, insipid, it hasn't stood out well, you know people see <i>FinCo</i> and they think [AfriBank], they don't think [FinCo] itself."
			First to market	Interview	"In some instances, we are definitely the forerunners. So, we are the first in the [financial] industry to have completely digital onboarding of new clients. So, no paperwork, all electronic, no physical signatures. There's actually no other [financial institution] who does it."
<b>Agent relationships (Interactions)</b>	Interconnectivity between actors	Actor relationships	Relationships between actors	Document	"The agile Manifesto refers to "Individuals and interactions over processes and tools", which means that we value people and the interactions between them over processes and tools."
				Informal conversation	"So, the owners have products in certain squads and they are responsible for that... for what is being delivered. With that, everyone is equal in the squad. So, like you have seen in the session, everybody participates."

Table 4.6: Codebook-free codes lined to themes, codebook codes and construct



#### 4.4.4 Reviewing themes

This phase aims to review the candidate themes as defined in the 'searching for themes' phase. This is done in a two-phased approach where phase one is to establish if the codes per candidate theme are presenting a pattern that is coherent, and where phase two involves the researcher establishing the validity of each theme as it relates to the entire data set (Braun & Clarke, 2006). As mentioned before this study followed a deductive approach, therefore the researcher had to ensure that each theme is relevant to the topic of investigation (Bhattacharjee, 2012).

##### 4.4.4.1 Phase 1: Coherent pattern per theme review

The researcher reviewed each code in each theme to ensure that they were relating to each other in such a way that they could tell a story. This included re-reading the quotes under each code, establishing if the quote supports the theme and if the narrative of each code could be considered a finding. Through this process, codes were collapsed and refined, and in some cases, moved to different themes. For instance, code 'value' (how the organisation creates value in the real world) which was linked to theme 'business scope' was combined with code 'customer excellence' to create a new code called 'creating customer value and pursuing customer excellence'. This was done as the narrative about customer excellence would not have been completed without understanding how the business goes about finding out what the customer values and producing that as per customer expectations.

##### 4.4.4.2 Phase 2: Candidate theme validation

After reviewing, refining and re-aligning all codes, the seventeen candidate themes these codes were linked to were reviewed to evaluate if each theme had enough data to support it being a main theme. This exercise resulted in themes being demoted to sub-themes, themes being amalgamated with others and main themes being introduced. For example, where 'agent relationship (interactions)', was a theme on its own, it was demoted to a sub-theme, and combined with other themes to eventually become "Agent and agent relationships" under a new main theme 'DBS as a CAS'. While phase one and phase two are represented in a linear fashion, the researcher performed them iteratively as the data required them to do so. The new main themes identified, in accordance with the deductive enquiry approach, were 'DBS development', 'business and IT alignment', 'organisational transformation', and 'DBS as a CAS'.



Figure 4.7 depicts the themes and sub-themes. Codes per sub-theme were excluded from Figure 4.7 to preserve its simplicity.

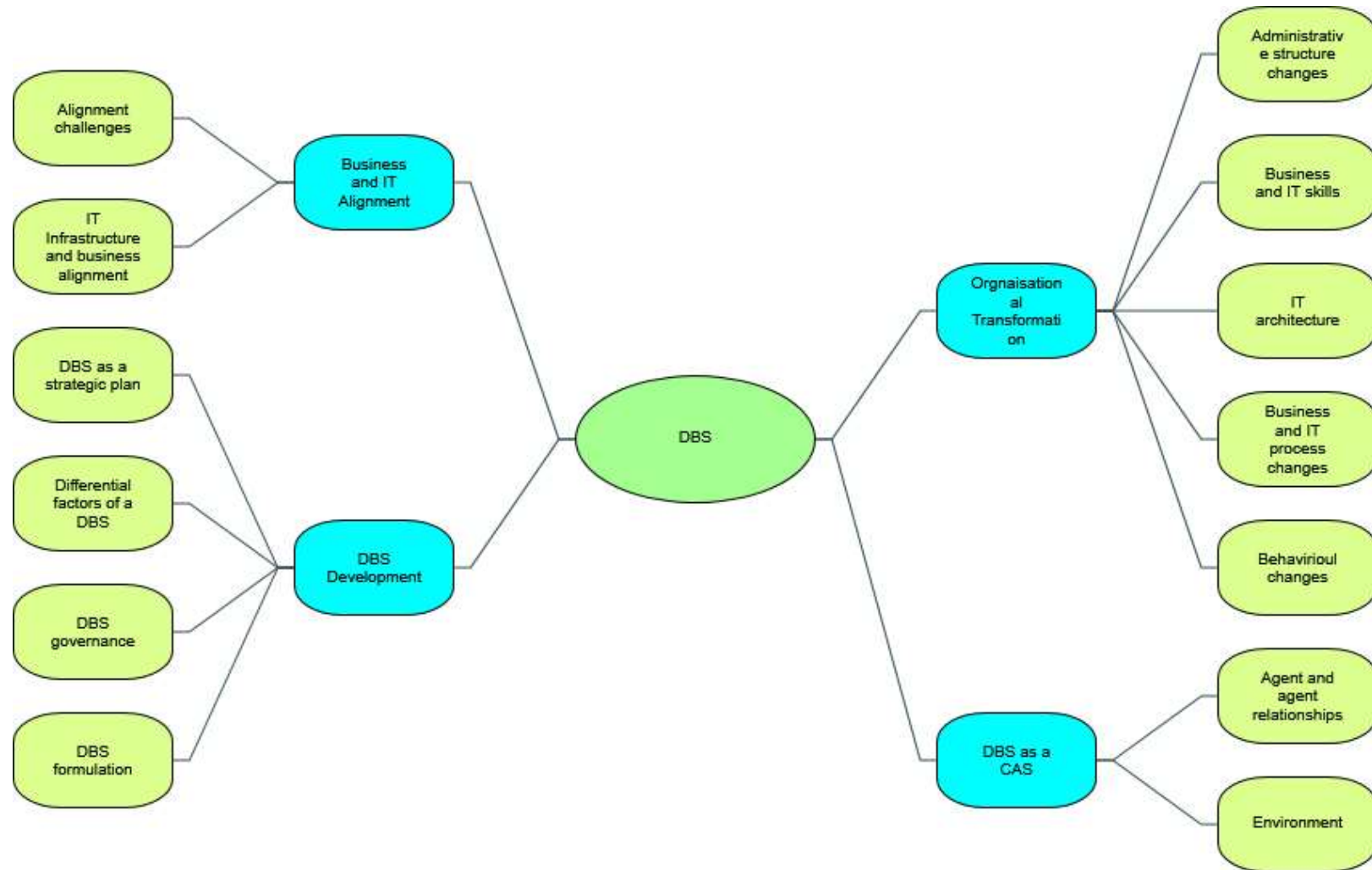


Figure 4.7: Final thematic map



Table 4.7 provides an extract of the main and sub-themes identified for this project.

Main theme	Description	Sub-theme	Source	Data extract
<b>DBS development</b>	The elements and processes used by the organisation to create a plan on how to attract and retain customers and talents and how to respond to competitors by harnessing technology	DBS as a strategic plan	Interview	“So, doing the [digitally enabled advisor] initiative with [AfriBank] has allowed us to open up that sales channel, so that will bring on net new clients to [FinCo]. So, we estimate we’ll probably end up with about 12, 000 new clients a year, just from that. “
		Differential factors of a DBS	Interview	“The other is that we believe technology, we embrace it quite a bit in our business. So, we do believe what we do on the technology side will inevitably set the base for the next 10 years... for how this business grows.”
		Business and IT governance	Interview	“We do stand-ups every day. It is part of an IT methodology we adopted called Agile. This is done where we speak about what we’ve done yesterday and what is the priority for the day.”

**Table 4.7: Extract of final themes and subthemes**



### 4.4.5 Defining and naming themes

As mentioned in [section 4.4.4](#), there were four main themes that were defined for this project. During this phase of thematic analysis the researcher reviewed and refined descriptions of themes and subthemes and created a master description sheet, which defines the essence of each theme (Braun & Clarke, 2006) as demonstrated in Table 4.8.

Main theme	Description	Sub-theme	Description
<b>DBS development</b>	The elements and processes used by the organisation to create a plan on how to attract and retain customers, respond to competitors and to do so within the confines of a regulated market.	DBS as a strategic plan	The value the organisation creates for its customers through its products and services, which may or not be enabled by technology. This also includes the organisation's response to its competitors
		Differential factors of a DBS	Elements that lend the organisation its competitive advantage
		DBS governance	The processes by which the organisation ensures they are complying to regulations, including being innovative through technology
<b>Business and IT alignment</b>	The integration between the DBS, business	Alignment challenges	Contributing factors to the organisation's misalignment



Main theme	Description	Sub-theme	Description
	infrastructure and IT infrastructure in order to deliver the organisation's goals	Infrastructure and business alignment	The way the organisation uses and evolve its technical capabilities to support its strategic intent
<b>Organisational transformation</b>	The continuous readjusting of the organisation and its actors in response to its DBS	Administrative structure changes	The strategic adjustment of the permanent organisational structure to support the DBS
		Business and IT skills	The upskilling of internal business and IT actors to support the DBS
		Business and IT process changes	The reengineering of business and IT processes to support agility and flexibility
		Behavioural changes	The culture fit between business and IT actors within the organisation in support of sustaining a digital business
<b>DBS as a CAS</b>	The evolution of the DBS in an organisation	Agents and agent relationships	The relationships between human and IT resources
		Environment or context	The environmental factors that influence the DBS and that the DBS influences

**Table 4.8: Main theme description sheet**



## 4.5 Data reliability

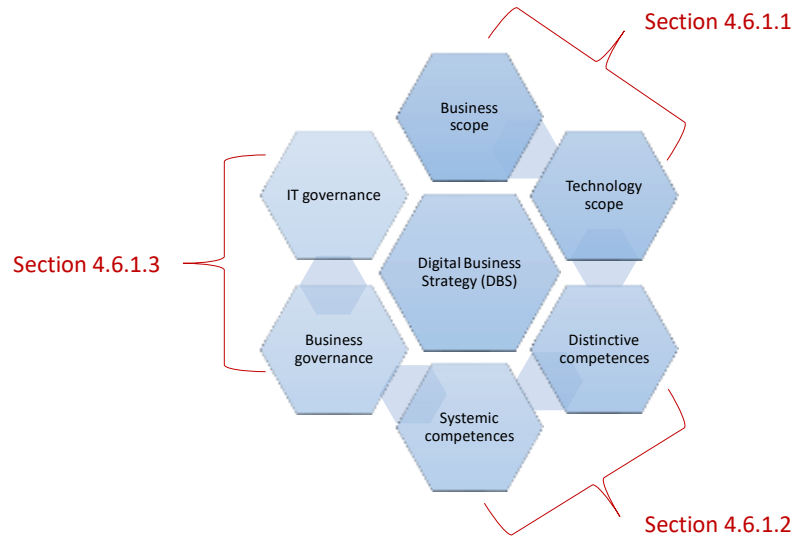
All studies have limitations, and since this was a doctoral study, an unavoidable limitation was the lack of multiple persons reviewing the raw data in order to perform the thematic analysis (Fereday & Muir-Cochrane, 2006). Another limitation was the use of a single study, which meant generalisation to population was unlikely but as defined in [section 3.4.3.1](#), this in-depth account of the DBS is valuable when generalising to theory (Yin, 2003). To minimise the weaknesses associated with case studies, the researcher collected qualitative data in multiple ways (Myers, 2013), which included documentation obtained from within and outside of the organisation, interviews, observations and informal conversation. [Chapter 6](#) will also cover how the qualitative data and quantitative data was discussed as a cohesive set of data, allowing the researcher to perform concurrent triangulation as described in [section 3.4.4.1](#).

## 4.6 Findings

The final stage of thematic analysis is for data and themes to be interpreted with the aim of contributing to knowledge (Boyatzis, 1998). The findings of this study were based on a single case study and will be detailed in the following sections. It is important to note that this study is bound by a confidentiality clause and as a result respondent names have been excluded from any significant statements. In addition, specific details that can be used as an identifier has also been excluded and in certain cases replaced by a generic term. To provide context to the significant statements, the interviewee's hierarchical position in the organisation will be displayed.

### 4.6.1 DBS development

As mentioned in [section 2.8](#), the DBS is an amalgamation of the business and IT strategy where both are strategic in nature. There are six components of a DBS namely business scope, technology scope, distinctive competences, systemic competences, business governance and IT governance. First, these six elements will be discussed in the following sections as depicted in Figure 4.8.

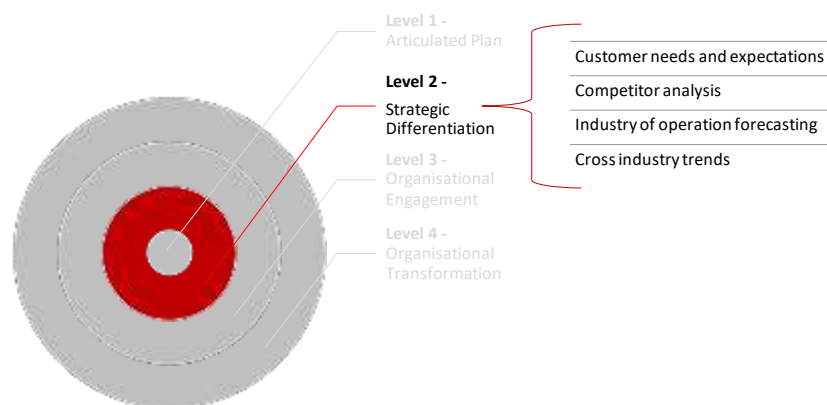


**Figure 4.8: DBS findings per section overview**

Thereafter the process of how FinCo's DBS in totality is created, disseminated and monitored will be described.

#### 4.6.1.1 DBS as a strategic plan

As discussed in [section 2.2](#), what makes a plan strategic (Level 2 – Strategic Differentiation) is the consideration of exogenous factors such as customer demands and competitor strategic moves. To establish the DBS as a strategic plan, the following sections will investigate the exogenous factors that influence the DBS in the case of FinCo. These exogenous factors are customer needs and expectation, competitor analysis, the industry of operation forecasting, and cross-industry trends. Figure 4.9 demonstrates the exogenous factors a DBS considers as it relates to strategic differentiation.



**Figure 4.9: Exogenous factors of a DBS**



#### 4.6.1.1.1 Customer needs and expectation response

Henry Ford quoted “Any customer can have a car painted any colour that he wants so long as it is black” (Ford & Crowther, 1923, p. 72). While many believe this stance was about refusing a customer the freedom of choice, it, in fact, was about Ford trying to streamline operations in order to increase productivity (Ford & Crowther, 1923). Irrespective of the perspective on this stance, the premise remains the same; the power lied with the organisation providing the products or services and not with the customer demanding these products and services. This ideology is a far cry from the power structure between customers and organisations today, as today’s customer is in a position of power.

*One, it is a trend [that made us make the shift to being more client centric]. The consumer is more powerful now because the regulator, on one hand, is driving transparency and disclosure. So, consumers are being more informed. (Senior Manager)*

There are two main driving forces behind this shift in power. First, as per part D of the Consumer Protection Act, 2008, the customer has a right to “disclosure and information”. This is forcing organisations to provide the customer with information, which could be used by the customer to make informed decisions, including what organisations they will support through their purchases. FinCo was no exception in complying with this law and by doing so admitted this simple act of disclosing information obligated them into becoming more client-centric.

*Previously they [customers] were just in the dark. So, [the] voice of the client, is certainly stronger because they are getting more informed. And you [the organisation] have got to disclose more... Because of that [being transparent and disclosing information], you actually got to be closer [to the Client]. (Senior Manager)*

This customer-centricity, especially in relation to technological innovation aimed at fulfilling customer needs and improving the customer experience, is not simply the digitisation of existing processes or copying competitors (Fehér & Varga, 2017). It requires the organisation to invest in understanding their customer (Westerman et al., 2014). To that end, FinCo made a concerted effort to understand their customer needs throughout the customer engagement journey which includes the following phases, exploration, contemplation, transaction, maintenance and support.



*"First of all, the Client is [the] centre of everything. So, therefore, the biggest component of the whole process is the engagement journey... Your technology needs to enable that."*  
**(Senior Manager)**

This focus on the customer is leading to the second driving force of customer having more power, which is the dynamism of industries. Even a conservative industry such as the financial services industry is obligated to become more digitised (Fehér & Varga, 2017). This adoption of technology has made it possible for emerging competitors to enter the market, thus giving the customer more choice. This choice and the customer's personal experience with technology is amplifying the individual's expectation of what their customer experience with an organisation ought to be (Horlach et al., 2016; Peppard & Ward, 2016; Piccinini et al., 2015; Westerman et al., 2014).

In FinCo's case, one of these expectations was one of the reasons they have undertaken their digital journey. This is in line with findings of Westerman (2014), who found that customer needs are a key driver for change. By 2012, customers were becoming more accustomed to online engagements with organisations. In fact, by then, a few of FinCo's competitors have already responded to customer needs and expectations through creating secure online engagement platforms.

*... and that [the launch of our first online secure platform] was just to catch up with the likes of [Competitor A], [Competitor B], etc...* **(Senior Manager)**

The magnitude of the customer needs and expectations is of such a nature that in the digital era the customer becomes the centre of the DBS. Holotiuk and Beimborn (2017) and Westerman (2014), found that the customer and their experience was one of the significant pillars of a DBS. To illustrate the importance of the customer to FinCo, their department-wide, organisation-wide and franchise-wide (FinCo and AfriBank) strategies have the same overarching message:

**"Customer Led and Digital First" (Strategy documentation)**

*"The client is at the centre of all my ideas, I use my insights to create solutions that lead to positive client experiences."* **(New ways of working staff communication)**



For digital organisations to remain abreast on what the customer values, they must collect and analyse customer data scientifically, and enable data-driven changes (Westerman et al., 2014). The overarching guide to customer data usage that FinCo uses, is that customer insight should be instantly actionable. This means that information is disseminated quickly and is in a format where quick decisions can be taken. This supports the findings of Bharadwaj et al. (2013) and Westerman (2014). FinCo has established a number of processes, both digital and manual, to collect and analyse customer data including, direct conversations with customers through sales agents, testing products with real customers in real-time and monitoring customer touchpoints throughout the customer journey.

*"So, we've got, quite a big set of analytics. So, client feedback we get from various forms. We get analytics and our analytics basically measure all our digital assets. It measures the activities of our clients... all those kinds of things. [It] even measures your phone call, like telephone calls... if you use IVR (Interactive Voice Response), we record all that. And then we look at the client journey, we can see where the client drops off... and all those kinds of things.*

*So, that is our analytics using our help service portal or our digital assets. And we also have analytics looking at the transactions that actually gets processed. And above that, we obviously got our call centre analytics. So, we kind of package our analytics in a way to understand what the client is doing. (Senior Manager)*

*"... [Our focus is] definitely much more of asking our clients, not assuming we know stuff. Getting pilots or demos before seeing something in action. I think we definitely got a lot more... a lot less arrogant... there's no one answer, there is a whole lot of potential answers, but [we] definitely [have become] more collaborative [with our customer]." (Senior Manager)*

To remain in close proximity to their customers, FinCo ensures that all communication to customers is done by FinCo itself, while many other business and IT activities are outsourced. This supports the findings of Holotiuk and Beimborn (2017).

*"We outsource everything basically. All our fund management is outsourced. Our back-office administration is outsourced. The only thing that we don't outsource is our call centre, which is critical because we are saying, customers are phoning us. They need to speak to us. You know, not somebody else." (Senior Manager)*



#### 4.6.1.1.2 Competitor analysis and response

To effectively formulate a strategy, organisations must perform competitor analysis to understand competitor strategic moves (Zahra & Chaples, 1993). When the financial industry was more traditional, FinCo focussed on performing this analysis on their top three or four competitors.

*“Ja [yes], we do, I think probably all the time we do a competitor analysis and comparisons... we always compare ourselves to I guess the top three or four competitors out there...” (Senior Manager)*

Since IT has made it easier for organisations to penetrate the financial industry, or break into different markets within the industry, the parameters of competitor analysis for FinCo has expanded beyond a top three or four competitor range, as emerging competitors could essentially come from anywhere. This correlates to findings of Giannoulis (2014), who states that digital businesses have a higher level of competition.

*“But there is a different slant that is emerging now, that is your new emerging competitors. So, you’ve got your old school and the context for you know, for [competitors such] as [Existing competitor A] or [Existing competitor B] or anybody else. But your innovative ways would be considering you are part of a bank, now with the launch of competitions like [Emerging competitor A], [Emerging competitor B], so, they are emerging competitors, so of course, the world would be looking at them. (Mid-level Manager)*

With such strong competition from both existing and emerging entities and the role IT plays in changing the pool of competitors, FinCo also expanded their competitive analysis to include their competitors’ digital posture in addition to the traditional monitoring of financial products and services.

*“We have visibility of their [competitors]... what they are doing digitally. What we have done we have invested [buying financial products and services] in a lot of other companies [our competition] as well, so we can just have a [view of what they are offering]” (Senior Manager)*

Similar to monitoring customers and responding to their ever-changing needs and expectations, the ultimate goal of competitor analysis is the creation and implementation of a response plan. This response plan is critical to a DBS. At the start of their digital journey, FinCo was following the approach of observing



the top competitor's digital innovation, replicating and improving on it. By 2014, FinCo was first to market with online secure transactions. Their strategy went from adapting to the market, to doing things differently in the market. As much as other competitors are not offering the same technological efficiencies to their customers, the technological advances by FinCo are not of such a nature that it is reshaping the market.

#### 4.6.1.1.3 The industry of operation forecasting and cross-industry trends

In addition to understanding customers and competitors, organisations should focus on both short- and long-term market trends (Daniëls, 2017; Rahimi et al., 2016). A DBS is not effective if it is not future-orientated. For instance, a long-term trend that was prominent in the South African financial industry was that financial organisations were outsourcing all of their administration to a third party. In 2010, at the start of FinCo's digital journey, they made a drastic decision to decouple from this third party. One of the main reasons for this was, everyone else in the industry, including competitors, were using the same third party and that meant innovation for one was an innovation for all. By making this change, FinCo was in a position to become more customer-centric which is at the centre of their DBS.

*"So, what we did... but the problem that we had was, they [third party] offered vanilla to everyone. They just changed the colours a bit. You can have some CI [corporate identity]... you can make it your own. However, so what we've decided about 10 years ago, was we were going to decouple, from them, for the mere fact of what we wanted to do was, we wanted to have our own identity. And we wanted to engage with our client, in a way that WE wanted to engage, not the way everyone else is." (Senior Manager)*

While the above shows FinCo as diverging from a long-standing trend in the financial industry, they are also focused on making decisions about diverging or converging to long-term and short-term trends outside of the financial sector. This include industry best practices observed from insights as presented by Gartner or Forrester for instance. This monitoring of trends outside of the financial industry is mainly in service of understanding customers and competitors and their possible future behaviour as the financial industry is fairly conservative and is not as digitally fluent as other industries (Fehér & Varga, 2017). FinCo is cognisant of the fact that their customers interact with many different industries, therefore, it is only natural to come to expect that their expectations of customer excellence are inspired by what they



experience elsewhere. Anticipating the needs of the customer is consistent with the findings of Von Leipzig et al. (2017) and Sebastian et al. (2017).

*"We realised that to be successful you've got to actually... actually, because of technology, I'm [as a customer myself, am] now used to when I do something else, and it is not necessarily financial services, I do it via technology. I now expect it when I do my other everyday things."*  
**(Senior Manager)**

*"So, you know a lot of it [technology] is just keeping us relevant. Else we would have faded into obscurity if we hadn't kept up."* **(Senior Manager)**

Equally important, existing and new competitors find inspiration from industries outside of their realm all the time (Westerman et al., 2014), which means if FinCo does not actively monitor these trends they may be at a disadvantage. In order to collect and manage the copious amounts of data to observe these trends, FinCo relies extensively on technology. They are also very clear that monitoring trends do not equal following it.

*"Everything else [multiple digital technologies] is integrated, so when you [customer] engage [with us], I know who you are, I know what you do. I know what you want to do, so I can pre-empt it. And that is your analytics, your insights or your AI or your robotics information in that sense. So that is formulating your trends to say well if we adopt this is 2 – 3 years considering market changes is saying x, we will potentially be at Y.*

*Are they [competitors] creating new products? Are they creating new avenues for them to facilitate, or broadening out internationally, or is their strategy to go out in Africa? So, you are geared towards those things, but it is very much a guideline for you to LISTEN to. Not necessarily to follow.* **(Mid-level Manager)**

#### 4.6.1.1.4 Exogenous factors impact on DBS elements: business scope

##### ○ Customer excellence

To become more customer-centric, FinCo had to make a number of changes to their service portfolio, which is the products and services, in their control, that they provide to their customers. In the infancy of



their digital journey, they provided the customer with more choice space. As discussed in [section 2.5.1](#), choice space is the organisation's ability to provide value to the customer that is beyond the constraints of asset-specific value (Keen & Williams, 2013). In the case of FinCo, this meant providing value to the customer that stretched beyond financial products and services. This result is consistent with the notion of Bharadwaj et al (2013) and Mithas and Lucas (2010), that technology places organisations in a better position to diversify their service portfolio. In addition, it also correlates to Reijnen (2018) in terms of being able to deliver products and services in a new and customised way.

*"First of all, the client experience [is why we diversified]. Where we basically make it easy for the client to interact with us. Whereas if you were to do it manually you have to fill in a form, and you don't know where it is, someone has to get back to you and you are not quite sure of your journey. But if you are digital, you [client] are in control end to end, we are making it easy for you to do business with us." **Senior Manager***

The first major expansion on FinCo's business scope was taking control of their customer engagement platform. At the time, it was an enquiry site that provided customers with 24-hour access to their financial information. This shift made it possible for FinCo to create an integration between the physical and online customer experience, ultimately creating value for both the customer and the organisation. This finding consistent with Holotiuk and Beimbom (2017), Piccinini et al. (2015), Sebastian et al. (2017), and Westerman (2014).

The second major expansion was in 2014, where FinCo was first to market with an online transactional site, where customers could transact on their own accounts without the need to have a physical interaction with FinCo staff. This was the inception of moving beyond making things easy for the customer, to actively empowering the customer. Customer empowerment is elevating a customer from a passive receiver of products and services to a co-creator of value (Silverang, 2015). In 2017 other major expansions followed in close succession including a chatbot, paperless onboarding and a digitally enabled advisor. All with the aim of empowering the customer and in so doing increasing organisational performance (Silverang, 2015).

*"Yes [technology influences what we offer to the client], [the digitally-enabled advisor] would be a good example, I mean previously a client that came to us, had to trawl through a list 50*



*portfolios. And how the hell should they know which one to choose, if you were so inclined? Now there is something that guides you based on what you say to a solution..." (Senior Manager)*

*"Yes, you as the consumer, you build your own product! And that market you know, investment saw a gap in it, they started with this." (Mid-level Manager)*

Expansions to the business scope do not always necessarily mean a simple addition to the customer offer. In the case of FinCo introducing the chatbot, which was part of the omnichannel route in becoming closer to the customer, existing channels were disrupted. Expanding the omnichannel of the organisation through technology is consistent with the findings of Sebastian et al. (2017).

*"...Because if you birthing a new environment, you must also be aware that you are killing off another. When it comes to that experience. So, it is your clients that tend to, you know old school clients, tends to go into a branch, to still send an e-mail, or a post, fill in an application form, come and deliver it off. That journey is completely disrupted. If your strategy is digitally inclined your gains has to be validated over what is going to be lost." (Mid-level Manager)*

Since a DBS is both IT and business strategy as different sides to the same coin, the service portfolio expansion is not only limited to technology-enabled value beyond the organisation's core products. FinCo still has to expand their service portfolio with financial products and services as that is the rationale for their business in the first place. Having a DBS only means that FinCo has to focus on both, as opposed just one.

#### ○ **Competitor-driven**

A major competitor-driven expansion to FinCo's business scope, was in 2015 when they created a direct channel aiming to sell financial services and products to "the man on the street". This market was dominated by established competitors for nearly two decades who had the infrastructure to manage such a channel. There were two reasons FinCo did not pursue this market before 2015. First, they did not want to as they were comfortable with their model of intermediary customers that was and still is very successful. Second, they could not penetrate that market without technology. This importance of IT enabling strategic intent is in line with the findings of Weinrich et al. (2017).



*"No [we could not open the new direct channel without technology]. The only way we could be successful with that is using our digital and STP functionality that we built, and actually improve it so we can actually bring the cost down" (Senior Manager)*

The expansion of business scope through technology correlates to findings of Kahre et al. (2017), who states that the expansion of the digital business scope opens up new markets. While this expansion in business scope was mainly competitor-driven, it was also inspired by FinCo's obligation to become closer to the customer. This channel is still in its early stages and is part of FinCo's DBS to grow it intensely. Similar to penetrating the direct channel market with technology, so too is growing this market, heavily technology-dependent as FinCo has to make it as cost-effective as possible to attract and keep the "man on the street".

- **The industry of operation forecasting and cross-industry trends**

It is important to note that the financial industry is highly regulated. This means that financial institutions do not have the same innovative freedom that organisations in less regulated industries have. For instance, where Amazon could penetrate and become successful in a market outside of their original industry of operation, FinCo does not have the same liberties.

*"Correct [this is a regulated industry]. So, we can't just go... we are going to sell cars today!" (Senior Manager)*

This limitation confines the innovative expansion of business scope from a core product perspective and also impacts on the boundaries of the DBS, which will be discussed in [Chapter 6](#). While there are limitations to business scope expansions in the financial industry, innovation is still relevant and must be exploited.

*"And new products become available. So, tax-free investments, as an example, is a great example, on how we've offered a slightly differentiated product. Because of legislation, new opportunities came about." (Senior Manager)*



#### 4.6.1.1.5 Exogenous factors impact on DBS elements: technology scope

By following the journey of FinCo since their digital transformation inception, it is very clear that there is a close relationship between business and technology scope. As the business scope expanded, so did the technology scope. In the case of penetrating the direct channel market, expanding the technology scope enabled a business scope expansion. While the business scope encompasses the value that the organisation offers to a customer, the technology scope is either making the value offer possible, or it is making it easier for the customer to extract that value offer.

Being in a regulated market may constraint FinCo's business scope expansion, but it does not have quite such a constraint on their technology scope expansion.

*"We've got a very facilitative approach. If I can make something happen that is more... because I always wear my consumer hat as well... you are not going to find the answer in regulation often. You know, so you've got to make... So, for instance, [our computer-enabled financial advisor] wasn't regulated. You had to go back to an existing piece of regulation. They are now slowly-slowly changing it, so you just with a piece of existing legislation you just go ahead and say, this is what I think will meet the regulation." (Senior Manager)*

As seen by the above excerpt, the technology scope is often driven by exogenous factors, especially the wants and needs of their customer. As mentioned before, FinCo also finds their inspiration for technology scope expansion from organisations outside of their industry. This allows them to follow the approach of adapting technologically to cross-industry innovation, but be technologically first to market in their own industry locally. For instance, chatbot technology has been around since the 1960s and has been popularised recently by technology giants such as Amazon and Google. FinCo used the learnings of those companies and applied it to their chatbot. This is building on to findings of Mithas et al. (2012) and Bakos and Kemerer (1992). In addition, this approach also allows FinCo to reduce change management effort to get their customers to use the new functionality, as the customers are already used to it from interacting with other industries.

*"And adoption is very difficult to actually achieve. I think, I mean, there are a whole lot of scares around cyber-crime that is out there... I think there is a lot of psyche around going into the digital world... So, but I think we have been, you know with the banks going into internet*



*banking, that did actually help us with customers expecting that from us... so, "I can do my banking via [the] internet, why can't I actually engage with you via the web" you know. So, I think that has been help[ing] us with the adoption of digital." (Senior Manager)*

#### 4.6.1.2 Differential factors of a DBS

For an organisation to strategically differentiate itself from its competitors, they either have to perform the same activities differently or perform different activities altogether (Porter, 1996). The reason for differentiation is the attraction and retention of customers. FinCo predominantly follows the approach of differentiating themselves by performing the same activities differently. Before exploring the elements FinCo uses to separate themselves from their competitors, the role of IT in FinCo's differentiation strategy is first discussed.

##### 4.6.1.2.1 IT is *not* a competitive advantage

As conservative as the financial industry is, due to the nature and volume of the transactions financial institutions processes on a daily basis, the usage of technology has been in practice since the early 1960s. With regulations becoming stricter, especially after the global financial crisis in 2008, the reliance on technology has been even stronger (Fehér & Varga, 2017). However, the traditional role of technology was more organisational focused, such as improved operational efficiencies as opposed to innovative. FinCo has demonstrated this reliance on technology, both in their pre-digitisation era, where the focus was more internal and post digitisation era, where IT is used for both internal efficiencies and innovation.

It has been almost a decade since FinCo embarked on their digital journey, but seven out of the nine interview participants advised that they do not consider IT as a competitive advantage. On the surface, this stance seemed contradictory to their strategic ideology which is "Customer led and digital-first". It also seemed contradictory to the existence of a DBS as this stance placed IT at a functional level as opposed to a strategic level.

*"I don't think we per se think it [technology] is a differentiator, I think we think it's, I think we use it as a tool to help support and I guess compliment I guess our vision, and our purpose, which is to build trust, so we will use technology that at the end of the day will support an outcome of trust with a client." (Senior Manager)*



Upon further investigation, it became evident that the FinCo staff made a very clear distinction between IT as “nuts and bolts” and IT as “a value creator”. In other words, the shared belief by FinCo staff across the organisation is that IT by itself has no value, it is how IT is applied based on the organisation’s strategic intent that creates the value. This finding correlates to the account of IT’s value by Masa’deh et al (2015), Kahre et al. (2017), and Peppard and Ward (2016). This belief is powered by two things. First, the availability and abundance of technology depreciate the worth of technology itself (Kahre et al., 2017) so too does the equal opportunity to IT solutions (Gerow et al., 2014).

*“Well, it [technology] is actually, that is a UNIVERSAL OPPORTUNITY. For everybody. **“Mid-level Manager”***

Both interview participants who viewed IT as a competitive advantage suggested that the competitive advantage is not visible at present but will be visible in the future. The role of IT in the context of future visibility was shared by interview participants who stated that IT is not a competitive advantage.

*“The other is that we believe technology, we embrace it quite a bit in our business. So, we do believe what we do on the technology side will inevitably set the base for the next 10 years... for how this business grows.” **(Senior Manager)***

Second, the nature of FinCo’s business is that they are an organisation that sells financial products and services, not technology. This is aligned with the findings of Gbangou and Rusu (2016) that advised that financial services customers are less concerned about the organisation’s IT infrastructure and more concerned about stable financial services.

*“And like I say, people don’t come to us because of our IT solutions, they come to us for ease of doing business with us, and the products that we actually sell. That is the reason why are [doing business] with us. They don’t... you [the customer] are not going to go and [give] your hard-earned money [to] a company that has sort of fantastic tech enablement, but doesn’t deliver what you want them to deliver [on your financial goals], you know.” **(Senior Manager)***

*“Don’t try and be what you are not good at. And I see a lot of companies try and do that. They look at the tech landscape and it is an exciting, and it really is, I mean, it’s a sexy landscape,*



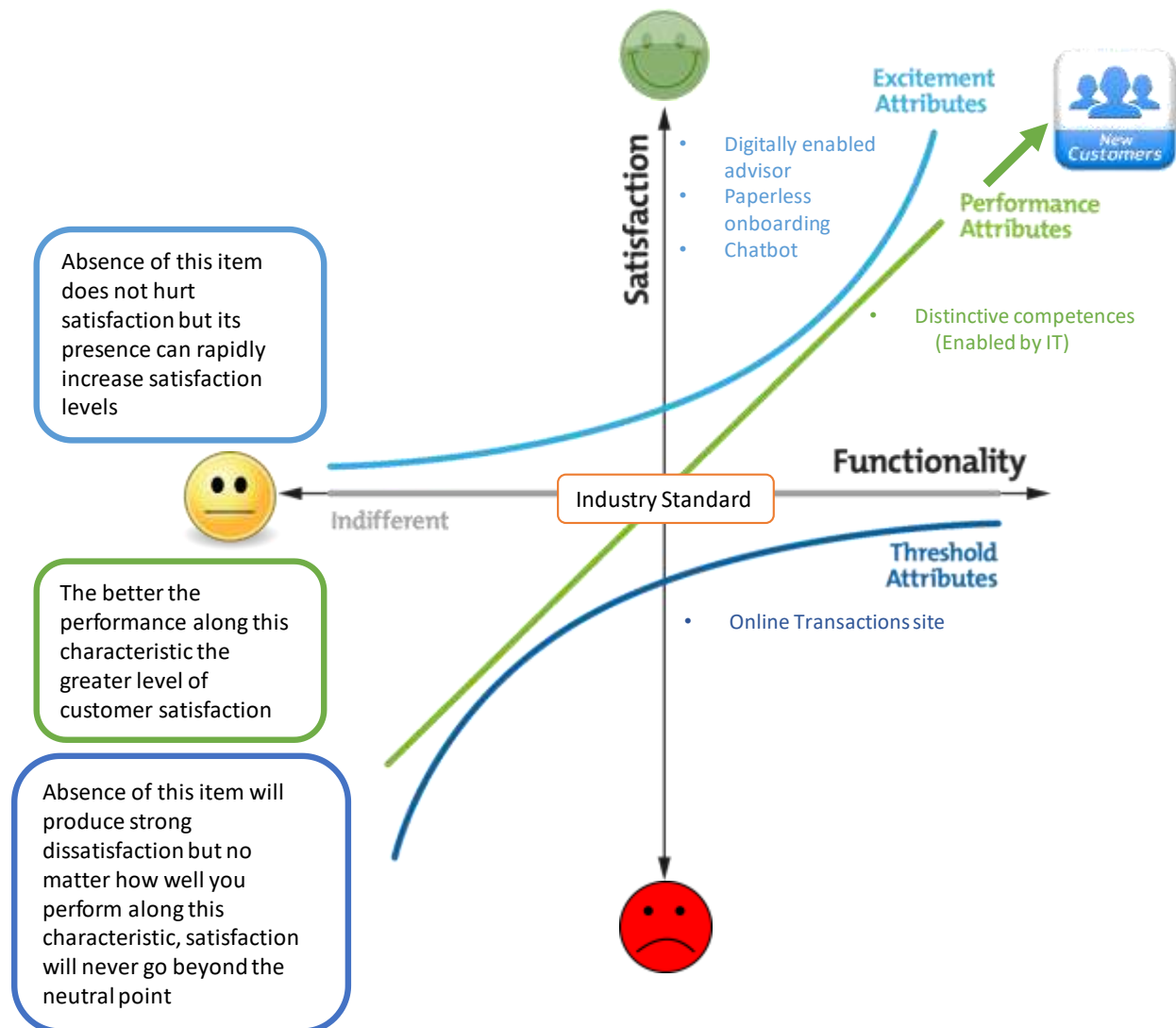
*it's fascinating. They forget about the fact that you've got, clients to service... you try to be good at what you are good at. And [FinCo] is good at [finances]. (Senior Manager)*

When the interview attendees were asked how much of FinCo's strategy could *successfully* be achieved *without* IT, the percentages ranged from 2% to 30%. This meant that at the very least they believe that 70% of planned strategic moves were IT-dependent. This finding correlates to Peppard and Ward (2016), who believes that in the digital era, benefits an organisation aims to achieve will be difficult to achieve without technology. It also supports the findings of Fichman et al. (2014) who states that IT is steadily becoming the key driver for business innovation.

Strategic elements highlighted as not being IT-dependent were HR items such as improved staff morale, culture transformation and creating a great working environment. When HR staff were asked the same question, even those activities were said to require IT enablement.

*"So, people just don't have the appetite for manual stuff anymore. So, if it is going to take too much time they are just going to opt-out, move away, ignore, that type of thing. Even with people [HR] stuff... using people data, tools to enable learning for example. They [IT solutions] are critical to getting the business to where it needs to go to. Very little can be done without some tech at this point." (Mid-level Manager)*

While FinCo may not think of IT as a competitive advantage per se, their technological initiatives were influenced by exogenous factors making it strategic in nature. To demonstrate how IT can be strategic but not necessarily competitive, Figure 4.10 shows the relationship between IT solutions and FinCo's distinctive competencies.



**Figure 4.10: FinCo IT initiatives versus distinctive competences**

With the customer being the centre of the DBS, FinCo's technological initiatives have been driven by improved customer experience, hence the use of customer satisfaction as the bar in Figure 4.10. The initial placement of these initiatives, with the exception of the first version of the online transaction site, was categorised as an 'excitement attribute'. This placement, of course, went hand in hand with whether or not FinCo was first to market or even a close follower in the market. To clarify, where FinCo was first to market, even when IT was not thought of as a competitive advantage, they still managed to delight their existing customer. In contrast, adapting to existing technology in the market meant that FinCo was just ensuring that they do not fall behind classifying those IT initiatives as 'threshold attributes'. Both done with the aim of not necessarily attracting new customers but definitely retaining existing customers.



*"So, people don't come to you because you can do technology things, or... they come to you because they want [a financial] product. They will LEAVE you if your admin is [horrible], sorry, if your admin is not great, you know. But they won't come to you for that particular reason.*  
**(Senior Manager)**

FinCo was first to market with many of their IT initiatives, however as customers are evolving and competitors are adapting, these 'excitement attribute' IT initiatives are moving towards 'threshold attributes', effectively becoming "hygiene factors" (Kahre et al., 2017, p. 4709). In other words, what was once a delighter is now the minimum expectation.

While FinCo's IT initiatives are placed either on the 'excitement attribute' or 'threshold attribute' positions, FinCo's distinctive competences, described in [section 4.6.1.2.2](#), remains on the 'performance attributes' position, aimed at both retaining existing customers and equally important attracting new customers. To understand why FinCo does not place technology at the same level of distinctive competence is a matter of transparency. All IT initiatives are transparent to FinCo's competitors, especially since they operate in a small industry, therefore, they purposefully only place items on the distinctive competence level that they can ringfence and is difficult for competitors to copy, build or buy. This means that competitors see the outcome of leveraging distinctive competencies but cannot see how it is achieved. This builds on to the findings of Westerman et al (2014), Dehning et al. (2005), Grover and Kohli (2013) and Mithas et al. (2013).

*"So, we've got six competitive advantages as part of our strategy. Those are things that inherently anyone can't copy, so you try to build moats around those."* **(Senior Manager)**

In addition, FinCo believes that while technology is transparent, they do not have to guard it, because competitors still have to work for a while before they can produce the same or better technology.

*"We don't [manage competitors copying what we launch in the market]. There is nothing you can do about it... You know, because it is... because IT is an enabler of the business. It is not a competitive advantage... So, therefore, we wouldn't be protecting those assets necessarily. And we know that it takes a long time to get these things [IT] out in any way. So, you do have a little bit longer sometimes. It is not easy to just change... there was a lot of groundwork that*



*we needed to do before you could actually take something out into the market anyway.”*  
**(Senior Manager)**

Another contributing factor for technology not being a competitive advantage is because of the industry FinCo operates in. Using technology as a differentiator is not part of the financial industries’ DNA (Fehér & Varga, 2017). As a result, FinCo is not that concerned with technology being a distinctive competence.

*“I would say, if you look at our industry, our industry is not that far down the line in terms of technology, in terms of improving the client experience. We’ve been on the journey now for, I think it’s now 10 years to get to that point...The Industry is still in the, I’d say, majority of the companies are speaking about having a going out becoming a digital-enabled business for their clients, however, I’d say, apart from a few of the big players, no one else is really doing it.”* **(Senior Manager)**

To further cement FinCo’s stance on how technology is not a competitive advantage, their measuring system of technology is still limited to cost-saving and functional benefits realisation.

*“It is hard to say [if IT is creating differential value]. Automation is an easy one to measure. Because you can see how much money you are saving because people are putting business through digitally as opposed to you previously paid your vendor.”* **(Senior Manager)**

*So, we wouldn’t be measuring successes of our technology rollout by ‘are we increasing our market share’, or are we, what we would, it would assist in retaining your market share, but not increasing it.”* **(Senior Manager)**

Furthermore, when interview participants were asked about their support rating of the IT function currently, their answers ranged from 3.5 – 4 out of 5, pending an increase in cost-saving and delivering on IT solutions at an even faster pace.

#### 4.6.1.2.2 Distinctive competences

In the financial services industry, customer attraction and loyalty comes from trust, brand, satisfaction, service attributes, quality of service and perceived value (Fehér & Varga, 2017), which FinCo acknowledges and strategically plans to accordingly. The following section is a summary of FinCo’s distinctive



competences, which correlates to Fehér & Varga (2017) account of what attracts and retain financial industry customers. A brief reminder, distinctive competences are the elements that lend an organisation a competitive advantage. Under the conditions of the agreement between the researcher and FinCo, certain distinctive competences have been disguised as it could be used as an identifying marker. However, the distinctive competences must be highlighted in order to provide evidence into answering the primary and secondary research questions in [Chapter 6](#).

- **Affiliation with AfriBank and brand awareness**

Being affiliated with AfriBank is a major competitive advantage for FinCo considering the brand, scale and distribution FinCo benefits from.

*"I think, based on my experience in this [financial] industry, more often than not you need a really strong brand, to create competitive advantage... in South Africa. That I think [is] the biggest driver of competitive... PERCEIVED competitive advantage in the industry. (Mid-level manager)"*

While technology does not build FinCo's brand, they are aware that not having the type of technology in line with customer needs and wants could hurt their brand.

- **Consistent performance**

FinCo believes that the type of products and services they provide are perceived to be luxury items as opposed to necessities, especially by the "man on the street". As such, one way to convince potential customers and retain existing customers is a proven track record of performance.

*"Secondly it is the fact that we have a long-term performance record, a long-term track record. Which is also again, these are things that a new entrant can't just come to the market and build... So, we've been around long enough to have a long track record". (Senior Manager)"*

To demonstrate consistency in performance, FinCo has been compared to top competitors in the field over a twelve-year period. The indicator 'TP' means that the organisation was recognised in the industry as one of the top-performing financial organisations. While an organisation may not have earned a placed as a top organisation in a year, specific products or services may still have been recognised.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>FinCo</b>	TP	-	TP	-	TP	TP	TP	TP	TP	TP	TP	TP
<b>Comp A</b>	TP	TP	-	-	-	-	TP	TP	TP	TP	TP	-
<b>Comp B</b>	TP	TP	-	-	-	-	-	-	-	-	-	-
<b>Comp C</b>	-	TP	TP	TP	-	-	-	-	-	-	-	-
<b>Comp D</b>	-	-	TP	TP	TP	TP	-	-	-	-	-	-
<b>Comp E</b>	-	-	-	TP	TP	TP	TP	TP	TP	-	TP	TP
<b>Comp F</b>	-	-	-	-	-	-	-	-	-	TP	-	TP

Table 4.9: FinCo Track Record

### ○ Outsourcing

One of the key contributing factors to FinCo's ability to be one of the top financial institutions of its kind is ensuring that the best person for the job is appointed to provide their customers with the best financial products and services. Based on FinCo's current business model, these skills are found outside of the organisations, which means FinCo's focus can be on managing these skills and 'upgrading' these skills if a better person is identified. The importance FinCo places on skills are building on the findings of Sousa and Rocha (2018), who states that skills are seen as a resource. In FinCo's case, their resources do not necessarily have to be in-house to be beneficial.

*"Our commitment to the Client is we'll say to you, "Our job is to go and find the best [manager] in the country and we'll give them the mandate to run the [financial product or service] for us... And we've got exclusive mandates with some of those managers. So, you [competitor] can't buy it." (Senior Manager)*

*"...And because they are outsourced, we have the right to change managers very quickly." (Senior Manager)*

The power of outsourcing also lies in the scalability and flexibility of FinCo's IT infrastructure in order to adapt to the organisation's strategic intent with agility. Since third parties are managing FinCo's IT infrastructure, should they require to scale up or down, this change is easily achieved as it is the third parties' expert subject matter. This result is consistent with the findings of Bharadwaj et al. (2013).



### ○ **Ownership**

FinCo runs their business in an entrepreneurial spirit. This means that managers have to run their function as if they are the owners of their particular part of the organisation. Additionally, they have to treat the customer as part of their resource pool in order to co-create value for both the organisation and the customer.

*"If you are on the leadership team, you actually have to invest quite a significant portion of your wealth into the business. So, we are not an entrepreneurial owned business, but we behave in that way. So essentially you back yourself, and you and you are motivated by making sure that this business works for you and for your Clients." (Senior Manager)*

*To be stewards of our resources and co-create innovative solutions with our clients to foster trust. To be recognised as the leader at continuously delivering innovative solutions that add value to our clients (Strategy documents)*

### ○ **Affordability**

One of FinCo's biggest financial offers is a product that is low in cost to run and low in cost for customers to buy. This means that FinCo can reach out to clients who are risk-averse but still would like to reach their financial goals.

*"[The lower risk financial offer] generally tries to track the market index so it's much cheaper than [the riskier type of product], and what you gain in the cost-saving you give up some of the upsides. So, [the riskier product] you may make a lot more money in like certain markets, in [the lower risk financial offer], you may lose less money in a difficult market than [with the riskier product]. So, it depends on what type of [customer] you are." (Senior Manager)*

### ○ **Cash business**

Another distinctive competence is having a financial service where FinCo holds cash for their customers. Being one of the biggest financial institutions where this service is concerned, gives FinCo scale and means that this service is also a low cost, high yield type service to provide.



*“So, it works very similarly to a bank deposit, except it gives you more yield than a bank deposit and its really low cost. And that gives us assets on the capacity for any offshore transactions.” (Senior Manager)*

#### 4.6.1.2.3 Systemic competences

As a reminder, systemic competences are the organisation’s IT-enabled capabilities that are distinct to the organisation. While technology per se does not provide FinCo with business value, the way technology is being used does. There are three main systemic value drivers sustaining FinCo’s DBS namely, customer analytics, operational excellence and agility.

- **Customer analytics**

The first value driver is the information FinCo’s systems are designed to produce which enables management to make quick and informed decisions about improving customer experience. A description of how the systems were designed to produce this data can be found in [section 4.6.1.2.3](#). The importance of collecting, analysing and using customer data has already been covered in [section 4.6.1.1.1](#).

*“That is also tech obviously that enables that to do your analytics better. So, there has been a BIG focus on actually getting clients analytics. We’ve been very good at financial analytics, but client analytics is now a big focus of the business, that is one of our transformational goals as an example again.” (Senior Manager)*

- **Operational excellence**

Another systemic competence that is in line with the findings of Holotiuk and Beimbom (2017), is that a key pillar for FinCo is the role IT plays in operational excellence. With IT’s long-standing role in improving operational efficiencies, it is no surprise that FinCo uses IT to exploit economies of scale. As mentioned before, breaking into the direct channel market, for instance, was a direct result of being able to reduce the cost of transactions and unit costs to make products and services affordable to the masses. In another example, through their paperless onboarding FinCo reduced this function from R400 to R48 which is cost-saving shared between the organisation and their customer. This is in line with findings of Bharadwaj et al. (2013) and Mithas et al. (2012).



*"Then of course on the other side of the sort of the spectrum is, automation and bringing down cost, which is extremely important which is again, where I think we have a little bit of a competitive advantage." (Senior Manager)*

### ○ Agility

The last major systemic value driver is the speed and agility with which FinCo's IT infrastructure can be adjusted to support a new strategic direction. The process of being able to respond with such speed and agility started in 2010 and took eight years to build. It may have taken longer if FinCo was constricted with a legacy system that many of their top competitors have. The significance of what FinCo built is that their architecture is agnostic which allows for integration with new technology, whether it is internally developed technology, bought technology or partner's technology.

*"I think, we have positioned ourselves quite nicely that any technology that does come along... because we've got the tiered architecture. I'm talking from a [FinCo] perspective, we've got a tiered architecture with a massive data layer which is our web service layer. So, what happens there is, we can REALLY, it has become interoperable, so we can integrate it with anything. So, any technology that comes along... we've got a full stack of API's and that is what enables us." (Senior Manager)*

## 4.6.1.3 DBS governance

### 4.6.1.3.1 Business governance

Business governance is the process by which an organisation manages stakeholders and regulatory requirements issued by the government (Peppard & Ward, 2016). The financial industry is highly regulated, which means the consequences of not being compliant could mean that FinCo could lose their license to operate should they choose to operate outside of its bounds. Considering the path of innovation FinCo is on, they made treating risk as an opportunity a part of their philosophy.

*"Transform risk from limiting perspective to an opportunistic view." (Strategic document)*

*"Ja [yes]. We do [manage to be innovative in such a regulated area]. Both with our implementation of regulation and with our initiatives it's quite tricky. We do like to scathe on*



*the edge. We are very, very compliance focussed. But I think the key thing is to understand, our business. The second key thing is to understand the regulation and the intent of the regulation. And we absolutely will not compromise on compliance or market conduct. But there are ways that you can implement regulations that are both compliant and efficient and Client friendly. And we find those ways.” (Senior Manager)*

Apart from being compliant to industry regulation, FinCo also has to be compliant with the rules and regulations of their parent company, AfriBank. At the start of their journey, both business and digital, FinCo was fairly autonomous in how they managed their organisation. However, with them growing in size there has been more involvement from AfriBank in terms of how to be compliant to the regulation of the industry and how to comply to AfriBank’s mission for standardisation across parent company and all its subsidiaries. FinCo’s small size, together with their information generating systems, also contributed to their ability to make fast-paced decisions, but due to their growing size and affiliation with AfriBank, that has been impacted too.

*“We are with [AfriBank], but we are not really with [AfriBank]. Although they are busy sucking us in slowly with all the red tape and everything else. But we have built a lot under the radar because the fact is that they are not going to notice the small company like ours when they’ve got retail that is looking after billions. Ok, we do look after billions too, but they’ve got like 10 million clients and we’ve got like 110 000 clients... We are surfacing now because we are doing all the fancy things and we’ve been successful for a long time. And we have become bigger now. So, they are going “Oh, you guys are there”. (Senior Manager)*

While this ‘added’ layer of compliance may be frustrating, FinCo understands that taking advantage of being affiliated with AfriBank comes with trade-offs, even to the point where these trade-offs are influencing the execution of their strategy.

*“Because we are part of [AfriBank], [the Head: Information Systems] has to use [AfriBank] technology... Sometimes the solution might not be the solution that we wanted. Like, CRM [Customer Relationship Management] system, case in point now, I still believe that sales force is the better solution but [AfriBank] has a deal with Microsoft and therefore from a synergies*



*point of view and a [AfriBank] board... it might not suit our strategy but, part of our strategy is to leverage [AfriBank], therefore you go with Microsoft.” (Senior Manager)*

*“The one pain point of being part of [AfriBank] is that there is a lot of legislation that doesn’t apply to us that we have to, unfortunately, adopt... We needed to move fairly fast in terms of that sort of adoption.” (Senior Manager)*

Apart from ensuring compliance to rules and regulations from external pressures, i.e. the government and the parent company, FinCo also has internal pressures on how the organisation should operate. For this FinCo has values and behaviours that staff has to adhere to. An extract of the values and behaviours are shown in Table 4.10.

Employee values and behaviours	Managerial values and behaviours
Meaningful work around a shared purpose	Inspirational, purpose-led and servant leadership
Fast-paced & rapid delivery	Facilitate talent and skills supply
Although I know that risk and compliance are part of our business, I don’t let rules and regulations prohibit me from executing with efficiency.	

**Table 4.10: Extract of values and behaviours as listed in FinCo’s code of conduct**

#### 4.6.1.3.2 IT Governance

To make decisions about managing IT, both business and IT actors must effectively communicate with each other (Rahimi et al., 2016), especially when leveraging a DBS. Due to FinCo’s outsourcing model where the technical expertise is mostly outside of the organisation, IT actors were mostly business actors turned IT actors. This means that, from a shared language perspective, the degree of difficulties for IT actors and business actors to understand each other in the organisation, as it relates to formulating and implementing a DBS, is less than an organisation that does not have that advantage.

*“I don’t think that’s a challenge really [common understanding between IT and Business]. And the reason why I’m saying that is because the people in our IT department aren’t really like*



*developers, they, are more business people that manage the IT people. If I can call it that. They understand technology, but they also understand business requirements. Because a lot of them had been in business for a long time before they moved to IT.” (Senior Manager)*

In addition, since 2017, FinCo has also rolled out a new way of working throughout the organisation, inspired by the agile way of software development. This rollout is assisting business actors in improving their knowledge of IT and their ‘IT vocabulary’, effectively contributing to social alignment as will be discussed in [section 6.2.1.3.2](#). Be that as it may, there are still IT-related conversations, especially during strategic discussions about leveraging IT to create value, that requires clarification, as having a shared language does not automatically result in having a shared understanding.

*“In like, the sessions that I sit in for example. The ops [operations] Manco. So, what we would generally do in places like that, is that when we do talk about the execution of an IT initiative, against a business strategy, clarity is the key thing. It’s kind of getting to, ok, what do we mean by “automation”. You know, what are the targets? So, you want to automate onboarding clients for example. So, you want to take the paper away. But what are the targets? What is the current number, and what is the target? So, I think clarity on what you exactly mean is very important.” (Senior Manager)*

Another part of IT governance is the selection of IT investments (Peppard & Ward, 2016) which, in the context of a DBS, is the responsibility of both business and IT executives (Mithas & Lucas, 2010). FinCo prioritises IT initiatives every second month in a program steering committee meeting. All senior management, both IT and business, attend this meeting. In this forum, prospective initiatives are presented, accompanied by a business case highlighting the cost versus benefits of each initiative. Equally important, existing initiatives are evaluated against the strategic direction to establish if they are still aligned with the direction of the organisation. Previously the IT component of an initiative was owned by the IT function but since 2017 and the rollout of the new way of working, the ownership was transferred to the product owner, usually a business actor, who owns the initiative end to end. The transferring of ownership to the business does not remove the responsibilities IT actors have towards the initiative. A positive side effect of this transfer of ownership is that business actors are forced to learn more about IT as one cannot effectively own anything without understanding it. This means FinCo created an environment where the digital literacy competency level in the organisation can be progressed



continuously. This corresponds to the findings of Mithas and Lucas (2010), who states that successful strategic management is dependent on the digital literacy competence of business executives.

*“Everyone will have their own view [on the success of the transition], I promise you! Because we are in a transition, this transition where this whole thing moving now to a business owns something, because we used to have fights in the past about, “No, is IT doing this? Or am I doing this? Who is doing this?!” So, it’s actually very... it’s better for me, and I’ve seen this in other areas of this part of the bank. If the business owns an initiative, they own THEIR initiative, I don’t mind building it for you and finding your solution for you, and that’s fine because you know what you want. So, if you can drive what you want, it’s even better.”*  
**(Senior Manager)**

To make IT governance part of the daily lives of both business and IT actors in the organisation, FinCo has adopted a ritual called stand-ups which is part of the agile methodology, where business and IT actors spend fifteen minutes a day per, per IT delivery squad, aligning on what needs to be performed and what takes priority.

*“We do stand-ups every day. It is part of an IT methodology we adopted called Agile. This is done where we speak about what we’ve done yesterday and what is the priority for the day.”*  
**(Mid-level Manager)**

The new way of working also contributed to another IT governance item which is IT investment. In FinCo’s pre-digital existence, IT investments were primarily focused on the core business and ensuring security and stability, especially because of them operating in a financial environment. Since FinCo’s digital journey their IT investments became bolder and more experimental.

*“But I think we have definitely always made some investment, significant investment into technology. I think it’s for the first time that it has become more experimental and not just core business. So, like, [Head of Information Systems] for an example will always have a decent budget to deliver what [they] need to [operationally], but for the first time it has become more like, let’s try this out, let’s see if that works. a is market-leading. These are not natural things for an [financial institution] to invest in. **(Senior Manager)***



The new way of working also brought about the inspection of how IT should be arranged in the organisation, which is also a key IT governance item according to Mithas and Lucas (2010). This change brought about the creation of IT delivery squads, which comprises of both IT and business actors working on specific initiatives. This meant that due to the changing role of IT in FinCo and the introduction of a DBS, the organisation needed to adjust its permanent organisational structure to better execute its strategic intent. While there was a change in the IT organisational structure, *where* IT was placed in the organisation were not changed. [Section 4.6.3.1](#) provides a deeper discussion on the organisational structure of the organisation pre- and post-digitisation.

IT governance also includes the decision about what to keep inhouse and what to outsource (Mithas & Lucas, 2010). Since FinCo mainly has an outsourcing model, the stance in 2010, when they started their digital journey, was to review this model. As mentioned before, considering their obligation to become closer to the customer, FinCo decided to decouple from their original service provider on their customer-facing technological innovation. This, however, does not mean that the development of customer-facing technology rollouts is not outsourced. This conversation of outsourcing versus insourcing is ongoing between FinCo's executives.

*"So, part of the business strategy is to outsource. Because that is not the core competence. And therefore, we don't have... we don't do any development work here either. We outsource all the dev work onto IT businesses like front end business, or whatever. We outsource everything. We don't have a team of developers that sits here in dev." (Senior Manager)*

The role IT will play based on strategic intent is another important IT governance item. As established in [section 2.8.2](#), there are five ways IT can be used in an organisation, each with its own set of challenges and advantages (Mithas & Lucas, 2010). FinCo has adopted four of the five forms of IT, which is innovative IT, reshaping and adaptive IT, cost and economics leveraging IT, and flexible and agile IT.

FinCo, in the innovative IT space, has adopted disruptive technology such as big data and cloud computing as back-office IT and focussed on sustainable customer-facing technology to enhance their longevity in the industry. Second, in the reshaping and adaptive IT space, FinCo adapted to technological advances in their own industry but has not introduced technology that could reshape their industry of operation. However, their and AfriBank's goals are to 'disrupt, delight and digitise'.



*“So, what we are trying to do is by 2020 we are trying to get 90% of our transactions and client interactions digital.” (Senior Manager)*

*“What that means for is that 75% of our sales needs to be digital over the next 3 to 5 years. Out of our client base, we need to make sure that we make 70% of them are digitally active. A score of 60 for our Net Promotor Scores. And we have to have 50% or lower as a cost to income ratio. So, our digital stuff is to achieve good client satisfaction, [to] lower cost efficiency, good take-up, and new client acquisition. And the three things we say we are going to do there is, digitise, delight, and discover or disrupt.” (Senior Manager)*

Third, in the cost and economics leveraging IT space, FinCo used IT to reduce unit and transaction cost for the purposes to make things easier for their current customers and break into new markets. Last, FinCo subscribes to using IT for flexibility and agility in the sense that they have built their IT infrastructure in such a way that it can integrate with any new technology speedily. The only form of IT that FinCo is not subscribing to is using IT to create competitive advantage as a distinctive competence.

#### 4.6.1.4 DBS formulation

In the previous section, the focus was on the six elements that make up a DBS. This section will be focussing on the creation, dissemination and maintenance of a DBS.

##### 4.6.1.4.1 Level one and two: creating the DBS

To confirm the fusion between business and IT strategy in FinCo all interview participants were asked if their IT and business strategies were developed separately. Unanimously, interview participants advised that it is developed as one strategy which correlates to findings of Bharadwaj et al. (2013).

*“Yeah, essentially. It [business and IT strategy] is part and parcel the same... The one shapes the other. Back in the old days, where there is a clear divide between business, and IT, right, that mentality... But adopting these new ways of working is actually... is actually breaking down that divide.” (Mid-level Manager)*

*“So, you can’t have the one [business strategy or IT strategy] without the other. People do need to talk.” (Senior Manager)*



While the business and IT strategy are not created separately the business goals and objectives i.e. the business direction, is developed first. This substantiates the stance that IT has no value without business direction. Only once the strategic intent of the business is known, does the conversation of how to enable it through IT occur. This process is not strictly sequential as what IT can enable also influences the business, as described before, where only through IT the business could pursue a direct channel market for instance.

*“So, what happens is, business strategy almost first and foremost. How you are going to do to plan for the next... for the period of time and what you are hoping to achieve. That is your business strategy. And your key focus areas [KFA’s] are built-in, within your business strategy. So, in order to enable your business strategy, you need... a technology strategy which kinds of undermines it, and enable you to achieve what the business strategy achieves. So, we always do ours, in conjunction with business strategy.” (Senior Manager)*

The DBS is developed annually focussing on a three-year planning cycle. It is developed by the senior management staff and is focussed on reviewing and updating the organisational goals and objectives. The organisation’s mission, vision and values, which is the rationale for the organisation’s existence (Tassabehji, 2003; Witcher & Chau, 2007), does not change, but the goals and objectives do.

*“But each year, and that is sort of the what I call keeping the momentum. It’s your “engine one”. Your engine one [business rationale] is always the same, but with different activities on it. What we did to achieve superior client experiences this year might not be the same as what we do next year’s activities to enable that.” (Senior Manager)*

The goals and objectives, at this point, will be influenced by exogenous factors such as customer and competitor data. While it may seem as if it is only senior management is developing the strategic intent, the senior managers collect data from assigned owners within the organisation to understand their part of the business and what the future in that part would look like.

*“From an agile perspective is, I [a senior manager] can’t, from a [strategy] perspective go and say this is what I want for three years and just throw it out to enablement [functions]. That has changed now. It says the people who have been assigned ownership [in the business], tell me [senior management] what is happening in your area. Tell me what is innovative. Tell me*



*what your competitors are doing. Lay out your roadmap, tell me what it is and play it back to me as the stakeholder. As this 'strategy' stakeholder." (Mid-level Manager)*

Thereafter, the updated goals and objectives are discussed and agreed in a larger forum of between 30% and 35% of the organisation. This forum, by default, includes every manager who runs a team but also includes individuals who are considered as high potential talent based on FinCo's talent framework. These individuals are hand-picked by the Chief Executive Officer (CEO) and the Head of HR. The reason why FinCo focusses on inviting high potential talent as opposed to high performing talent, not to say that high potential talent is not high performers and vice versa, is that the organisation is on a journey of change and requires individuals who can embrace these changes. This selection of people that can support transformation is in line with the findings of Holotiuk and Beimborn (2017), who stated that not everyone has the ability to learn the skills that are required for a digital transformation.

*"I think they kept it too, from midway, more potential than performance... And we don't want performance [persons who are great performers] that would be just like "Why are you doing this? We always do it like this" kind of a thing. Because we do have people like that too. Good performers, high performers... but like, the potential to embrace stuff, being able to contextualise the bigger picture is not always there necessarily. So, we look at potential and then performance." (Mid-level Manager)*

Table 4.11 describes the profile of the attendees at the strategy development session in 2019.

Attendee profile	%
Management (senior and extended)	43,9%
Non-management influencers	56,1%
Total	100%

**Table 4.11: Strategy development attendee profile distribution**

*"And what we do as a divisional committee [senior management] is, we try to cascade that [strategic goals and objectives] and work that through to our teams. And we don't follow the*



*approach of just simply talking about it. We have actually quite big conversations about it... immersive sessions... to get feedback on it. So, our last session was actually the end of Jan. Where ourselves [senior management] and 40 of our people that we think are influential in our business, had a session to review our strategy on a page. It is very much a living document for us.” (Senior Manager)*

The request for having more people than just the senior management staff involved in strategy development came from FinCo’s staff itself and was implemented in 2019.

*“However, we [senior management] come up with that. So, [the Head of Information Systems] doesn’t have insights into that [previously]. However, this year [2019], for instance, we broadened our strategy session, based on feedback that we got from the business and invited second-tier management as well. The focus of it though, however, was more to get cohesion and synergies on... and not so much the creation of the strategy. (Senior Manager)*

The conversation about who creates the strategy in FinCo was very divisive. Two senior manager interview participants suggested that only the senior managers create the strategy and the rest of the organisation simply buys into it. While the other interview participants viewed the creation of the strategy as a collective creation between all influencers in the organisation, which spans much greater than the pool of senior managers. This finding was expected. With roles and responsibilities (Davis et al., 2003), culture, and processes (Horlach et al., 2016) transforming, there are bound to be unclear lines, not only between IT and business but the business as a whole. This shift in strategy development is also a product of a culture change in FinCo, where the staff is building a closer relationship with the strategy of the company, as will be discussed in [section 6.2.1.2.1](#).

*“So, our last strategy session I think there were, 40 of the top leaders, which I don’t know, out of a company of [less than 150] people, is quite amazing. Again, it is moving towards this concept of... it is not top-down anymore, its community-based strategy creation. We are not hierarchical. We are not bureaucratic. So, it doesn’t matter who comes up with an idea, it doesn’t matter who presents it. If it is a good idea, we implement it, we’ve got lots of ways to get feedback from everybody.” (Senior Manager)*



*"The [CEO] invited not only his senior management team, which is how it normally happens but also the people from across the business to join in the strat [strategy] session, trying to think about, create alignment, firstly between different parts of the business. Get people talking the same language and also then making sure that everyone understands the business strategy." (Mid-level Manager)*

Before shifting into how FinCo disseminates the DBS, it is important to note just how forward-looking the DBS is. Due to FinCo's affiliation with AfriBank, a three-year planning cycle is required to remain compliant to AfriBank's rules and regulations. However, FinCo also has a five-year 'blue-sky' planning session where they are bold in projecting what their future would look like.

*"And then every 5 years you'll have a 5-year forward-looking business strategy. So, we'll meet in February and say, let's say it is February 2015... what would 2020 look like? And you'll start putting blue sky, not pie in the sky, more like blue-sky thinking. Like what would your ultimate wish list be like? And just **DREAM BIG**. And generally, that is very good at forming how you start to think about the world. So, with the advent of technology maturing, and the technology cycles maturing, that... informs... so, certain things that were really difficult to do in the past, that IT has made it super easy to do..." (Senior Manager)*

#### 4.6.1.4.2 Level three: disseminating the DBS (social alignment)

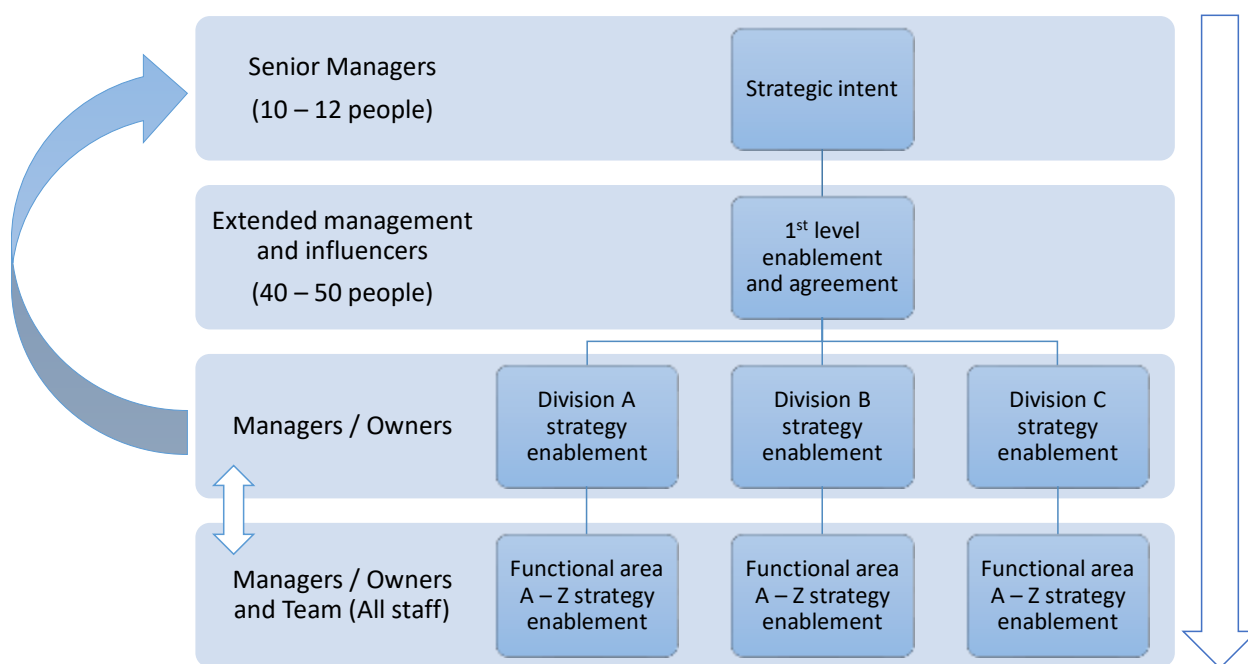
Disseminating the DBS is an act of social alignment as it is designed to enable the common understanding of the commitment to organisational objectives between actors (Gerow et al., 2014; Reich & Benbasat, 2000; Wagner et al., 2014). Since managers are involved in the strategic planning as a default, it is their responsibility to cascade the organisation's strategic intent through organisational engagement and to work on how each division, each team and each individual will be contributing to achieving said goals and objectives. This is in line with Mithas and Lucas (2010) and Witcher and Chau's (2007) account of disseminating the strategic intent throughout the organisational hierarchy.

*"So, the department [functional area] ones, that basically everyone [that is involved in strategy development]. In that department [functional area], it doesn't matter what you do..."*



*Everyone's got an equally important weighting in terms of determining what role they play, right?" (Senior Manager)*

The breakdown of the DBS per department and team includes Key Focus Areas (KFA), key drivers of success, the champion who will drive the action, and the measurement thereof. Figure 4.11 provides a summary of how the strategic intent of the business is cascaded and developed.



**Figure 4.11: DBS Development and cascading**

Cascading in FinCo does not mean hand-offs. For example, once the senior management team has decided on the direction for the company for the next three years, it is not hand over to the next line of managers to define how this strategic intent will be enabled. Linking it back to the distinctive competence ‘ownership’ as discussed in [section 4.6.1.2.2](#), the owner of that ‘function’ has the end to end accountability for that strategy, including the enablement thereof. As such, it is a continuous conversation between the owner and everyone else who needs to achieve strategic intent, including IT.

#### **4.6.1.4.3 Level four: transforming the organisation (social and cultural alignment)**

While FinCo’s formulation of the DBS is performed on an annual basis, the DBS is reviewed on a monthly basis, as part of business governance. This is done to measure activities against the plan and to make any



adjustments aligned with internal and external pressures that may shift goals or how they should be achieved. This is also an act of social alignment.

*“They [strategy elements] are spoken about at every single DivCo [senior management] forum that we actually have. So, you know, it is an evolving strategy. We don’t sort of say, alright, this year we are going to do this because it just evolves... When we see something in the market that we are needing to do like we decided to do [digitally enabled advisor], we went and did [digitally enabled advisor]. Or when we decided to develop [a financial product], we did [the financial product]...so it is an evolving strategy rather than a once a year event.”*  
**(Senior Manager)**

## 4.6.2 Business and IT alignment (intellectual, operational and social)

### 4.6.2.1 Alignment challenges

FinCo attempts to align business and IT at a strategic level, through their formalised strategy creation and strategy review sessions. The process starts with senior managers creating the strategic intent with input from functional owners. Thereafter it is discussed and agreed by influencers in the organisation, including IT. This alignment is then continued on an operational level through strategy review forums, where managers review the plans, and IT prioritisation sessions, where managers measure existing and proposed IT initiatives against the strategic intent.

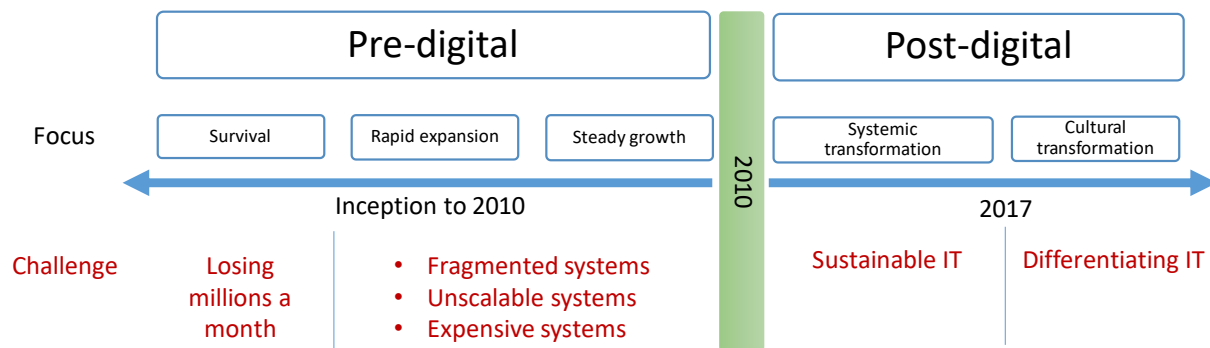
This alignment, both strategic and operational, has its challenges due to FinCo’s transformation progress and digital maturity. A major inhibitor of intellectual alignment was their split in focus. FinCo’s focus in their formative years was on building an established financial institution, which meant their attention was placed on building a brand, quality of financial products and services, and increasing market share. When FinCo became an established financial institution, their systems became a hindrance as it was not conducive to their rapid expansion. As a result, their focus was on consolidating fragmented systems to deal with the influx of transactions caused by their rapid expansion. This led to FinCo conforming with the industry trend of outsourcing administration to a well-known and used third party in the industry.



*“But also, we were just, we were running very fast, we needed to do it [outsource]. We couldn't do it [inhouse], [so] we had to make a plan... and we made a plan. We did on [third party], a very difficult time in our lives, and we got up and running. And then, so remember now [the third party] therefore, is doing the majority of administration, for our technology.*

**(Senior Manager)**

In 2010, when their digital journey commenced, FinCo's focus was on IT architecture and ensuring their systems could sustain their organisation in an ever-changing environment. In 2017, FinCo introduced a new way of working in the business, and as such, their focus was on cultural transformation. Figure 4.12 maps the focus of FinCo in response to their major challenges.



**Figure 4.12: FinCo IT challenges pre- and post-digital**

With FinCo's being such a newly digitised organisation, there is still much tension between management in terms of the method of managing exogenous factors as it relates to IT. Since intellectual alignment is externally focused (Gerow et al., 2014), there is a need to ensure there is continuous and intentional attention paid to technological innovations that are emerging across industries and within the industry of operation. But, with FinCo's focus being on internal architecture and organisational transformation, there has not been sufficient time to dedicate themselves to focus on exogenous factors to a degree that a digital-born organisation would typically do. This hindrance to alignment is consistent with the findings of Gbangou and Rusu (2016).

*“But what I would like [IT] to be, and we've had this discussion, is more strategically. What is out there that we have not even... thought about? So, and it might be wrong, in that you don't set your strategy based on the technology, but someone... I still need, I still think [they] need*



*to focus on researching solutions that are out there so every now and then... you might be missing something. And I don't think [IT] hasn't gotten to that yet." (Senior Manager)*

A challenge for FinCo in the operational alignment space is the tension between managers around the organisational structure. While the IT organisational structure has been amended by the introduction of IT delivery squads in order to respond to the new way of working, as indicated in [section 4.6.1.3.2](#), there is still contention around the introduction and benefit of a Chief Digital Officer (CDO) or Chief Information Officer (CIO) for instance.

*"The one thing we haven't done well, because we don't have a single person accountable for digital, like a... So, we don't have a Chief Digital Officer whose responsibility it is to bring these things [IT initiatives and strategic intent] together. And I think that creates some tension, sometimes frustration... As well as we have done, and we have done well and we must give our business kudos for that, from nought to what we did in a year... like all the stuff I mentioned happened in the last year... is a lot, but I think going forward, to assess our digital maturity and where we need to be you need somebody accountable for that. And we don't have that yet." (Senior Manager)*

Granados and Gupta (2013) found that not having a Single Point of Accountability (SPA) contributes to an organisation's misalignment between business and IT. But, the case of FinCo is quite interesting in the sense that they have established, and unanimously so, that the DBS is owned by the business, including IT components.

*"It was a very difficult journey [having business taking ownership]. I would say over the past 8, 10 years. Because, initially, we had an IT strategy, but it did align [with] business strategy. And IT was for the first period of it, the driver of this is where we are going. And this is where IT gets delivered within the business. However, over the period of time now, we've assigned owners to it. And proper business owners to it... It was a transition, but we've kind of slowly got there." (Senior Manager)*

Therefore, from a platonic view, it seems as if there is no need for a SPA in the form of a CDO or CIO. Upon closer inspection, the rationale for wanting a CDO or CIO is related to the current organisational structure, where IT has a direct reporting line to the Chief Operating Officer (COO). Which means that those who



are in favour of a CDO or CIO is of the opinion that IT favours operational excellence over innovation. The struggle between innovation versus operational excellence is a typical alignment paradox. While there may be tension on this subject, management is in agreement that operational excellence and innovation should co-exist, in line with findings of Yeow et al. (2018).

*"That's right [we have to have a dual function (stability and agility)]. And there is that continuous conflict in the business." (Senior Manager)*

The tension around the CDO or CIO also brings about the issue of who sets the direction of the organisation. This is linked to the misalignment between managers in terms of who *creates* the strategy. Currently, IT is not part of the senior management staff who initiates the creation, i.e. sets the framework of the DBS, instead, the Head of Information Systems is part of the second-tier management who the plan is cascaded to for discussion and agreement in the larger forum. This means, should a CDO or CIO be introduced into the organisation, they would be involved when the DBS is initiated, which could alter what the DBS eventually looks like.

*No [the head of IT is not involved in creating the strategy]. So, what we don't have is [a] representation of a... we don't have a Digital Officer. Which like some people have debated with the... it doesn't often come up on a DivCo level, but I know... [it is a point of contention] (Senior Manager)*

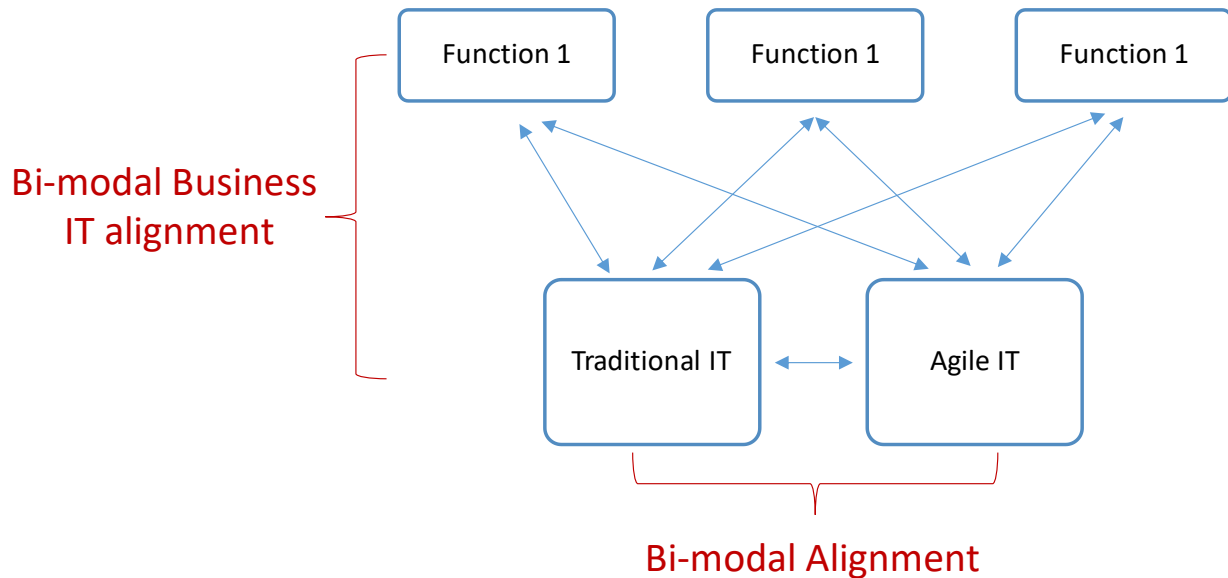
#### 4.6.2.2 IT infrastructure and business alignment

As seen in [Figure 4.12](#), the evolution of IT in FinCo have always been closely related to their business position in the industry and the organisation's strategic intent. This was done in an effort to align IT infrastructure and processes to the business needs. Since the start of FinCo's digital journey, the aim of IT was focussed around two main themes namely innovation and operational excellence. This effectively means that IT is fulfilling both the traditional role of IT and the agile role of IT, which correlates to the findings of Horlach et al. (2016), Grover and Kohli (2013), Holotiuk and Beimborn (2017) and Woodard et al (2012).

This move to bi-modal management of IT meant that there was a number of changes that FinCo needed to make in order to adjust the way they aligned IT with business. The following sections focus on changes



FinCo's IT function had to make in terms of goals, culture, customer proximity, trigger, value, focus of service, approach, applications and speed of service delivery. Figure 4.13 shows the alignment model that FinCo has adopted between the business and their two modes of IT.



**Figure 4.13: Bi-modal IT and business alignment in FinCo**

Source: (Horlach et al., 2016).

#### 4.6.2.2.1 Goal

One of the most noteworthy and labour-intensive changes for the IT function was the change in focus. In their pre-digital era, the aim of IT was to enable stable and even operations. This focus has shifted with the dynamic environment the financial industry had to adapt to based on the changing world and its changing customers. While IT's focus is still on providing stability, their role has expanded to include the quick adjustment of internal structures to support an evolving strategy. To reduce the constraint that IT infrastructure may have on FinCo's ability to responding to the market, IT had to set up their infrastructure to enable agility. This corresponds to the findings of Horlach et al. (2016), Grover and Kohli (2013) and Woodard et al. (2012).

#### 4.6.2.2.2 Culture

Another major noticeable change in the IT function was around the culture shift surrounding the ownership of IT initiatives. FinCo introduced the concept of the product owner that is selected from the



business. This product owner owns the end to end initiative, including its IT component. This culture shift resulted in an even more business-centric IT function. The culture shift also resulted in conflict between those who were working on exciting initiatives and those who were 'left behind' to perform business as usual functions. This supports the findings of Horlach et al. (2016).

*"It was like, we pull people out of the business and the other people would just say, well we are left here to do all the dirty work they get all the glory." (Senior Manager)*

#### 4.6.2.2.3 Customer proximity

There was also a definite shift in how close in proximity FinCo has become to their customers in recent years. Much of this closeness is afforded to the technological initiatives that FinCo rolled out because it was too costly for FinCo to be this close to their customer without technology. Therefore, IT is making a continuous investigation on how their customers are operating and engaging in order to adjust any customer-facing technology to support the customer-centricity of the business. This result is consistent with findings of Kahre et al. (2017), Kappelman et al. (2017), Keen and Williams (2013), Lowry and Wilson (2016) and Wang et al. (2013).

#### 4.6.2.2.4 Trigger

Being in the financial industry FinCo has been very focused on performance and security performance, which correlates to findings of Chanas et al. (2019) in their study of a pre-digital turned digital organisation. Considering the change in customer and their expectations on what they are entitled to, regarding their interaction with organisations, IT had to expand their service to explore keeping up with short-term market trends as well.

*"Let's put it this way... We kind of follow trends within the various industries, and we pick this up quite quickly. And we actually operationalised it quite quickly." (Senior Manager)*

#### 4.6.2.2.5 Value

The value of the pre-digital FinCo IT function can be summarised as performing a service to FinCo itself. It was focused on ensuring smooth and accurate operations. This has also expanded to include creating



customer engagements where customers, throughout their customer journey, experience a personalised branding experience. This correlates to the findings of Horlach et al. (2016) and Westerman et al. (2014).

*"[Financial services] is a different business. You can't just have a standard journey across the board. Whether it is taking out a product, or taking... regardless of loan or investment or anything else, you have to tailor that to the brand and to the experience of the customer"*  
**(Mid-level Manager)**

#### 4.6.2.2.6 Focus of service

The goal of the traditional IT function is to ensure reliable and efficient IT services focusing on operational excellence and cost-saving. In contrast to that, agile IT is concerned with delivering innovation that is outside of the norm (Horlach et al., 2016). This contradiction is a source of contention in FinCo as a few executives believe that operational excellence is favoured while others believe that external innovation is favoured. According to IT, however, the split between operational excellence and innovation equally distributed. As part of IT governance, this tension between operational excellence and innovation is a continued discussion.

*"So, we look after our back-end systems, which are your operational systems that still gets attention. Your regulatory projects still get attention, making sure that we are compliant. And then your client-facing systems those also get a similar priority. If you look at the project split, they are split similarly."* **(Senior Manager)**

#### 4.6.2.2.7 Approach and speed of delivery

The IT function was the first function in FinCo that adopted the agile way of working. Before 2016, they were following the waterfall approach of project delivery but has since decided to co-create minimal viable products (MVP) with their customers, in order to produce products to the market iteratively and quickly. This confirms the findings of Holotiuk and Beimbom (2017). With the duality of IT, the waterfall method has not completely disappeared, it is still used where necessary, however, they are loosely coupled, which reduces the risk of being too dependent on each other.



*"See from a [AfriBank] perspective, we had two [modes], Gartner mentions it a lot. It is kind of two streams, two modes of delivery. We had mode one, which was generally your big projects that take time and delivers [through a] waterfall [methodology], that takes... that keeps the business running. And then you have your mode two, which is your new digital way of doing things and delivering faster. And mode two was kind of something which the execs at [AfriBank] decided they were going to put that, they were going to use that method deliver quickly to market, and that was kind of an executive decision that came up in [AfriBank].*

*[FinCo] again, our business, we were running mode one and mode two kinds of for the past three years now. So, what we did with that is we went mode ... we are still doing mode... we are very much almost everything in mode one. Because we are not that big as a business. Sorry, in mode 2, which is [a] faster turn around and delivering MVPs. **(Senior Manager)***

#### 4.6.2.2.8 Applications

As discussed in [section 4.6.1.1.3](#), FinCo outsourced their IT to a third party that was used by many other financial service providers. When FinCo decided to be more customer-focused in 2010, they decoupled from that service provider to take control of their customer-facing technology. Their application model expanded from being a system of records, to include a system of engagement. Of course, the system of engagement still has to access the system of records in order to extract valuable information on how to service the customer better. This confirms the findings of Holotiuk and Beimborn (2017).

#### 4.6.3 Organisational transformation (social and cultural alignment)

One of FinCo's distinctive competences is focussed on 'ownership', allowing management in the organisation to run their function in an entrepreneurial spirit. While each function has its own KFA's, they all subscribe to the vision, mission, goals and objectives of FinCo as promoted during the social alignment efforts of the DBS cascading through the organisation.

*"But it is [the] owner's mindset [founder's mentality], you run your business like it is your own. And that is very much the mindset in here. So that has been cascaded down to everybody. Everybody has got their own little budget, their own, you know, they take accountability." **(Senior Manager)***



However, this distinctive competence has a negative impact on cultural alignment which includes a willingness between managers to give up incompatible “best-of-breed systems” (Chan & Reich, 2007, p. 301). This means that because each function is operating their own business, it inherently creates competing goals between functions, depending on the belief system of the person running it.

*Here [FinCo] you have like federated model where everyone goes, I don't need to do what [another functional owner] is doing. Because you know what, I run my own business. Everyone forgets it's actually [FinCo's] business. You know it's not an entrepreneurial business. And that creates massive issues in terms of digital transformation, I think. (Senior Manager)*

For instance, if Function Head A has bought into the idea of digital transformation and can see the value of it in their function, they are more likely to encourage and coach their team to adopt new ways of working that is digitally enabled or inspired. If Function Head B, is seeing more value in the current way of working, their adoption of new rollouts will be slower than function A. Resulting in FinCo operating sub-optimally as a whole. This clash of functional goals, a contributor to cultural misalignment, can also be seen in the strategic conversations around what to invest in and what takes priority.

In an effort to increase cultural alignment between business and IT, FinCo, as of 2017, has been visibly investing in improving the cultural fit between business and IT. This supports the findings of Chan and Reich (2007). As background: The IT function in FinCo adopted the agile way of working in 2016. Their business counterparts soon realised that this shift in the IT function requires the business functions to make changes too in order to maximise on the benefits the agile way of working enables. FinCo is the first of its kind in the industry of operation to adopt this method of working. There are a number of cultural changes that FinCo has made, including organisational, business and IT skill, IT architectural, business and IT process and behavioural changes.

#### 4.6.3.1 Administrative structure changes

Administrative structure refers to the method organisation arranges its business, for instance, functional or horizontal (Peppard & Ward, 2016). A major organisational shift FinCo made was disbanding the project management functional area as the organisation would no longer run projects in the traditional waterfall way, making project managers obsolete. In its stead, FinCo created a function that is accountable for executing the strategy with a mandate to work closely with the IT function in order to do so.



The organisational change also included created two permanent IT delivery squads, whose aim it is to deliver technology initiatives to support and enable the organisation's strategic intent. Temporary squads are also created when the permanent squads do not have the capacity to manage prioritised IT initiatives. These squads are championed by a product owner, who takes accountability for the end to end initiatives including its technological component.

*"But we have actually disbanded our functional projects area because we got these squads now and they have actually, you know, it is no longer a waterfall method, it is agile. So, they run in sprints, so we don't really need project managers anymore... So, we set the strategy. [Their] function is strategy execution, so obviously it needs to go hand in hand with [the Head of Information Systems]. So, [the Head of Information Systems] and [them] actually need to work together tightly (**Senior Manager**).*

One organisational structure change that FinCo management is still discussing is the introduction of a CDO or CIO as discussed in [section 4.6.2.1](#). According to Wagner et al. (2014), an organisation should have the head of IT in close proximity to the CEO in support of the DBS. Currently, FinCo's Head of Information Systems is two levels removed from the CEO.

Other changes to the organisational structure were also introduced, for instance, new roles such as a scrum master, customer experience manager and agile coach. In addition, existing roles were also in the process of being reviewed to ensure their relevance.

#### 4.6.3.2 Business and IT skills

While official revamped job descriptions have not been published, role changes in terms of the new skills needed in order to be culturally fit to work in FinCo have taken effect as demonstrated by one of FinCo's code of ethics points.

*"I am digitally savvy and I know that this provides speed, cost, convenience and simplicity for my clients." (**Code of ethics**)*

This encouragement by FinCo to include digital literacy in their business roles correlates to findings of Zhyganov (2014), who stated that organisations cannot afford to have business actors who are digitally



illiterate neither can they afford IT actors that are business illiterate. This commitment also had other major impacts on their hiring culture.

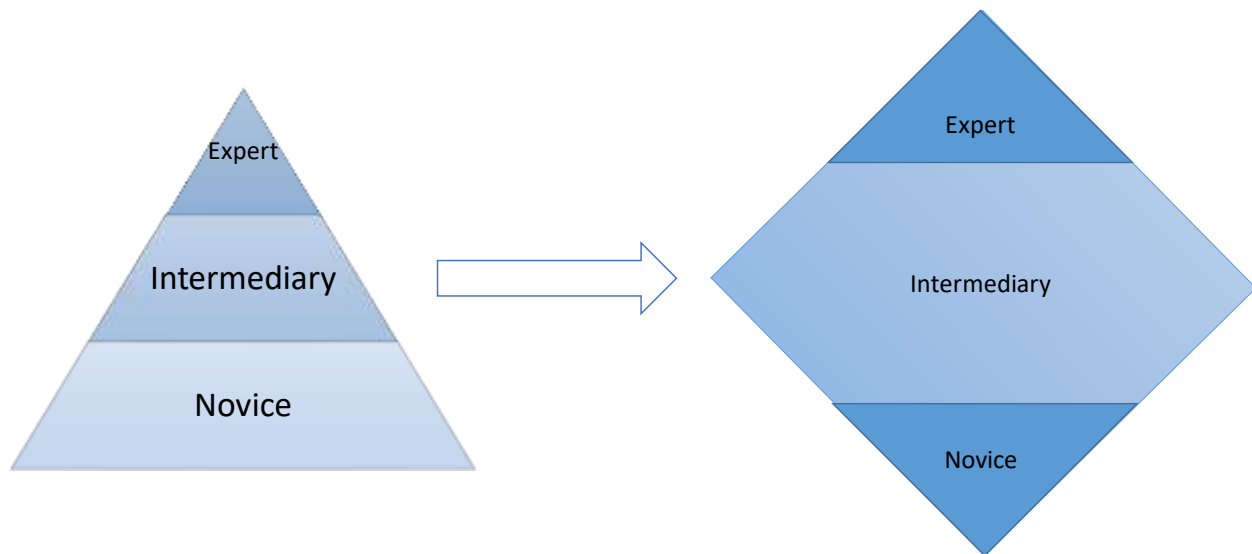
*“So, we’ve made this conscious shift to recruit on talent, because we found that we used to recruit on experience and skill, and we found the mindset wasn’t right for a business such as ours where we a) we are ambitious, b) we want to be agile and quick to market, and c) we definitely going to the digital space.” (Senior Manager)*

This shift also brought about a new concept of ‘role fluidity’. Role fluidity refers to hiring individuals that will be able to solve business problems or exploit business opportunities as opposed to merely performing a job as described in a job description.

*“I mean look, we had to... we are busy redefining job descriptions and job profiles. I think that you know, the concept of a job is not... is going out [of] the window. Because I don’t think people are going to have a job. They are going to have areas where they add value. And that change over time.” (Senior Manager)*

Another change that FinCo is making is reorganising the makeup of skills throughout the organisation as per [figure 4.14](#). This change is not necessarily linked to technology per se but is linked to the dynamic environment that the financial industry is becoming.

*“The magnitude of change in today’s world of work challenges the life span of skills. At the outset of the agile transformation, there is an acknowledgement that the shape of skills for many of our disciplines would be more triangular, however in order to compete, we need to aspire to a diamond shape. As this will not be achieved over-night, core disciplines should target a transition shape. Experts will constantly exit the business; therefore, the intermediate pool is critical to ensure that we have the ability to fill expert gaps when they arise.” (New way of working policy)*



**Figure 4.14: FinCo skills makeup transformation**

The new way of working also had an impact on the way the business performs retention. All interview participants had the same view on retention which is: to create an environment where people would like to stay, but if they want to leave, let them go.

*“Again, I don’t think in the new world of work[ing], retention strategy is going to be that important. Because I think that people are going to be more fluid. I think what you want to do is, you want to create exciting initiatives for fluid people, to come and work on. Because you want that, you know, you just want ideas and skills to move around.” (Senior Manager)*

*“Why would I want to restrict people from... having a life or being ambitious? I’d like to believe I created an environment, where I create ambition.” (Senior Manager)*

An organisational structure model that FinCo left fairly untouched is their outsourcing model. While certain aspects, especially customer-facing activities have been insourced, one of FinCo’s distinctive competences is their outsourcing model and as such no major changes to that model have been done. However, since the financial environment is changing, FinCo is beginning to revisit their stance on outsourcing, since all distinctive competences have an expiration date. This correlates to findings of Kahre and Hoffman (2017), who states that competitive advantage diminishes over time due to the changing environment.



*“That is a really interesting question. And funny enough coming around now, we are starting to talk about insourcing. But it is because we are in an extremely different environment, and it is because of the automation.” (Senior Manager)*

#### 4.6.3.3 IT architecture

Considering the fact that a changing environment diminishes competitive advantage over time, FinCo was compelled to alter their IT infrastructure in such a way that it provides them with the ability to leverage their DBS to respond to environmental changes with agility. This correlates to findings of Tallon and Pinsonneault (2011), Wang et al. (2013), and Kappelman et al. (2015). FinCo’s IT architecture was discussed at length in [section 4.6.1.2.3](#).

#### 4.6.3.4 Business and IT process changes

As an interim solution, to fast track FinCo’s digital mandate, FinCo made use of a ‘digital fast lane’, sponsored by AfriBank, where highly experimental and bold change-the-world- initiatives are built in the shortest amount of time.

*“Then we have a digital fast lane, what we call a digital Fastlane in [AfriBank], which runs initiatives which are highly experimental, have very little consequence on the business unit or the bank if they fail. Or they are initiatives that will propel us into the number one digital financial services provider which is our target as [AfriBank]. (Senior Manager)*

One of the reasons why FinCo could launch so many big IT initiatives in the last eighteen months was partially due to the digital fast lane. To enable a continuous channel for delivering such projects, FinCo made changes to their permanent organisational structures, by introducing IT delivering squads, as discussed in [section 4.6.3.1](#), so that IT initiatives can be delivered in a fast pace as part of business as usual as opposed to the use of an out of the ordinary specialist channels.

To make agility and flexibility also part of business as usual, FinCo also revamped the business and IT processes across the board to enable quick responses to external or internal changes. One such process is highlighted for demonstration purposes.



*"The new delivery organisation calls for a new categorisation of people who either work for us or deliver a service to us. Traditional payroll/ non-payroll/ service vendor categorisation, as well as a lengthy procurement process, will not allow us the flexibility to drop core skill on a contingency or flexible basis into the organisation on-demand. A new fit-for-purpose procurement process is required to enable new ways of securing 'on-demand' talent. During the pilot, the procurement process should be stress-tested with consideration to both recruitment and learning enablement within the new organisation."* **(New way of working staff communication)**

### 4.6.3.5 Behavioural changes

#### 4.6.3.5.1 Managerial mindset change

A key change for senior management in FinCo was the delegation of authority from the c-suite executives to those lower in hierarchical rank. While FinCo already subscribed to a founder's mentality philosophy, the change to empower and for staff to work more autonomously, was and is still not an easy philosophy to adhere to.

*"I think the squads know more and more; the power has devolved onto them. Previously, it was... but that is sort of a-ha moments for them... I mean the biggest failure of agile, and as part of my project, we had talks with banks that have previously implemented it, and I had [an international bank] in Amsterdam, did it very successfully. I interviewed their guy that was responsible for it. And he says, it is the biggest learning curve for senior management that they don't make the calls anymore. Absolutely devolve it onto... and that is based on trust."* **(Senior Manager)**

#### 4.6.3.5.2 Empowered staff

With this autonomy, the squads, in particular, has seen a shift in terms of the participation of everyone involved. The result is that members of the squads feel empowered and that has improved the quality of work that the squads produce.

*"So, like you have seen in the session, everybody participates. So, it is not like the BA [Business Analyst] completed the requirements and hands it over to the wall, and then a developer gets*



*it and he hands it over to the wall, the tester gets it... Here the story [use case] is understood from everyone's point of view. Because the quality of that story is... So, the testing team, the BA, the developers, everybody contributes to that story." (Mid-level Manager)*

#### 4.6.3.5.3 Willingness to fail forward

To work in the modern world, all employees must be willing to fail occasionally (Sawy et al., 2016). This is difficult for employees in the financial services, as the willingness to fail is not part of their culture considering they are working with their customer's money and is under review by the regulator. Yet, FinCo, as part of their new way of working, encourages their staff to be innovative and take the risk to fail quickly and to learn from their mistakes for the next initiative.

*"We redefine the paths that people follow and make them small jungle paths, and later they become pavements and roads. It is all about reinforcing "We celebrate failure and fail fast." I am not afraid to think out of the box and to try our new ideas, even if they do not work out as planned." (New ways of working staff communication)*

#### 4.6.3.5.4 Physical office changes

The digitisation of FinCo did not stop at behavioural, business and IT processes, IT architecture or organisational structure changes. The change also manifested itself, quite visibly, in the physical office changes to show staff the organisation's commitment to their new direction.

- *"Make it [offices] look like a technology company space – not like [the] finance industry*
- *Open space offices and large open desks with flexible wiring allowing multiple people to work together*
- *Communication/ agile rooms (small but numerous)*
- *Whiteboards and glass boards (for stand-ups and creative design)" (New way of working policy)*



#### 4.6.4 FinCo alignment process summary

To date, the primary driver of the digital transformation and alignment between business and IT is FinCo's CEO. Among the interview participants, there were varying degrees of enthusiasm around FinCo's digital mandate, but all interview participants agreed that its biggest champion is FinCo's CEO.

*"Well... the reason why we are on our journey is because [that] we've got a CEO that is very, how can I say, aggressive. Very innovate in terms of technology. That is one of the driving forces behind what we got at the moment." (Senior Manager)*

One can classify the trigger of FinCo's alignment process as punctuated equilibrium, where the decision to transform was caused by environment changes (Yeow et al., 2018). However, after a number of years, FinCo adopted the continuous adjustment approach of alignment where changes are both top-down and bottom-up, which correlates to findings of Karpovsky and Galliers (2015) and Yeow et al. (2018). Figure 4.15, is an overview of FinCo's alignment process based on the outline of Yeow et al. 2018 detailed in [section 2.7.1](#).

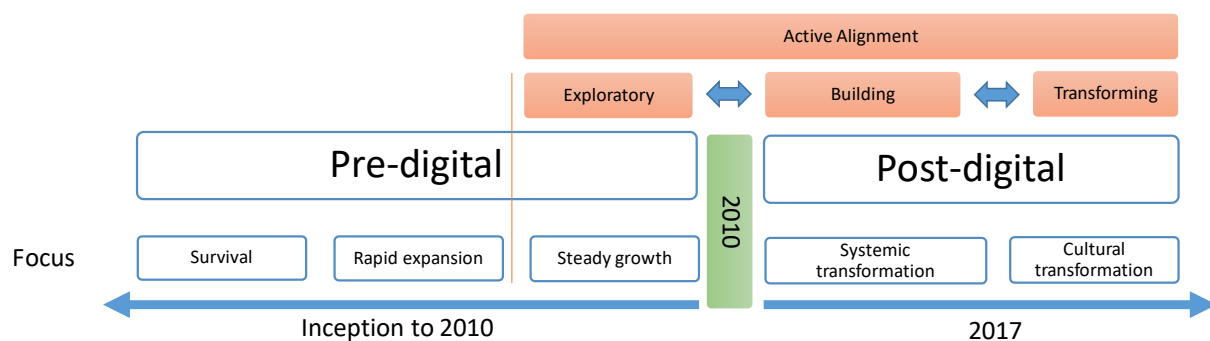


Figure 4.15: FinCo alignment process phases

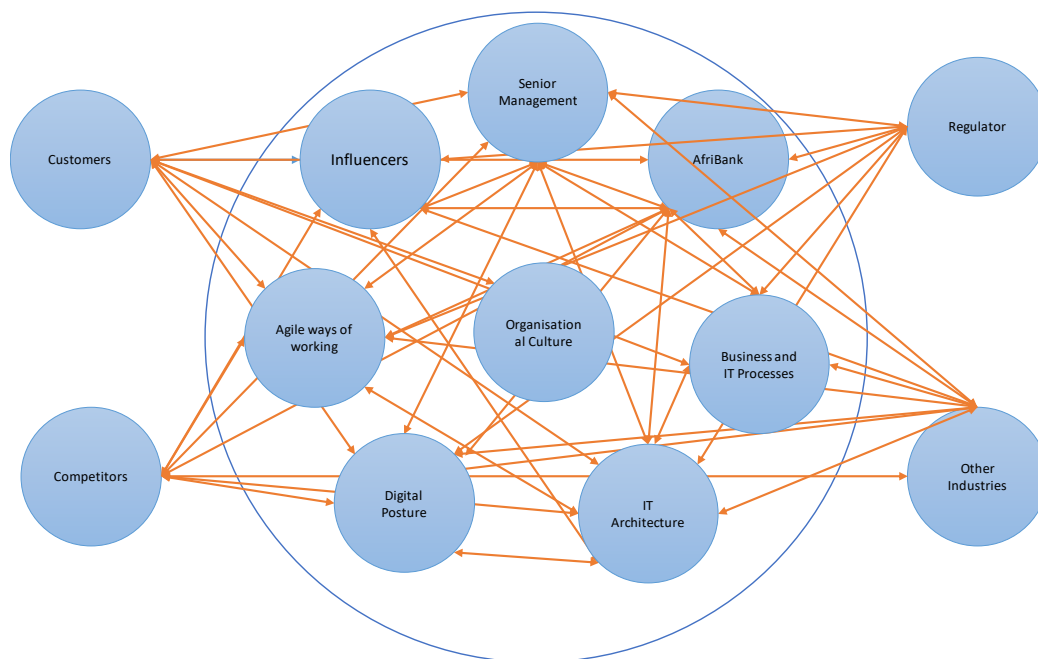
#### 4.6.5 DBS as a Complex Adaptive System (CAS)

To explore the DBS as a CAS, three themes were focused on, agents, agents' relationships and environment or context.



#### 4.6.5.1 Agents and agent relationships

If one could think of FinCo's DBS as a system, with many interconnected subsystems that interact with each other in a non-linear fashion, one could begin to understand the DBS's complexities. For instance, a third of FinCo's employees have input into what the DBS consists of. Exogenous factors, such as competitor and customer data also influence the content of DBS. So does FinCo's industry of operations, their regulator and their parent company to mention a few. The extent of the agents correlates to findings of Hinings et al (2018). This complexity is also amplified by FinCo's position on staff empowerment that encourages teams to make decisions on behalf of the whole on a daily basis. Figure 4.16 provides an overview of a few prominent subsystems of the DBS and their relationships with each other.



**Figure 4.16: DBS subsystems interactions**

Based on these interactions and the impact it has on the DBS, and in so doing the success of the organisation, FinCo has adopted the philosophy of a self-organising team. This means that decisions are made by any individual with the necessary knowledge and skills without the control of a centralised source or micromanagement.



*"We allow our teams to self-manage because our self-organising teams are extremely motivated, work hard, succeed and achieve." **The new way of working policy***

This also means that the execution of the DBS is evolving and as such FinCo created IT governance structures that allow for multiple feedback loops to promote the alignment between actions and strategic intent.

#### 4.6.5.2 Environment or context

FinCo's DBS is constraint by the contextual environment of FinCo itself. For instance, operating in a highly regulated market impacts the scope of business which in turn impacts the scope of the DBS as described in [section 4.6.1.1.4](#). The DBS is also constraint by the limitations of the agents it is reliant on. In other words, its boundaries are impacted by things such as FinCo's physical size, their state of IT infrastructure, their business process maturity, access to skills or even the mindset of the business and IT actors that create, execute and maintains it.

Since 2010, FinCo's focus was on improving IT infrastructure and transformation of the overall organisation to create the internal context that would allow a successful DBS. They have also created systems that assist them in interpreting the external context in order to adjust the DBS as an effective response plan. Figure 4.17 provides an overview of the impact on the internal and external contextual environment has on FinCo's DBS.

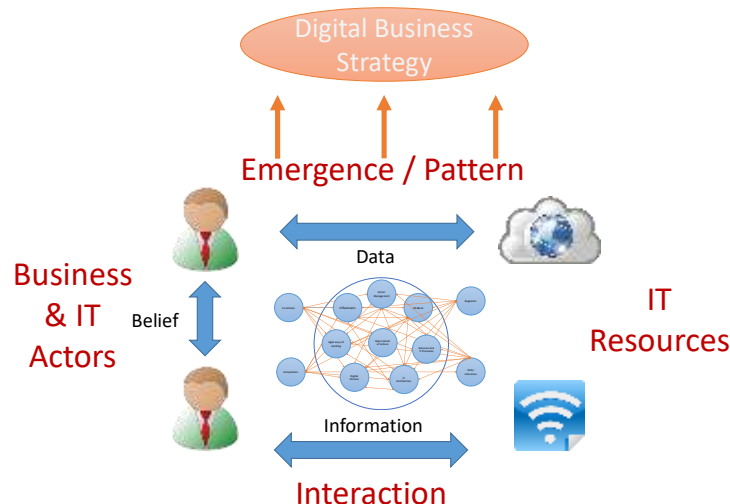


Figure 4.17: FinCo's DBS and context



Table 4.12 provides an overview of the DBS's properties as a CAS.

Property	Description	Relevance in FinCo
<b>Co-evolution</b>	The system is part of the environment and exists within their own environment. Thus, their survival is dependent on the system's adaptability to the changing environment.	The DBS is based on the rationale of the organisation, exogenous factors and the views of internal staff. Its value is in its adaptability which is informed by its environment.
<b>Connectivity</b>	The survival of the system is dependent on the connectivity between agents, as connectivity allows for feedback loops which in turn allows for adaptability.	
<b>Emergence</b>	Agents interact with each other at random, which forms emergent patterns and supports the system's adaptability.	
<b>Iteration</b>	Feedback loops occur often to allow for emergent patterns.	
<b>Requisite variety</b>	Greater diversity within the system allows for a stronger system.	The DBS is created by more than 30% of the organisation's influencers. It is also maintained, through culture, infrastructure and processes, by all staff in FinCo.
<b>Self-Organising</b>	There is no centralised control within CAS, however, there is a continuous alignment to the environment in order to respond effectively to changes.	While the CEO takes overall accountability for the DBS, FinCo subscribes to a founder's mindset where each individual takes ownership for their section of the DBS.



Property	Description	Relevance in FinCo
<b>Simple rules</b>	The function of CAS is governed by simple rules, irrespective of the variety of the emerging patterns.	FinCo favours people over processes and tools and has, therefore, philosophies and rituals they prescribe to as opposed to strict business processes. This means that the creation, maintenance and execution of the DBS is rooted in the actions of the individuals within the organisation.
<b>Sub-optimal</b>	The system does not rely on being perfect, however, concentrates on being better than its competitors to prosper in its given environment.	The DBS subscribes to the governance of continuous improvement. For example, MVP launches and willingness to fail forward.

**Table 4.12: DBS as a CAS**



## 4.7 Chapter summary

In summary, this study collected qualitative data, on the development and execution of FinCo's DBS, in the form of semi-structured interviews, informal conversations, documents, and group observations. To analyse the data, thematic analysis was applied in a deductive approach.

The main themes discussed in the findings was around DBS development and execution, and business and IT alignment from an intellectual, operational, social, and cultural perspective. FinCo's DBS is rooted in the needs and wants of their customer but is also guided by strategic moves at the hand of their competitors, and inspired by cross-industry trends and technological advances. While at least 70% of their DBS is technologically dependent, FinCo does not include IT as a distinctive competence or competitive advantage but sees IT as an enabler that makes the organisation's strategic intent possible.

Since their digitisation in 2010, the focus of their DBS has been on both operational excellence and innovation under the overarching vision of becoming Africa's number one digital financial service provider. For the first eight years of their digital transformation, the focus was on building an IT infrastructure that could support agility and flexibility required by the organisation in order to respond to changing markets. The latter part of those years also included breaking into new markets that were previously unattainable without IT. In the last eighteen months, their focus has shifted to produce IT initiatives that are focussed on improving customer experience. The transformation of FinCo was not contained to its IT function, as FinCo rolled out a new way of working that focus on building cultural alignment between business and IT in 2017.

Through the qualitative analysis, an in-depth understanding of the characteristics and the scope of the DBS could be conducted. For instance, through its exogenous influences, it is clear that a DBS is customer-centric, and through its impact on the organisation, its boundaries are organisation-wide. Due to the limitations attributed to a single case study, the researcher had to apply concurrent triangulation to support the findings. This was done through a mixed-method approach which included quantitative analysis as will be discussed in Chapter 5.



## Chapter 5

### 5. Quantitative Research Analysis and Findings

#### 5.1 Introduction

The previous chapter was aimed at gaining a deeper understanding of the DBS and its environment including its relationship to the alignment between business and IT from an intellectual, operational, social and cultural perspective. This chapter details the analysis performed on the quantitative data collected from FinCo, on intellectual and operational alignment only. While the qualitative part of this research was geared towards senior- and mid-level management, as they were in the best position to provide context around the DBS, the quantitative part was focused on how business and IT actors across multiple levels of the hierarchy experience alignment. The qualitative analysis includes how the intellectual and operational alignment perspectives are impacting the organisation's performance through an assortment of alignment approaches.

The quantitative data was collected over an eleven-month period. The initial data collection stretched over nine months with only nine valid questionnaires received. The researcher enhanced the questionnaire and as a result, had to discard the initial data. The repeat of the data collection was performed over a two-month period. In the sections that follow, the data collection and analysis process, demographics of questionnaire respondents, data reliability and results will be displayed. Figure 5.1 provides an overview of Chapter 5.

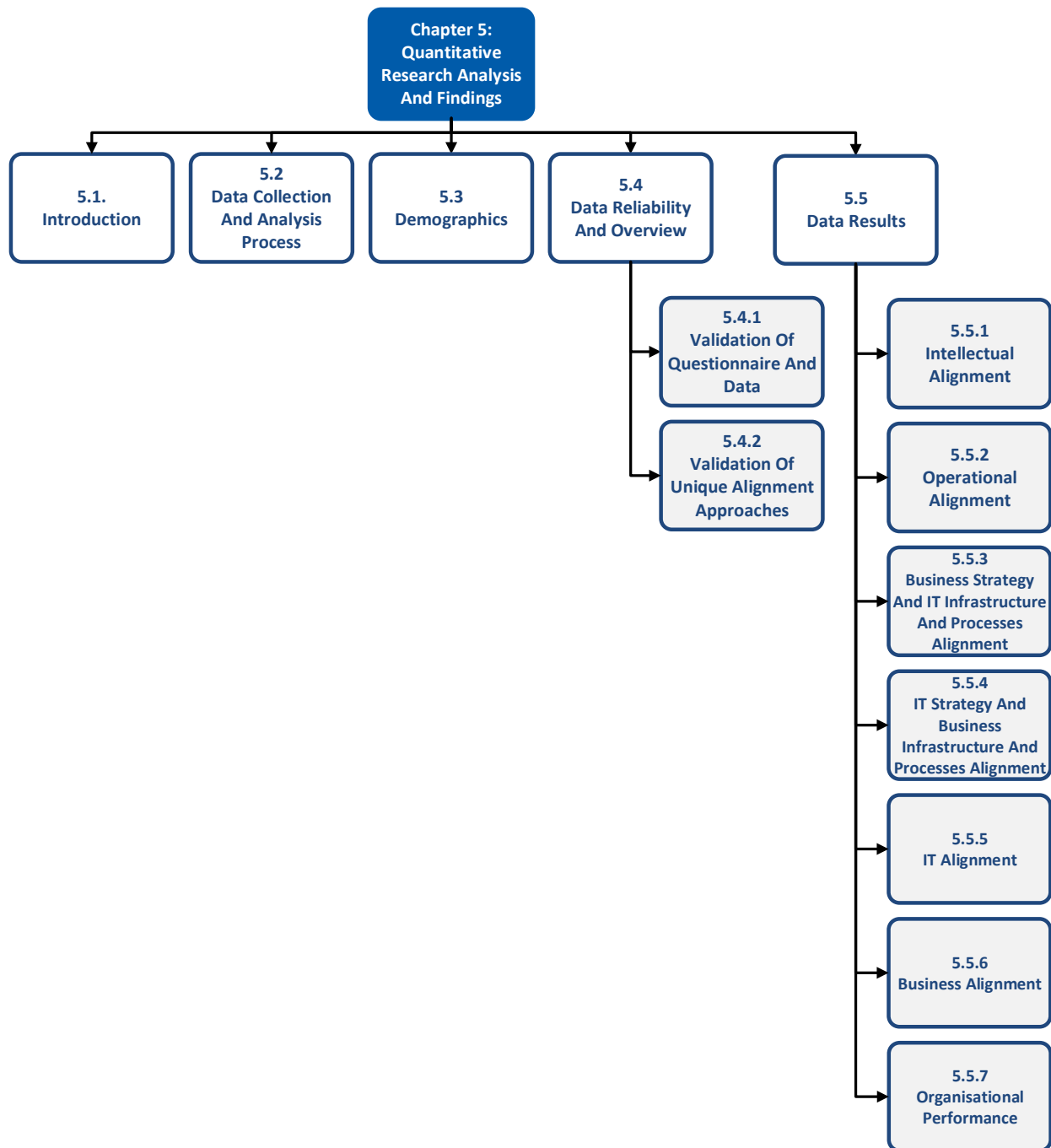


Figure 5.1: Chapter 5 overview



## 5.2 Data collection and analysis process

Similar to the identification of the interview participants, a senior management representative from FinCo, identified persons who were in a position to complete the questionnaire based on the topic of investigation. Before the questionnaire was administered, the researcher had an opportunity to address prospective participants on the purpose of the research. The questionnaire was distributed to and collected from participants via Qualtrics, an online survey tool. The target population was 41 participants across senior-, mid-level-, junior-, and non-management participants.

### 5.2.1 Questionnaire response rate and data cleaning

Of the 41 prospective participants, 29 (71%) submitted valid questionnaires. The validity of the questionnaires was determined by first scanning the questionnaires for missing data. While the questionnaire was created in such a way that respondents could not submit incomplete questionnaires, Qualtrics automatically recorded any partially completed questionnaires, thirty days after the respondent last accessed the questionnaire. As a result, the researcher screened the questionnaires for missing data and excluded partially completed questionnaires. Other records that were excluded were questionnaires completed by unengaged respondents. Unengaged respondents were respondents who answered the same answer (e.g. 3) for every question. The data was also screened for outliers and none was found.

Considering the size of the prospective participant pool and the free will of the prospective participants, the researcher could not achieve a higher response rate as those who did not submit completed questionnaires explicitly advised that they choose not to participate in the study. Each validated questionnaire was authorised by the participant signing a consent form. The questionnaire consisted of seven main parts excluding demographic information. First, respondents were asked to describe the alignment between business and IT strategy (8 items). Second, respondents had to indicate the level of alignment between business infrastructure and processes, and IT infrastructure and processes (6 items). Third, respondents were asked to provide information on the alignment between business strategy and IT infrastructure and process (6 items). Thereafter, respondents had to advise the level of alignment between IT strategy and business infrastructure and process (6 items). Then, respondents were asked on the alignment between IT strategy and IT infrastructure and processes (6 items). Respondents were asked about the alignment between business strategy and business infrastructure and process next (6 items). Last, respondents had to provide data on organisational performance (8 Items).



The questionnaire was electronically completed by the respondent in Qualtrics and the responses were later exported to SPSS 25 and RStudio by the researcher for data analysis. The full questionnaire is available in [Appendix C](#). Only closed-ended questions were asked, and predefined response options were based on a Likert scale. The options for answers were as tabulated in Table 5.1.

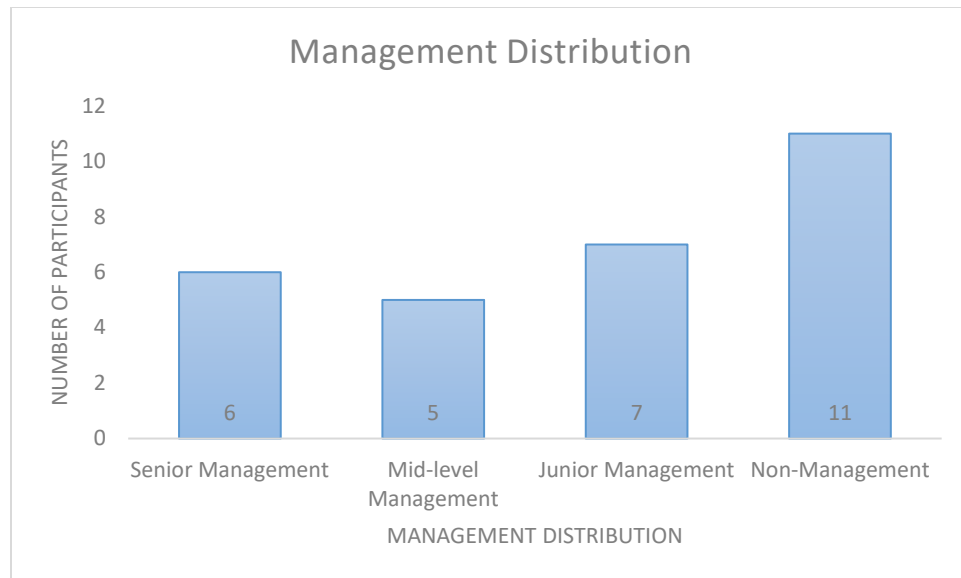
Question Group	Likert scale used
Business and IT alignment (all 6 approaches)	1. Strongly disagree 2. Disagree 3. Not sure 4. Agree 5. Strongly agree
Organisational Performance	1. Very Low 2. Low 3. Not Sure 4. High 5. Very High

**Table 5.1: Likert scale for closed-ended questions**

To provide an overview of the respondents who completed valid questionnaires, the section that follows will depict their demographic information.

### 5.3 Demographics

This section details the demographic information of the questionnaire respondents in terms of management position, strategy development and IT investment involvement. Figure 5.2 provides an overview of the respondents' hierarchical position.



**Figure 5.2: Questionnaire respondent management distribution**

Tables 5.2 and 5.3 provide an analysis of the respondent's involvement in setting the organisational strategic direction and IT investments decision making respectively.

Management Level	Direct Organisational Strategic Direction Involvement				Combined N=29	
	Yes		No			
	n	%	n	%	n	%
Senior Management	6	21%	-	-	6	21%
Mid-level Management	2	7%	3	10%	5	17%
Junior Management	-	-	7	24%	7	24%
Non-Management	1	3%	10	34%	11	38%

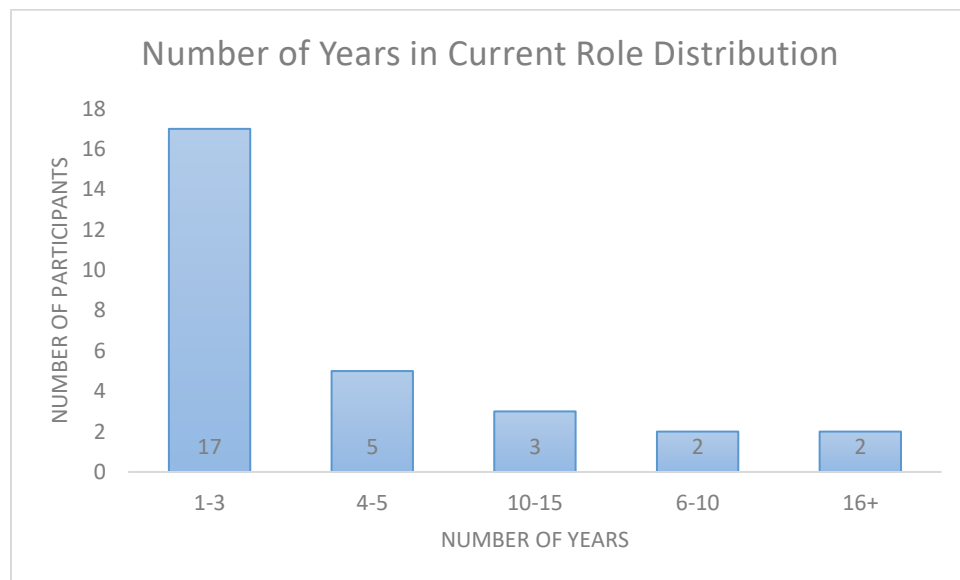
**Table 5.2: Questionnaire respondent involvement in setting organisational strategic direction**



Management Level	Direct IT investment involvement				Combined N=29	
	Yes		No			
	n	%	n	%	n	%
Senior Management	4	14%	2	7%	6	21%
Mid-level Management	3	10%	2	7%	5	17%
Junior Management	3	10%	4	14%	7	24%
Non-Management	1	3%	10	34%	11	38%

**Table 5.3: Questionnaire respondent involvement in IT investment**

Similar to the interviews and informal conversations, a number of questions that were asked of the interview participants focussed on the organisation's performance and process evolution over the years. As a result, demographic information about how long each participant have been in their current or similar role in the host organisation was collected and can be seen in Figure 5.3.



**Figure 5.3: Questionnaire respondent number of years in the current role in the organisation**



To gain a more holistic view of the interview participants' insights on strategy and its set of activities, demographic information about the number of years throughout their career they have been involved in their current or similar roles, including experiences outside of the host company, have been collected and can be seen in Figure 5.4.

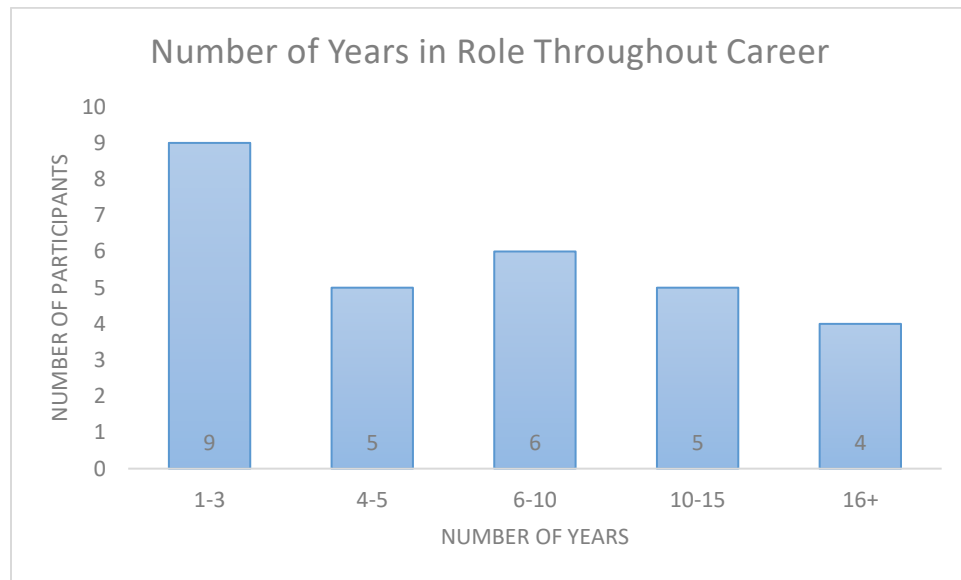


Figure 5.4: Questionnaire respondent number of years in a similar role during their career

## 5.4 Data reliability and overview

### 5.4.1 Validation of questionnaire and data

To ensure the accuracy of the assessment between business and IT alignment, the reliability of the research instrument, namely the questionnaire must be assessed (Tavakol & Dennick, 2011). A Cronbach's alpha test was performed to assess the reliability of the data collected. Cronbach's alpha can be used to test the internal consistency and correlations of items within a quantitative research instrument and it takes into consideration the number of items within the research instrument (Namdeo & Rout, 2016; Tavakol & Dennick, 2011). The threshold for Cronbach's alpha is no less than 0.7 (Forza, 2002).

Two types of reliability tests were performed on the research instrument, namely, a split-half analysis, and reliability item analysis. The split-half analysis is commonly used for data reliability assurance and



tests the reliability of one half of the questionnaire to the other half (Fairchild, 2002). The Cronbach's alpha on the reliability item analysis shows the reliability of each item as a stand-alone item.

As shown in Table 5.4, the split-half analysis test shows that the data is reliable, as the Cronbach alpha is within the acceptable levels at 0.797. It also highlights that the alpha value on both summaries is within the acceptable level at 0.947 and 0.943 respectively.

Case Processing Summary			
		N	%
Cases	Valid	29	100.0
	Excluded	0	.0
	Total	29	100.0
Cronbach's Alpha	Part 1	Value	.947
		N of Items	23a
	Part 2	Value	.943
		N of Items	23b
	Total N of Items		46
Correlation Between Forms			.797
Spearman-Brown Coefficient	Equal Length		.887
	Unequal Length		.887
Guttman split-half Coefficient			.886
a. The items are: IA1, IA2, IA3, IA4, IA5, IA6, IA7, IA8, OA1, OA2, OA3, OA4, OA5, OA6, CA1, CA2, CA3, CA4, CA5, CA6, CAb1, CAb2, CAb3.			
b. The items are: CAb4, CAb5, CAb6, ITA1, ITA2, ITA3, ITA4, ITA5, ITA6, BA1, BA2, BA3, BA4, BA5, BA6, PERF1, PERF2, PERF3, PERF4, PERF5, PERF6, PERF7, PERF8.			

**Table 5.4: Data Reliability: Split Half Analysis**

Similarly, the reliability and item analysis show that each group of questions in the questionnaire is reliable as the value is within the acceptable level as summarised in table 5.5. The detailed test results per question group are shown in Table 5.6 through Table 5.12.



Question Group	Cronbach's alpha
Intellectual alignment (business and IT strategy)	0,872
Operational alignment (business and IT infrastructure and processes)	0,857
Cross-domain alignment (business strategy and IT infrastructure and processes)	0,914
Cross-domain alignment (IT strategy and business infrastructure and processes)	0,866
Cross-domain IT alignment (IT strategy and IT infrastructure and processes)	0,904
Cross-domain business alignment (business strategy and business infrastructure and processes)	0,937
Organisational performance	0,918

**Table 5.5: Summarised reliability and item analysis**

Reliability Statistics (Intellectual Alignment)				
Cronbach's Alpha				N of Items
.872				8
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
IA1	27.21	17.670	.452	.873
IA2	27.03	16.249	.595	.860
IA3	27.79	14.170	.599	.873
IA4	27.17	16.362	.807	.842
IA5	27.07	17.209	.593	.860
IA6	27.10	16.453	.710	.849
IA7	27.24	16.261	.759	.845
IA8	27.34	15.591	.708	.847

**Table 5.6: Item reliability - Intellectual Alignment**



Reliability Statistics (Operational Alignment)				
Cronbach's Alpha				N of Items
.857				6
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
OA1	18.38	8.530	.841	.792
OA2	18.03	11.249	.617	.840
OA3	18.41	10.608	.417	.890
OA4	18.00	12.500	.537	.857
OA5	18.34	9.948	.817	.803
OA6	18.31	9.722	.816	.801

**Table 5.7: Item reliability - Operational alignment**

Reliability Statistics (Cross Domain Alignment - Business Strategy and IT Infrastructure and Processes)				
Cronbach's Alpha				N of Items
.914				6
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CA1	18.90	13.025	.799	.894
CA2	19.03	12.534	.718	.905
CA3	19.21	11.599	.768	.901
CA4	18.93	14.424	.598	.919
CA5	19.00	12.143	.858	.884
CA6	19.07	12.281	.853	.885

**Table 5.8: Item reliability - cross-domain alignment A**

Reliability Statistics (Cross Domain Alignment – IT Strategy and Business Infrastructure and Processes)				
Cronbach's Alpha				N of Items
.866				6
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAb1	18.03	12.963	.544	.862
CAb2	18.10	12.810	.593	.855
CAb3	18.41	11.251	.653	.847
CAb4	18.14	11.695	.759	.827



	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CAb5	18.28	11.135	.751	.826
CAb6	18.34	11.877	.688	.839

**Table 5.9: Item reliability - cross-domain alignment B**

Reliability Statistics (IT Alignment)				
Cronbach's Alpha				N of Items
.904				6
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ITA1	18.76	15.047	.615	.904
ITA2	18.72	15.350	.576	.909
ITA3	18.79	13.027	.827	.872
ITA4	18.79	14.956	.662	.897
ITA5	18.86	12.909	.871	.865
ITA6	18.83	13.219	.870	.866

**Table 5.10: Item reliability - IT alignment**

Reliability Statistics (Business Alignment)				
Cronbach's Alpha				N of Items
.937				6
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
BA1	18.28	13.635	.797	.928
BA2	18.69	13.936	.666	.946
BA3	18.41	13.680	.830	.923
BA4	18.31	14.650	.808	.928
BA5	18.52	13.544	.884	.917
BA6	18.48	13.044	.933	.910

**Table 5.11: Item reliability - business alignment**



Reliability Statistics (Organisational Performance)				
Cronbach's Alpha				N of Items
.918				8
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PERF1	22.90	10.953	.759	.905
PERF2	22.93	10.567	.671	.916
PERF3	22.72	10.850	.889	.895
PERF4	22.79	10.527	.678	.916
PERF5	22.72	11.850	.694	.911
PERF6	22.90	11.453	.830	.902
PERF7	22.90	11.310	.752	.906
PERF8	22.86	12.052	.731	.910

**Table 5.12: Item reliability - Organisational performance**

To give assurance that only valid responses have been taken into consideration when the analysis was done, descriptive statistics were run to ensure that responses are within the parameters as set by the Likert scale as indicated in [Table 5.1](#). In addition to providing assurance, the descriptive statistics will also assist in making sense of the data set as it gives an overview of the mean, minimum, maximum and standard deviations of the responses. The results of the descriptive statistics can be seen in Table 5.13.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
IA1	29	2	5	3.93	.704
IA2	29	2	5	4.10	.817
IA3	29	1	5	3.34	1.173
IA4	29	2	5	3.97	.626
IA5	29	3	5	4.07	.651
IA6	29	2	5	4.03	.680
IA7	29	2	5	3.90	.673
IA8	29	2	5	3.79	.819
OA1	29	1	5	3.52	1.022
OA2	29	2	5	3.86	.693
OA3	29	1	5	3.48	1.056
OA4	29	3	5	3.90	.489



Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
OA5	29	2	5	3.55	.783
OA6	29	2	5	3.59	.825
CA1	29	2	5	3.93	.753
CA2	29	2	5	3.79	.902
CA3	29	2	5	3.62	1.015
CA4	29	2	5	3.90	.673
CA5	29	2	5	3.83	.848
CA6	29	2	5	3.76	.830
CAb1	29	2	5	3.83	.805
CAb2	29	2	5	3.76	.786
CAb3	29	1	5	3.45	1.021
CAb4	29	2	5	3.72	.841
CAb5	29	2	5	3.59	.946
CAb6	29	2	5	3.52	.871
ITA1	29	2	5	3.79	.861
ITA2	29	2	5	3.83	.848
ITA3	29	1	5	3.76	.988
ITA4	29	2	5	3.76	.830
ITA5	29	1	5	3.69	.967
ITA6	29	1	5	3.72	.922
BA1	29	2	5	3.86	.875
BA2	29	2	5	3.45	.948
BA3	29	2	5	3.72	.841
BA4	29	2	5	3.83	.711
BA5	29	2	5	3.62	.820
BA6	29	2	5	3.66	.857
PERF1	29	2	5	3.21	.620
PERF2	29	2	5	3.17	.759
PERF3	29	3	5	3.38	.561
PERF4	29	1	5	3.31	.761
PERF5	29	3	4	3.38	.494
PERF6	29	2	4	3.21	.491
PERF7	29	2	5	3.21	.559
PERF8	29	3	4	3.24	.435



Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Valid N (listwise)	29				

Table 5.13: Descriptive statistics

## 5.4.2 Validation of unique alignment approaches

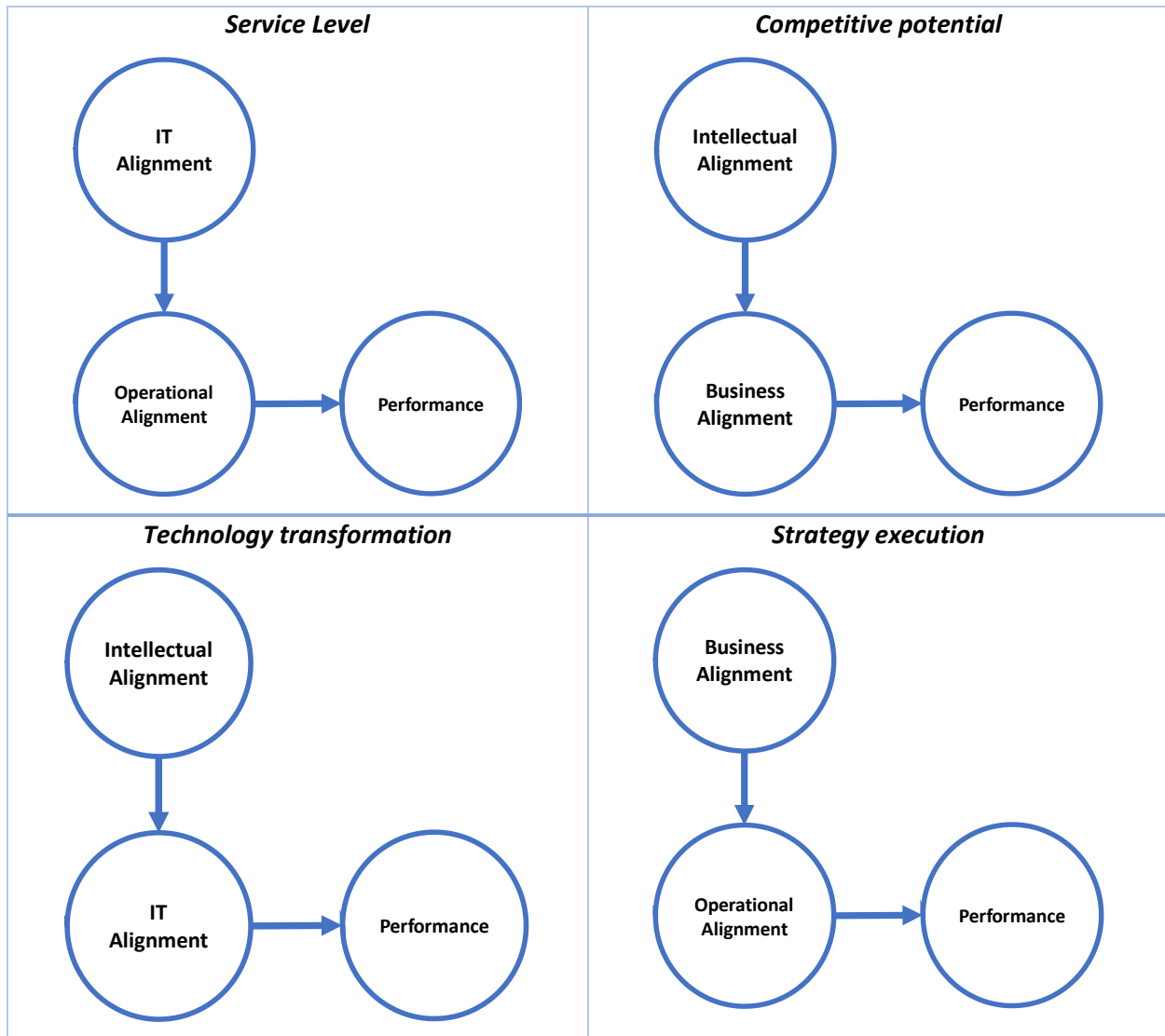
As described in [section 2.3.1.1](#), to enhance the understanding of the alignment between business strategy, IT strategy, business infrastructure and processes, and IT infrastructure and processes, combinations between cross-domain elements must be tested in unique ways. These unique combinations are service level, competitive potential, technology transformation and strategy execution (Gerow et al., 2015). To test these, in the case of FinCo, a Structural Equation Model (SEM) approach was taken. This approach is appropriate for understanding the relationships amongst multiple dependent and independent constructs (Chin, 1998). As can be seen from [Figure 5.5](#), this technique was necessary as the dependent variable 'performance' is impacted by two constructs per unique alignment approach.

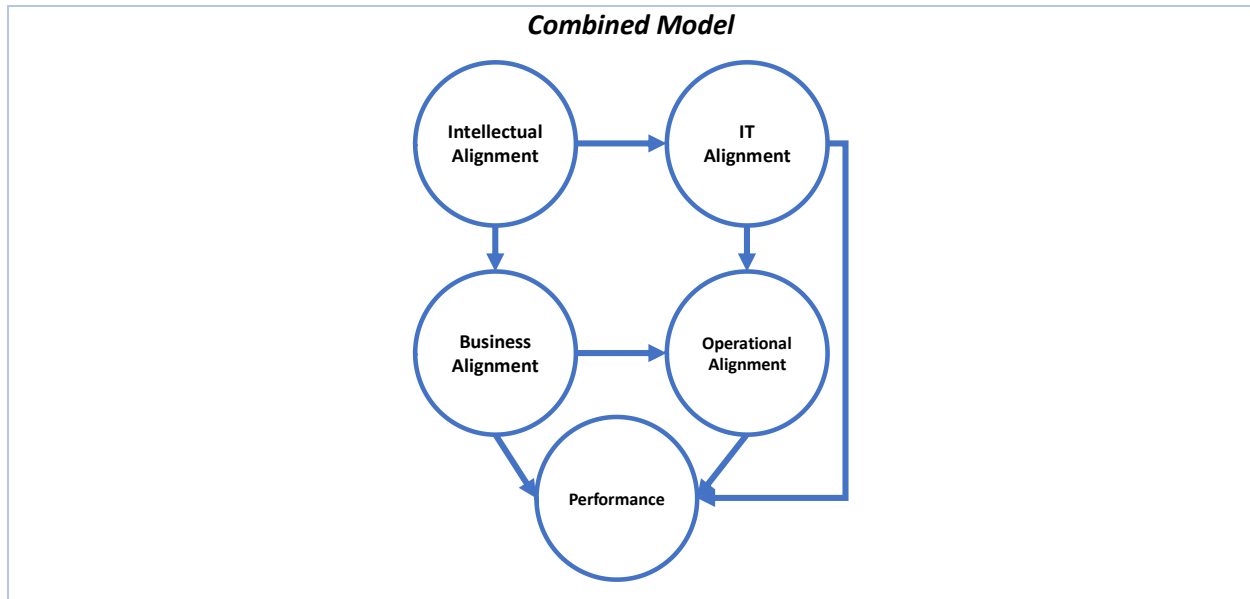
Considering the sample size of this study and the number of items per construct, the Partial Least Squares (PLS) technique variation of SEM was used as it has many advantages. These advantages include PLS can be used with small sample sizes, normality of data is not a prerequisite, and the number of items per construct can be high (Roky & Al Meriouh, 2015). In addition, PLS is also becoming more popular in the Information Systems (IS) field, especially in strategic management (Urbach & Ahlemann, 2010), as the social sciences field often have to find relationships between latent variables (LV) such as satisfaction or success for example (Sanchez, 2013). Bearing in mind that the constructs in alignment are LVs that cannot be directly measured, the PLS variation of SEM was most appropriate.

The service level, competitive potential, technology transformation and strategy execution approaches to alignment are tested using models as summarised in Figure 5.5. Since FinCo and its DBS exists as a Complex Adaptive System (CAS), where changes in one area may lead to unexpected and unforeseen effects on the overall behaviour of the system, and vice versa (Chan, 2001), the validity of the interconnectivity between constructs were tested as one interconnected model. In addition, this also assisted in ensuring that shared items between the different approaches to alignment met the criteria for consistency, reliability and



validity in all the models. For example, both service level and technology transformation share the construct IT alignment. As such, should an item in IT alignment not meet the criteria the item should be deleted for both service level and technology transformation. The combined model is depicted in Figure 5.5. A number of assessments had to be performed to ensure the validity and consistency of the unique models and combined model, namely internal consistency reliability, indicator/item reliability, convergent reliability, and discriminant validity.





**Figure 5.5: Summary of alignment approaches impact on organisational performance**

As demonstrated in Figure 5.5, business alignment, intellectual alignment, IT alignment, operational alignment and performance are the focus constructs for testing the effect of different approaches to alignment on performance. As a result, the model validations, as per [sections 5.4.2.1](#) through [section 5.4.2.4](#), were performed on those constructs only.

#### **5.4.2.1 Internal model consistency**

The assessment of unidimensionality of the models, which indicates the model's internal consistency, was performed by calculating Dillon-Goldstein's rho, and the first eigenvalue of the indicators' correlation matrix. The acceptable levels for Dillon-Goldstein's rho are 0.7 or greater and the first eigenvalue should be much greater than 1 and the second eigenvalue should be smaller than 1 (Sanchez, 2013). Table 5.14 shows the internal consistency of the measures of the LVs.



Construct	Code	Indictors	Cronbach's alpha	DG.rho	eig.1st	eig.2nd
Intellectual alignment	IA	5	0.886	0.918	3.47	0.685
Business Alignment	BA	6	0.940	0.953	4.64	0.577
IT alignment	ITA	5	0.907	0.932	3.67	0.635
Operational Alignment	OA	4	0.861	0.910	2.89	0.799
Performance	Perf	6	0.921	0.938	4.30	0.785

**Table 5.14: Internal consistency reliability measures of the LVs**

As noted by Table 5.14, Dillon-Goldstein's rho ranges from 0.910 to 0.953 and the first eigenvalue ranges from 2.89 to 4.64. These results indicate good internal consistency reliability as per the criteria discussed earlier.

#### 5.4.2.2 Model item reliability

To ensure indicator/item reliability, the outer loadings of each construct must have composite reliability (CR) of 0.7 or greater (Henseler, Ringle, & Sinkovics, 2009; Sanchez, 2013). While Cronbach's alpha is generally used for item reliability, in the context of the PLS approach to SEM a more suitable reliability test is CR (Urbach & Ahlemann, 2010). The benefits of using CR is twofold. One, as opposed to Cronbach's alpha, CR is consistent with the working principle of the PLS approach to SEM in that it does not assume each item is equal in the population. Two, due to Cronbach's alpha sensitivity to the number of items per construct it tends to underestimate the internal reliability, where CR does not (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). Table 5.15 shows which items have been removed from their corresponding constructs based on their outer loading values not meeting the criteria of being equal to or greater than 0.7. This means that the respondents feel that the remaining items within the construct measure the construct better. The removed items enhanced the overall internal consistency reliability of the models as can be observed in [Appendix K](#).

Construct	Initial # Items	Final # Items	Item(s) removed	Item description	Outer loading
IA	8	5	IA1	Our IT strategy and business strategy match each other.	<b>0.531</b>
			IA2	We adapt our IT strategy to business strategic change.	<b>0.619</b>



Construct	Initial # Items	Final # Items	Item(s) removed	Item description	Outer loading
			IA5	We assess the strategic importance of emerging technologies.	<b>0.674</b>
<b>ITA</b>	6	5	ITA2	We adapt our IT strategy to our internal IT processes.	<b>0.673</b>
<b>OA</b>	6	4	OA2	We adapt our IT processes to our business processes.	<b>0.669</b>
			OA4	We identify the fit between our IT infrastructure and our business infrastructure.	<b>0.588</b>
<b>Perf</b>	8	6	Perf1	Our executive team's satisfaction with the return on sales is...	<b>0.638</b>
			Perf2	Our executive team's satisfaction with the sales growth rate is...	<b>0.601</b>

**Table 5.15: Removed Items from corresponding constructs**

As shown in Table 5.15, eight items did not meet the criteria and were subsequently removed from the corresponding constructs. Three items from intellectual alignment were removed, IA1, IA2 and IA5 with outer loadings of 0.531, 0.619 and 0.674 respectively. For this, it can be surmised that the respondents found that the remaining five elements such as IA4 *'Our IT strategy aligns without business strategic plan'* and IA8 *'Our IT strategies and business strategies correspond to each other'* measures the integration between business and IT at a strategic level more accurately. The second construct that was amended was IT alignment from which ITA2, with an outer loading of 0.673, was removed. This means that respondents found ITA1 *'Our IT processes support our IT strategy'* and ITA3 *'Our IT strategy and internal IT processes match each other'* measured the alignment between IT strategy and IT processes more accurately. The construct operational alignment was also amended with two items, OA2 and OA4 being removed. OA2 had an outer loading of 0.669 and OA4 had an outer loading of 0.588. These items were related to the alignment between business and IT processes and business and IT infrastructures. This meant that respondents found that the remaining four items such as OA1 *'Our IT processes match our business processes'* and OA6 *'Our IT infrastructure aligns with our business infrastructure'* explained the alignment between business and IT infrastructure and business and IT processes more accurately. Perf1 and Perf2, which are both related to sales, has been removed from the performance construct. These items had out loadings of 0.638 and 0.601 respectively. From this, it can be deduced that the respondents find that other items such as Perf4, *'The return on corporate investment position relative to our principle*



*competitors is*, describes how FinCo measures performance more relevant than through ‘sales.’ This does not mean that ‘sales’ or the removed items do not matter. It simply means that the other items weigh more according to the respondents.

It is important to note that, the impact of different alignment approaches on performance is a subset of this project. As such, any item that has been removed from a construct during the model validation in this section will only be removed when discussing the effect of alignment on performance which will be discussed in [section 5.5.7](#). In other words, when discussing intellectual, operational, cross-domain, IT and business alignment, as per [section 5.5.1](#), through [section 5.5.6](#), the responses to all the original items per construct will be discussed as they were found reliable and valid as per [section 5.4.1](#).

### 5.4.2.3 Convergent validity

The convergent validity is shown by the average variance extracted (AVE) (Sanchez, 2013), which should be greater than 0.5 (Chin, 1998; Roky & Al Meriouh, 2015; Sanchez, 2013). Table 5.16 shows the AVE for each construct post item removal. As can be seen in Table 5.16, AVE value is at acceptable levels.

Construct	Code	AVE
Intellectual alignment	IA	0.661
Business Alignment	BA	0.772
IT alignment	ITA	0.733
Operational Alignment	OA	0.696
Performance	Perf	0.698

Table 5.16: Convergent validity results

### 5.4.2.4 Discriminant validity

Discriminant validity is concerned with testing if the items in the construct differ sufficiently from items in other constructs (Urbach & Ahlemann, 2010). Two tests were done to evaluate the discriminant validity. The first test was done by confirming that each item loads higher on its theoretical construct than on others (Roky & Al Meriouh, 2015; Sanchez, 2013). Table 5.17 demonstrates that each item loads highest on its assigned construct and is therefore sufficiently distinguished from other constructs. The full iterations of factor loadings are available in [Appendix J](#).



Item / Construct	IA	BA	ITA	OA	Perf
IA3	<b>0.805</b>	0.459	0.430	0.453	0.5166
IA4	<b>0.781</b>	0.506	0.435	0.320	0.4370
IA6	<b>0.786</b>	0.517	0.383	0.591	0.4164
IA7	<b>0.834</b>	0.532	0.403	0.632	0.5998
IA8	<b>0.856</b>	0.671	0.627	0.673	0.5089
BA1	0.502	<b>0.860</b>	0.598	0.501	0.4690
BA2	0.549	<b>0.778</b>	0.480	0.464	0.3540
BA3	0.642	<b>0.886</b>	0.666	0.513	0.3827
BA4	0.538	<b>0.851</b>	0.560	0.496	0.4699
BA5	0.616	<b>0.926</b>	0.713	0.680	0.4595
BA6	0.604	<b>0.959</b>	0.634	0.591	0.4508
ITA1	0.390	0.378	<b>0.731</b>	0.644	0.2015
ITA3	0.546	0.648	<b>0.899</b>	0.476	0.2631
ITA4	0.593	0.628	<b>0.805</b>	0.655	0.4094
ITA5	0.446	0.648	<b>0.915</b>	0.582	0.0974
ITA6	0.467	0.635	<b>0.915</b>	0.564	0.0785
OA1	0.439	0.444	0.618	<b>0.899</b>	0.1760
OA3	0.637	0.538	0.469	<b>0.738</b>	0.4312
OA5	0.447	0.475	0.556	<b>0.836</b>	0.2025
OA6	0.590	0.579	0.627	<b>0.855</b>	0.2910
Perf3	0.381	0.364	0.206	0.178	<b>0.8709</b>
Perf4	0.611	0.409	0.189	0.448	<b>0.9275</b>
Perf5	0.623	0.610	0.327	0.335	<b>0.8567</b>
Perf6	0.418	0.318	0.193	0.181	<b>0.7758</b>
Perf7	0.343	0.179	0.147	0.133	<b>0.7404</b>
Perf8	0.565	0.501	0.244	0.212	<b>0.8277</b>

**Table 5.17: Cross loadings discriminant validity**

The second test was done by comparing the square root of AVE for a construct against the correlation of the same construct with other constructs. If the square root of AVE is greater than the correlation to other constructs, there is sufficient distinction between constructs (Chin, 1998). Table 5.18 shows that the square root of AVE per construct, which is in bold diagonally, is greater than the cross-factor correlations, which are off diagonally.



Construct	Code	AVE	IA	BA	ITA	OA	Perf
Intellectual Alignment	IA	0.661	<b>0.813</b>				
Business Alignment	BA	0.772	0.657	<b>0.879</b>			
IT Alignment	ITA	0.733	0.579	0.695	<b>0.856</b>		
Operational Alignment	OA	0.696	0.657	0.620	0.678	<b>0.834</b>	
Performance	Perf	0.698	0.617	0.488	0.255	0.356	<b>0.835</b>

Table 5.18: Construct correlation matrix

## 5.5 Data results

The final stage of quantitative analysis is for data to be interpreted with the aim of contributing to knowledge. The findings of this study were based on a single case study and will be detailed in the following sections.

### 5.5.1 Intellectual alignment

Table 5.19 details all responses and highlights the most frequent response regarding intellectual alignment (business and IT strategy).

ID	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Most frequent response	%
IA1	Our IT strategy and business strategy match each other.	-	(2) 6.90%	(2) 6.90%	(21) 72.41%	(4) 13.79%	Agree	72.41%
IA2	We adapt our IT strategy to business strategic change.	-	(2) 6.90%	(2) 6.90%	(16) 55.17%	(9) 31.03%	Agree	55.17%
IA3	We adapt our business strategy with IT strategic change.	(1) 3.45%	(8) 27.59%	(5) 17.24%	(10) 34.48%	(5) 17.24%	Agree	34.48%
IA4	We assess the strategic importance of emerging technologies.	-	(1) 3.45%	(3) 10.34%	(21) 72.41%	(4) 13.79%	Agree	72.41%
IA5	We identify the fit between our IT-related strategic opportunities and our business' strategic direction.	-	-	(5) 17.24%	(17) 58.62%	(7) 24.14%	Agree	58.62%
IA6	We adapt our IT goals and objectives to our business goals and objectives.	-	(1) 3.45%	(3) 10.34%	(19) 65.52%	(6) 20.69%	Agree	65.52%
IA7	We adapt our business goals and objectives to our IT goals and objectives.	-	(1) 3.45%	(5) 17.24%	(19) 65.52%	(4) 13.79%	Agree	65.52%
IA8	We use IT as our business strategy for competitive advantage.	-	(3) 10.34%	(4) 13.79%	(18) 62.07%	(4) 13.79%	Agree	62.07%

Table 5.19: Responses – intellectual alignment



A number of observations can be made by looking at Table 5.19 regarding the alignment between business and IT at a strategic level. For all statements, IA1 to IA8, the most frequent responses are 'Agree' (4 on the Likert scale). This suggests that overall FinCo's staff believes that there is alignment between business and IT strategy. When looking at both Table 5.19 and [Table 5.13](#), three statements namely IA3, IA2 and IA8, provides interesting insights.

First, statement IA3, with a standard deviation of 1.173 suggests that there are contradicting views on whether FinCo adapts their business strategy with IT strategic change. Based on IA1 with responses of 72.41% 'Agree' and 13.79% 'Strongly Agree', FinCo's business and IT strategy match each other. However, almost half of the respondents do not attribute this matching to the business strategy being the one that is changing (IA3). Linking this to the second statement of interest, IA2, with a mean of 4.10, IT strategy is amended based on business strategy. Based on this it looks like there is still a portion of the organisation that believes that the bigger contributor to business and IT strategy matching is that IT strategy conforms to business strategy. Favourable results for IT strategy adapting to the business strategy can also be seen in statements IA5 and IA6 with a mean of 4.07 and 4.03 respectively. Despite this belief, 65.52% of respondents agreed and 13.79% strongly agreed that business goals and objectives are adapting to IT goals and objectives (IA7). Which overall suggests that IT strategy influences business strategy and vice versa, which is in line with the findings of Tallon, Queiroz, Coltman and Sharma (2016). This also correlates to the qualitative findings. Third, IA8 with a standard deviation of 0.819, also shows there is some reservation about IT being a competitive advantage in FinCo. On the other hand, 72.41% of respondents agreed and 13.79% strongly agreed that the strategic importance of emerging technologies is assessed. This suggests that IT is an enabler for the business strategy which is in support of the qualitative data findings.

By examining these results, it is clear that while FinCo has created a DBS, this amalgamation of business and IT strategy does not automatically result in perfectly aligned intellectual alignment. This is consistent with the extant literature that suggests believing in automatic alignment through having a DBS is short-sighted.

Hypothesis	Description	Result
H <sup>1</sup>	Merging business and IT strategy into a DBS <i>does not</i> automatically result in perfect intellectual alignment	Supported

**Table 5.20: Intellectual alignment hypothesis testing results**



## 5.5.2 Operational alignment

Table 5.21 details all responses and highlights the most frequent response regarding operational alignment (business and IT infrastructure and processes alignment).

ID	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Most frequent response	%
OA1	Our IT processes match our business processes.	(1) 3.45%	(5) 17.24%	(4) 13.79%	(16) 55.17%	(3) 10.34%	Agree	55.17%
OA2	We adapt our IT processes to our business processes.	-	(2) 6.90%	(3) 10.34%	(21) 72.41%	(3) 10.34%	Agree	72.41%
OA3	We adapt our business processes to our IT processes.	(1) 3.45%	(5) 17.24%	(6) 20.69%	(13) 44.83%	(4) 13.79%	Agree	44.83%
OA4	We identify the fit between our IT infrastructure and our business infrastructure.	-	-	(5) 17.24%	(22) 75.86%	(2) 6.90%	Agree	75.86%
OA5	Our IT infrastructure corresponds to our business infrastructure	-	(3) 10.34%	(9) 31.03%	(15) 51.72%	(2) 6.90%	Agree	51.72%
OA6	Our IT infrastructure aligns with our business infrastructure.	-	(4) 13.79%	(6) 20.69%	(17) 58.62%	(2) 6.90%	Agree	58.62%

**Table 5.21: Responses – operational alignment**

As can be seen in Table 5.21, for all statements, OA1 to OA6, the most frequent responses are 'Agree' (4 on the Likert scale). This suggests that the majority of the respondents believes that business and IT infrastructure and processes are aligned with each other in FinCo. To deconstruct these results, the first focus will be on business and IT process integration as represented by statements OA1 to OA3. By looking at both Table 5.21 and [Table 5.13](#), statement OA1, with a standard deviation of 1.022 shows that there is a divide between the respondents in whether FinCo's IT processes match their business processes. An even bigger divide between the respondents is statement AO3, with a standard deviation of 1.056 and 17.24% of respondents disagreeing and 3.45% strongly disagreeing, which shows that 20.69% of respondents feel that FinCo is not adapting their business processes to IT processes. However, the respondents do feel that IT processes adapt to business processes in statement OA2, with 72.41% of respondents agreeing and 10.34% strongly agreeing. This suggests that there are still residual practices in FinCo, based on the traditional views that IT conforms to the business at a process level. Considering FinCo is still in the process of transforming, from traditional to digital, this result is expected.



The second focus will be on business and IT infrastructure alignment as represented by statements OA4 to OA6. Statement OA4, with a standard deviation of 0.489 and with 75.86% of the respondents agreeing, and 6.90% strongly agreeing, there is an indication that FinCo is actively monitoring the fit between business and IT infrastructure. However, both statements OA5 and OA6 with only 51.72% and 58.62% of respondents agreeing that IT infrastructure corresponds and aligns with business infrastructure, respectively, suggests that there is a fit-gap in alignment between business and IT infrastructure.

### 5.5.3 Business strategy and IT infrastructure and processes alignment

Table 5.22 details all responses and highlights the most frequent response regarding cross-domain alignment (business strategy, and IT infrastructure and processes).

ID	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Most frequent response	%
CA1	Our IT processes support our business strategy.	-	(2) 6.90%	(3) 10.34%	(19) 65.52%	(5) 17.24%	Agree	65.52%
CA2	We adapt our internal IT processes to our business strategy.	-	(5) 17.24%	-	(20) 68.97%	(4) 13.79%	Agree	68.97%
CA3	Our business strategy and internal IT processes match each other.	-	(6) 20.69%	(4) 13.79%	(14) 48.28%	(5) 17.24%	Agree	48.28%
CA4	We identify the fit between our business-related strategic opportunities and our IT infrastructure	-	(1) 3.45%	(5) 17.24%	(19) 65.52%	(4) 13.79%	Agree	65.52%
CA5	Our IT infrastructure and business strategy correspond to each other	-	(3) 10.34%	(4) 13.79%	(17) 58.62%	(5) 17.24%	Agree	58.62%
CA6	Our IT infrastructure aligns with our business strategy	-	(3) 10.34%	(5) 17.24%	(17) 58.62%	(4) 13.79%	Agree	58.62%

**Table 5.22: Responses – business strategy and IT infrastructure and processes alignment**

A few noteworthy observations can be made by looking at Table 5.22. For all statements, CA1 to CA6, the most frequent responses are 'Agree' (4 on the Likert scale). This suggests that the respondents feel that the business strategy is supported by the IT processes and infrastructure. To analyse these results, the first focus will be on how well IT processes support business strategy as represented by statements CA1 to CA3. By looking at both Table 5.22 and [Table 5.13](#), statement CA3, with a standard deviation of 1.015 shows that there are mixed reviews between the respondents as to whether FinCo's internal IT processes match their business strategy. However, in statement CA1 the stance of the respondents is that FinCo's IT



processes support the business strategy considering 65.52% of the respondents agreed and 17.25% strongly agreed to that statement. In addition, in statement CA2, 68.97% of the respondents agreed and 13.79% strongly agreed that FinCo adapts their internal IT processes to support the business strategy. This suggests that respondents believe, that while IT processes are designed and maintained to support the business strategy, currently they are misaligned. Since FinCo is in the process of reengineering their processes this result is not surprising. The reengineering of processes is done by priority, as a result, there are processes that will be more aligned than others based on the importance of the process outcome to the organisation's strategic intent. This correlates to the views of Tallon et al. (2016).

The next focus will be on how well the business strategy is supported by IT infrastructure as represented by statements CA4 to CA6. In statement CA4, with a standard deviation of 0.673 and with 65.52% of the respondents agreeing, and 13.79% strongly agreeing, there is an indication that FinCo is actively monitoring the fit between business strategy and IT infrastructure. As per statements CA5 and CA6, 58.62% of the respondents agree that FinCo also actioned their IT infrastructure to match their business strategy. This is in line with the qualitative findings and also supports the findings of Bharadwaj et al. (2013) and Chanias et al. (2019), who stated that traditional turned digital organisations require to overhaul their infrastructures.

#### 5.5.4 IT strategy and business infrastructure and processes alignment

Table 5.23 details all responses and highlights the most frequent response regarding cross-domain alignment (IT strategy, and business infrastructure and processes).

ID	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Most frequent response	%
CAb1	Our IT strategies support our business processes	-	4 13.79%	-	22 75.86%	3 10.34%	Agree	75.86%
CAb2	We adapt our IT strategy to our internal business processes.	-	3 10.34%	4 13.79%	19 65.52%	3 10.34%	Agree	65.52%
CAb3	Our externally-focused IT strategy and internal business processes match each other.	2 6.90%	2 6.90%	9 31.03%	13 44.83%	3 10.34%	Agree	44.83%
CAb4		-	3	6	16	4	Agree	55.17%



ID	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Most frequent response	%
	We identify the fit between our IT-related strategic opportunities and our business infrastructure.		10.34%	20.69%	55.17%	13.79%		
CAb5	Our business infrastructure and IT strategy correspond to each other.	-	5 17.24%	6 20.69%	14 48.28%	4 13.79%	Agree	48.28%
CAb6	Our business infrastructure aligns with our externally focused IT strategy.	-	3 10.34%	12 41.38%	10 34.48%	4 13.79%	Not Sure	41.38%

**Table 5.23: Responses – IT strategy and business infrastructure and processes alignment**

As can be seen in Table 5.23, for statements, CAb1 to CAb5, the most frequent responses are ‘Agree’ (4 on the Likert scale). For statement CAb6 the most frequent response is “not sure” (3 on the Likert scale). To deconstruct these results, the first focus will be on how well IT strategies and business processes integrate with each other as represented by statements CAb1 to CAb3. By looking at both Table 5.23 and [Table 5.13](#), statement CAb3, with a standard deviation of 1.021, shows that there are differing views between the respondents as to whether FinCo’s externally focussed IT strategies match their internal business processes. While in statement CAb1, 75.86% of the respondents agree and 10.34% strongly agree that FinCo that the IT strategy is adapted to business processes, the overall result, as seen in statements CAb2 and CAb3, suggest that the alignment is not done to a degree of perfect alignment. With the amount of externally focussing IT initiatives that have been launched in the last eighteen months and the number of internal processes that was re-engineered to support the initiatives, this dispersed view could be expected, especially since the changes happen in short succession and the massive transformation FinCo is going through.

The second focus will be on how well IT strategy and business infrastructure as represented by statements CA4 to CA6 integrate with each other. In statement CAb4, with 55.17% of the respondents agreeing, and 13.79% strongly agreeing, there is an indication FinCo is actively monitoring the fit between IT strategy and business infrastructure. However, most respondents are not sure if FinCo’s business infrastructure aligns with their externally focussed IT strategy (statement CAb6). In addition, there are also differing views on whether FinCo’s business infrastructure and overall IT strategy correspond to each other (statement CAb5). This suggests that there is still work to be done for FinCo to align business infrastructure to externally focused IT strategy. This correlates with the qualitative findings.



### 5.5.5 IT alignment

Table 5.24 details all responses and highlights the most frequent response regarding IT alignment.

ID	Statement	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Most frequent response	%
ITA1	Our IT processes support our IT strategy	-	4 13.79%	2 6.90%	19 65.52%	4 13.79%	Agree	65.52%
ITA2	We adapt our IT strategy to our internal IT processes.	-	3 10.34%	4 13.79%	17 58.62%	5 17.24%	Agree	58.62%
ITA3	Our IT strategy and internal IT processes match each other.	1 3.45%	3 10.34%	3 10.34%	17 58.62%	5 17.24%	Agree	58.62%
ITA4	We identify the fit between our IT-related strategic opportunities and our IT infrastructure.	-	3 10.34%	5 17.24%	17 58.62%	4 13.79%	Agree	58.62%
ITA5	Our IT infrastructure and IT strategy correspond to each other	1 3.45%	3 10.34%	4 13.79%	17 58.62%	4 13.79%	Agree	58.62%
ITA6	Our IT infrastructure aligns with our IT strategy	1 3.45%	2 6.90%	5 17.24%	17 58.62%	4 13.79%	Agree	58.62%

**Table 5.24: Responses – IT alignment**

A few noteworthy observations can be made by looking at Table 5.24. For all statements, ITA1 to ITA6, the most frequent responses are 'Agree' (4 on the Likert scale). This suggests that most of the respondents feel that the IT strategy is supported by the IT processes and IT infrastructure. To analyse these results, the first focus will be on how well IT processes support the IT strategy as represented by statements ITA1 to ITA3. 65.52% of respondents agreed and 13.79% strongly agreed that FinCo's IT processes support their IT strategy as per statement ITA1. By looking at both Tables 5.24 and [Table 5.13](#), at a mean of 3.83, the majority of the respondents also believes that FinCo's IT strategy is adapted to integrate with their internal IT processes (statement ITA2). The respondents are less so convinced, at a mean of 3.76, that the IT strategy matches their internal IT processes (ITA3). This suggests that there is room for improvement regarding aligning FinCo's IT strategy with its IT processes.

The next focus will be on how well IT strategy is supported by IT infrastructure as represented by statements ITA4 to ITA6. In statement ITA4 with 58,62% of the respondents agreeing, and 13,79% strongly agreeing, there is an indication that FinCo is monitoring the fit between IT strategy and IT infrastructure. As per statements ITA5 and ITA6, 58.62% of the respondents also agree and 13.79 strongly agree, that



FinCo also amends their IT infrastructure to match their IT strategy. This is in line with the qualitative findings and also supports the findings of Bharadwaj et al. (2013) and Chanas et al. (2019), who stated that traditional turned digital organisations require to refit their infrastructures.

### 5.5.6 Business alignment

Table 5.25 details all responses and highlights the most frequent response regarding business alignment.

Question	Business Strategy and Business Infrastructure / Processes Alignment	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree	Most frequent response	%
BA1	Our business processes support our business strategies	-	(3) 10.34%	(4) 13.79%	(16) 55.17%	(6) 20.69%	Agree	55.17%
BA2	We adapt our business strategy to our internal business processes	-	(6) 20.69%	(7) 24.14%	(13) 44.83%	(3) 10.34%	Agree	44.83%
BA3	Our business strategy and internal business processes match each other.	-	(4) 13.79%	(3) 10.34%	(19) 65.52%	(3) 10.34%	Agree	65.52%
BA4	We identify the fit between our business-related strategic opportunities and business infrastructure.	-	(1) 3.45%	(7) 24.14%	(17) 58.62%	(4) 13.79%	Agree	58.62%
BA5	Our business infrastructure and business strategy correspond to each other.	-	(3) 10.34%	(8) 27.59%	(15) 51.72%	(3) 10.34%	Agree	51.72%
BA6	Our business infrastructure and business strategy align.	-	(3) 10.34%	(8) 27.59%	(14) 48.28%	(4) 13.79%	Agree	48.28%

**Table 5.25: Responses – business alignment**

A few noteworthy observations can be made by looking at Table 5.25. For all statements, BA1 to BA6, the most frequent responses are 'Agree' (4 on the Likert scale). This suggests that most of the respondents feel that the business strategy is supported by business processes and infrastructure. To analyse these results, the first focus will be on how well business processes support the business strategy as represented by statements BA1 to BA3. 55.17% of respondents agreed and 20.69% strongly agreed that FinCo's business processes support their business strategy as per statement BA1. In statement BA4, with 58.62% of the respondents agreeing, and 13.79% strongly agreeing, there is an indication that FinCo is actively monitoring the fit between business strategy and business infrastructure. However, fewer respondents are convinced that FinCo's business infrastructure aligns with their business strategy considering only



48.28% of the respondents agreed and 13.79% strongly agreed with statement BA6. This suggests that there are alignment improvements that FinCo needs to make in terms of business strategy and business process and infrastructure alignment. Since FinCo is still in discussions of how to further transform their organisational structure, business processes and business skills, these results are expected.

### 5.5.7 Organisational performance

This section tests if FinCo's relationship between business strategy, IT strategy, business infrastructure and processes, and IT infrastructure and processes on organisational performance is consistent with theory. To test the hypothesis as listed in [section 3.4.1.1](#), the organisational performance construct was used as the dependent variable in the four unique alignment approaches. The path coefficient ( $\beta$ ) between variables have been tested to validate the strength and direction of the relationship between constructs (Sanchez, 2013; Urbach & Ahlemann, 2010). The closer the path coefficient is to 1 the stronger the positive correlation between constructs (Henseler et al., 2009; Roky & Al Meriouh, 2015). The path coefficient was also evaluated in relation to its magnitude (t-value) and statistical significance (p-value) (Urbach & Ahlemann, 2010). To obtain the statistical significance of the relationship between constructs, the bootstrapping procedure (with 100 subsamples) was used. "Bootstrapping is a non-parametric approach for estimating the precision of the PLS parameter estimates." (Sanchez, 2013, p. 70). The bootstrapping procedure also provided the weightings between constructs and their related items (outer loadings), and direct, indirect and total effects of constructs on each other in a specific combination. To test the specific hypothesis as listed in [section 3.4.1.1](#), the focus was on the indirect impact on performance from an independent variable through a median.

The path coefficient is interpreted as significant at 0.2 (Chin, 1998) or if the p-value is  $< 0.05$  and the t-value is greater or equal to 1.96 (Roky & Al Meriouh, 2015). It would also be significant if the p-value is  $< 0.01$  and the t-value is greater or equal to 2.57. Another combination where the path coefficient is interpreted as significant is if the p-value is 0.001 and the t-value is equal to or greater than 3.29 (Roky & Al Meriouh, 2015). A path that is not consistent with the theoretically assumed relationship does not support the a priori hypothesis (Henseler et al., 2009; Urbach & Ahlemann, 2010), and is denoted as '*Not supported*'. In addition to evaluating the path coefficient, the  $R^2$  value was also assessed.  $R^2$  explains the predictive or explanatory power of the model (Henseler et al., 2009; Sanchez, 2013). For instance, if an  $R^2$  value of a dependent variable is 14%, it means that 14% of the dependent variable can be explained by



the model. In the IS discipline, the  $R^2$  value could be interpreted as strong if the value is 0.67 (67%) and greater, average if the value is around 0.33 (33%), and weak if the value is 0.19 (19%) and lower (Urbach & Ahlemann, 2010).

In the following sections, the focus will be on each unique combination of business strategy, IT strategy, business infrastructure and processes, and IT infrastructure and processes. This means that only three constructs per model will be used, and therefore the same construct across models will register slightly different outer loadings. E.g. Business alignment is a shared construct between approaches competitive potential and strategy execution, however, BA1 has an outer loading of 0.860 in the competitive potential approach to alignment and has an outer loading of 0.858 in the strategy execution approach to alignment.

### 5.5.7.1 Service level

Figure 5.6 shows the summary of the path coefficients ( $\beta$ ), its significance (t- and p-value) and the predictability power ( $R^2$ ) of the service level view of alignment on performance. Table 5.26 shows if IT alignment has an indirect effect on performance through operational alignment and if it should be considered as significant.

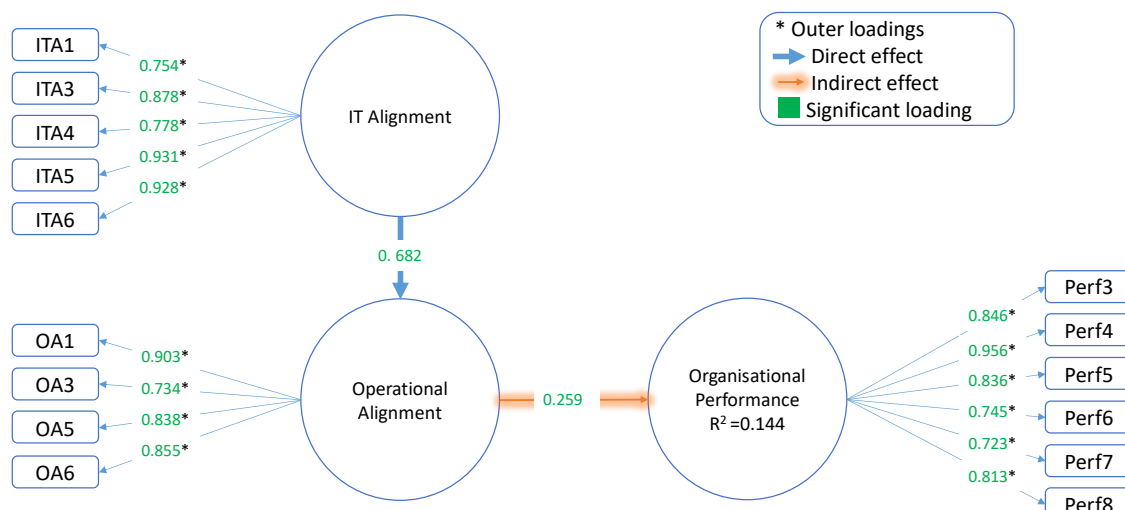


Figure 5.6: Path coefficients, significance level and  $R^2$  value of service level

Hypothesis	Path	$\beta$	t-value	p-value	Result
H <sup>2</sup>	IT alignment → operational alignment → performance	0.259	2.13	0.042	Supported

Table 5.26: Service level hypothesis testing results



IT alignment is the cross-domain alignment between the strategic level IT strategy and the functional level IT infrastructure and processes. Operational alignment is the functional level alignment between business infrastructure and processes, and IT infrastructure and processes. Based on Figure 5.6 and Table 5.26, IT alignment has a significant effect ( $\beta = 0.259$ ) on performance through operational alignment. This is consistent with the results of the study by Gerow et al. (2015). From these results it is evident that the more supportive the functional level elements of an organisation are of the strategic IT direction, the higher the long-term financial benefits will be. Of course, these are not the only factors that influence an organisation's performance, considering the  $R^2$  of the service level alignment approach, as depicted by Figure 5.6, is at 0.14, indicating that only 14% of the performance construct can be explained by the impact of this model. Overall the predictive power of the model may be considered as weak if strictly adhering to the scale set out by Urbach & Ahlemann (2010), but in comparison to a global study that was done in 2015 by Gerow et al. this result is in the same vicinity, as their result for  $R^2$  was 9.3%.

### 5.5.7.2 Competitive potential

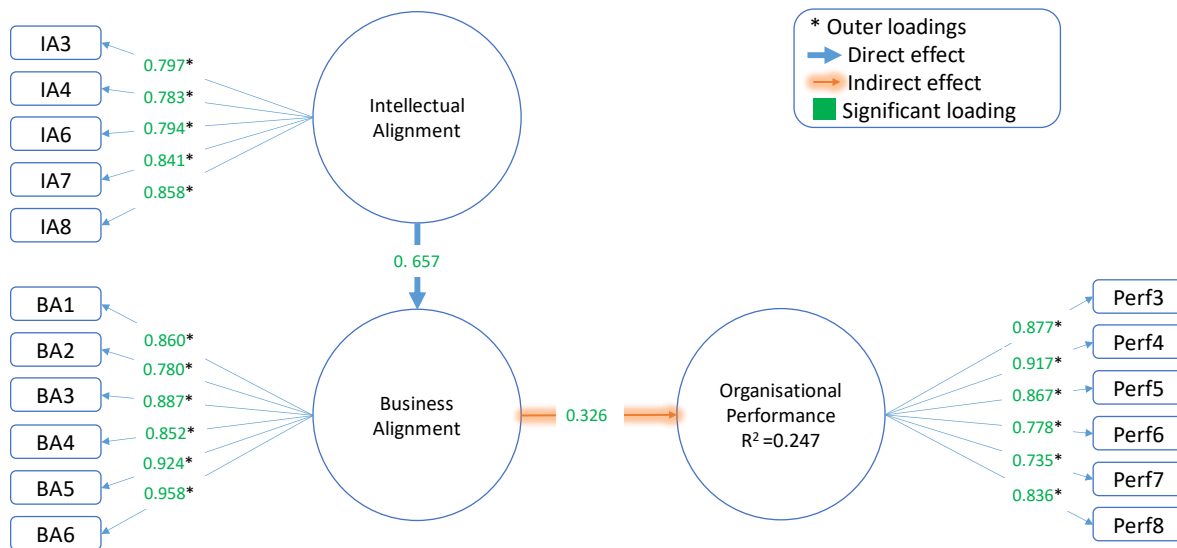


Figure 5.7: Path coefficients, significance level and  $R^2$  value of competitive potential

Hypothesis	Path	$\beta$	t-value	p-value	Result
H <sup>3</sup>	Intellectual alignment → business alignment → performance	0.326	2.97	0.006	Supported

Table 5.27: Competitive potential hypothesis testing results



Intellectual alignment is the strategic alignment between business strategy and IT strategy. Business alignment is the cross-domain level alignment between business strategy and business infrastructure and processes. Based on Figure 5.7 and Table 5.27, intellectual alignment has a significant effect ( $\beta = 0.326$ ) on performance through business alignment. This is consistent with the results of the study by Gerow et al. (2015). From these results, it can be deduced that the more conducive the business infrastructure is to support the joint direction of the organisation as set by the business and IT strategy (i.e. DBS) is, the more success the organisation will achieve in terms of organisational performance. Based on the  $R^2$  of the competitive potential alignment approach, as depicted by Figure 5.7, 25% of the organisation's performance can be explained by this approach to alignment. Overall this predictive power of the model is considered as average and is slightly lower than the study by Gerow et al. (2015) which was at 28.1%.

### 5.5.7.3 Technology transformation

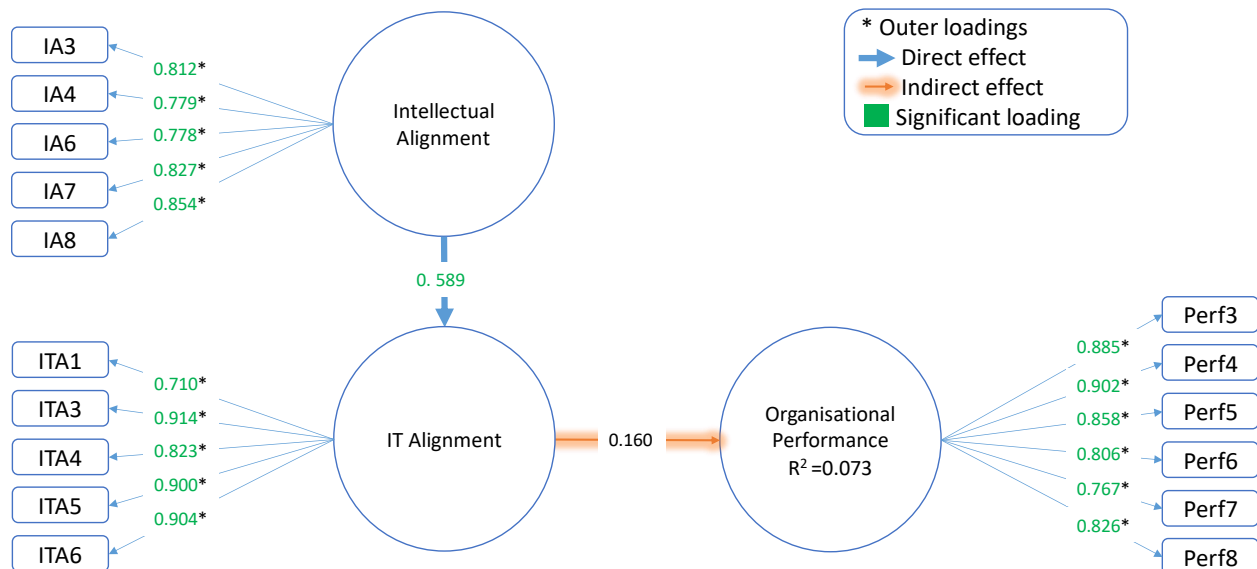


Figure 5.8: Path coefficients, significance level and  $R^2$  value of technology transformation

Hypothesis	Path	$\beta$	t-value	p-value	Result
H <sup>4</sup>	Intellectual alignment → IT alignment → performance	0.160	1.46	0.155	Not supported

Table 5.28: Technology transformation hypothesis testing results

Intellectual alignment is the strategic alignment between business strategy and IT strategy. IT alignment is the cross-domain alignment between the strategic level IT strategy and the functional level IT



infrastructure and processes. Based on Figure 5.8 and Table 5.28, it is evident that intellectual alignment has a positive effect on performance through IT alignment, however, the connection is not statistically significant at  $\beta = 0.160$ . Furthermore, the technology transformation model explains only 7% of FinCo's performance which is slightly higher than the 5.8% in the global study by Gerow et al (2015). This result resembles the findings of Sawy et al. 2015, who posits that successful digitisation is concerned more with concepts such as culture and talent development than necessarily the technology itself.

#### 5.5.7.4 Strategy execution

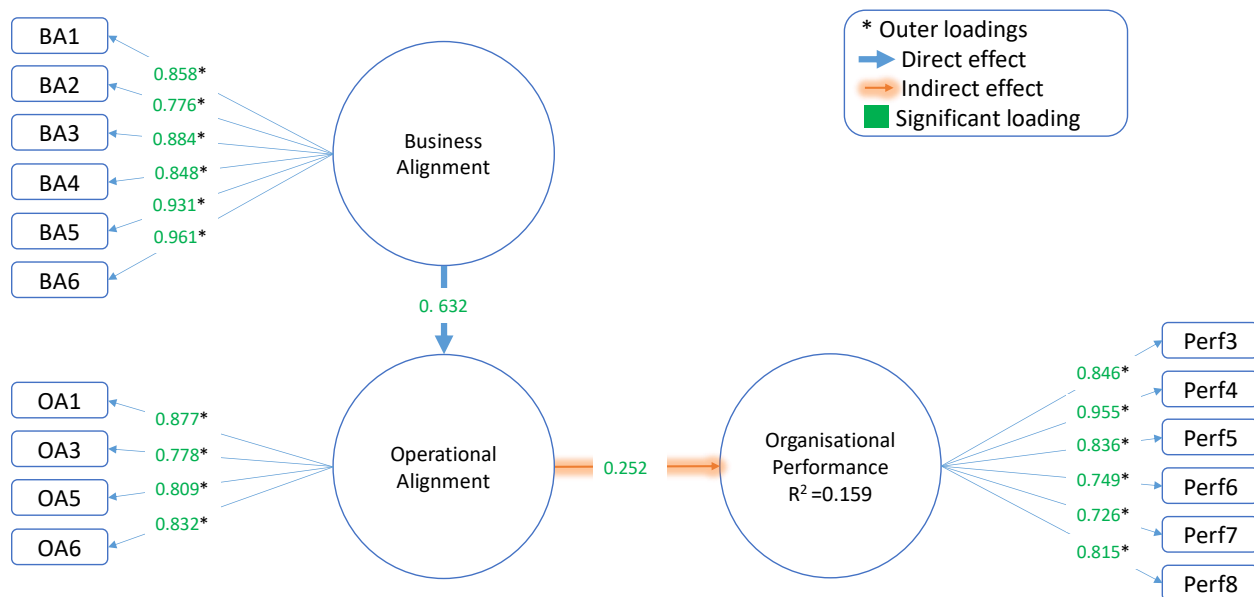


Figure 5.9: Path coefficients, significance level and R<sup>2</sup> value of strategy execution

Hypothesis	Path	$\beta$	t-value	p-value	Result
H <sup>5</sup>	Business alignment → operational alignment → performance	0.252	2.26	0.032	Supported

Table 5.29: Strategy execution hypothesis testing results

Business alignment is the cross-domain level alignment between business strategy and business infrastructure and processes. Operational alignment is the functional level alignment between business infrastructure and processes, and IT infrastructure and processes. Based on Figure 5.9 and Table 5.19, Business alignment has a significant effect ( $\beta = 0.252$ ) on performance through operational alignment. This is consistent with the results of the study by Gerow et al. (2015). From these results it is evident that the more supportive the functional level elements of a business are of the strategic business direction,



the higher the long-term financial benefits will be. Evidently, these are not the only factors that influence an organisation's performance, considering the  $R^2$  of the strategy execution approach to alignment, as depicted by Figure 5.9, is at 0.159, indicating that only 15.9% of FinCo's performance can be explained by this approach. Overall this predictive power of the model is considered weak but is still in the realm of the results as presented by Gerow et al. (2015) where their  $R^2$  was at 9.7%.

### 5.5.7.5 Integrated alignment - effect of DBS on performance

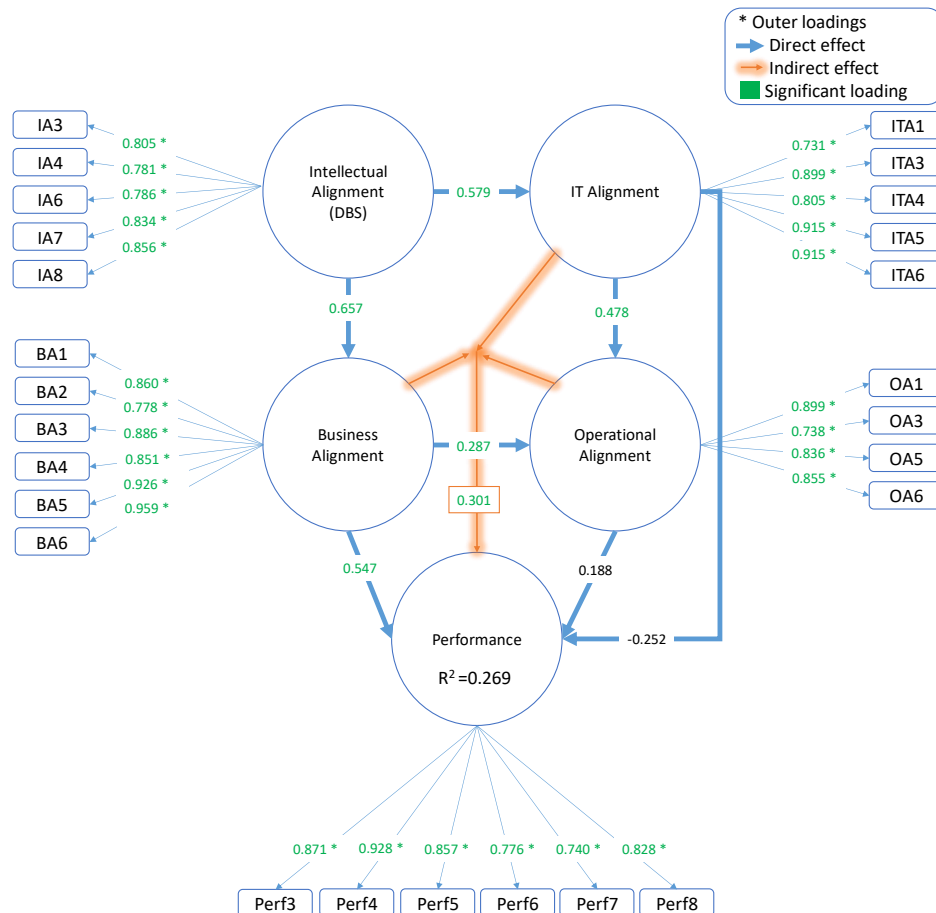


Figure 5.10: Path coefficients, significance level and  $R^2$  value of DBS on performance



Hypothesis	Path	$\beta$	Median	t-value	p-value	Result
H <sup>6</sup>	DBS → IT alignment, business alignment, operational alignment → performance	0.301	Business Alignment	2.21	0.0366	Supported
			IT Alignment	-9.54	0.3491	
			Operational alignment	7.75	0.4458	

**Table 5.30: DBS effect on performance hypothesis testing results**

From [sections 5.5.7.1](#) through [section 5.5.7.4](#), the effect of alignment on organisational performance was through the lens of a single alignment approach. Since these approaches do not exist in isolation, an integrated lens was used to understand the effect of the DBS, represented by intellectual alignment in Figure 5.10, on organisational performance. To understand this integrated approach, the DBS effect on organisational performance was tested through multiple medians namely IT alignment, business alignment, and operational alignment. Based on Figure 5.10 and Table 5.30, the DBS has a significant effect ( $\beta = 0.301$ ) on organisational performance through IT alignment, business alignment, and operational alignment. From these results, it is evident that the more aligned business and IT is on a strategic level and the more supportive the functional level elements are of a DBS, the higher the long-term financial benefits will be. In addition, it is evident that intellectual and operational alignment are not the only factors that influence an organisation's performance, considering the  $R^2$  of the integrated alignment approach, as depicted by Figure 5.10, is at 0.269, indicating that only 26.9% of FinCo's performance can be explained by intellectual and operational alignment.

### 5.5.7.6 Alignment results on performance in the context of FinCo

As evident from the results above, excluding the technology transformation approach to alignment as seen in Table 5.28, cross-domain alignment between business and IT has a significant impact on FinCo's performance. FinCo's most beneficial alignment approach is the competitive potential alignment approach. This alignment is through aligning their business strategy and IT strategy (intellectual alignment, i.e. DBS) with their business infrastructure and processes (business alignment) as demonstrated by Figure 5.7 and Table 5.27.



As mentioned in [section 2.3](#), IT in isolation, without a business goal has little to no value for an organisation. By examining Table 5.28, which is the technology transformation approach to alignment, it is clear that there is an insignificant relationship between FinCo's business and IT strategy (intellectual alignment i.e. DBS) and IT infrastructure and processes (IT alignment) on performance. This means that the statement of when IT provides value is incomplete because providing a goal for IT to realise may not be enough. While FinCo spent the vast majority of their digital journey focussing on creating a fit for purpose IT infrastructure, as lead by their overarching vision which is "Customer led and Digital First", at first glance it may look as if this endeavour did not yield the desired outcome based on the results of the technology transformation approach to alignment. However, insights can be derived from examining Table 5.28 (technology transformation) in conjunction with Table 5.26 which is the service level approach to alignment and Table 5.29, which is the strategy execution approach to alignment.

The service level approach to alignment, speaks to the alignment between IT strategy, which is part of the DBS, IT infrastructure and processes (IT alignment) and business and IT infrastructure and processes (operational alignment) on organisational performance. This approach to alignment has a significant impact on organisational performance as demonstrated by Figure 5.6 and Table 5.26. This shows that FinCo's IT infrastructure and process transformation that they have spent eight years on improving serves a purpose. This transformation was necessary as it enabled a more appropriate business infrastructure and process landscape to support the DBS. As Tallon et al. (2016) discovered, it is not uncommon for an organisation to build IT slack in order to accommodate the *potential* change in business direction or infrastructure. In other words, to enable better process outcomes that are aligned with the new organisational strategic direction, FinCo had to upgrade their IT infrastructure long before they could benefit from it through appropriate business processes and infrastructure.

Similar to the service level approach to alignment and its reliance on IT infrastructure and processes, the strategy execution approach to alignment results also point to the importance of the alignment between business strategy, which is part of the DBS, business infrastructure and processes (business alignment) and business and IT infrastructure and processes (operational alignment) on organisational performance. This approach to alignment has a significant impact on performance as demonstrated by Figure 5.9 and Table 5.29.



Overall, especially based on the results of the integrated alignment approach, while the reliance of IT infrastructure and processes are necessary, the results across the four levels of alignment approaches indicates that FinCo does not need to focus as much on their IT infrastructure and processes if they want to see a more positive impact on their organisational performance. Instead, their efforts will be better rewarded if the emphasis was on the strategic alignment between business and IT and have the other alignment approaches follow.

## 5.6 Chapter summary

In summary, this study collected quantitative data on the alignment of FinCo's business strategy, IT strategy, business infrastructure and processes, and IT infrastructure and processes, in the form of a questionnaire. To analyse the data, statistical analysis was applied through SPSS and RStudio. The main themes discussed in the findings were based on seven views of alignment namely intellectual alignment, operational alignment, business strategy and IT infrastructure and processes alignment, IT strategy and business infrastructure and processes alignment, IT alignment, business alignment, and integrated alignment. The results also included how these views have an effect on organisational performance through different alignment approaches.

From an intellectual alignment, which is the alignment between business and IT at a strategic level, perspective, FinCo favours the approach that IT strategy should adapt to business strategy, which is a remnant of their pre-digital way of operation. However, based on their digitisation, IT has been elevated to a strategic level, and as a result, their business strategy has been adapting more and more to IT strategic direction, which is not surprising as they have amalgamated their business and IT strategy into a DBS. There is still improvement that FinCo needs to make in aligning their business and IT strategy, which suggests that combining business and IT strategy into a DBS does not automatically result in perfect intellectual alignment.

At a functional level, focussing on operational alignment, which is the alignment between business and IT infrastructure and processes, FinCo has improvements to do with the matching of business and IT on a functional level. At this stage of their journey, FinCo is addressing these issues by systematically revamping their business processes to leverage IT more and has even made major changes to their business organisational structure to support their new strategic direction. Since they have only made significant



changes on the business front since 2018, there is still much work that must go into alignment. However, overall, the alignment is favourable.

From an organisational performance perspective, the cross-domain alignment between the strategic level business and IT strategy and the functional level business and IT infrastructure and processes looks more favourable to FinCo if they place more emphasis on aligning business and IT components in their DBS and ensuring that the business infrastructure and processes are aligned to the strategic direction of the organisation.

This part of the research was only conducted on the intellectual and operational alignment themes and not the social and cultural alignment themes which encompass alignment in its entirety. As a result, [Chapter 6](#) will discuss both the quantitative and the qualitative data results as a collective, which speaks to all four elements of alignment.



## Chapter 6

### 6. Research Discussion

#### 6.1 Introduction

The previous chapters introduced the research project and its purpose, including how and what data was collected to fulfil this purpose. Chapter 6 focusses on answering the research questions based on the qualitative and quantitative data analysis, as described in [Chapter 4](#) and [Chapter 5](#). Figure 6.1 is an overview of Chapter 6.

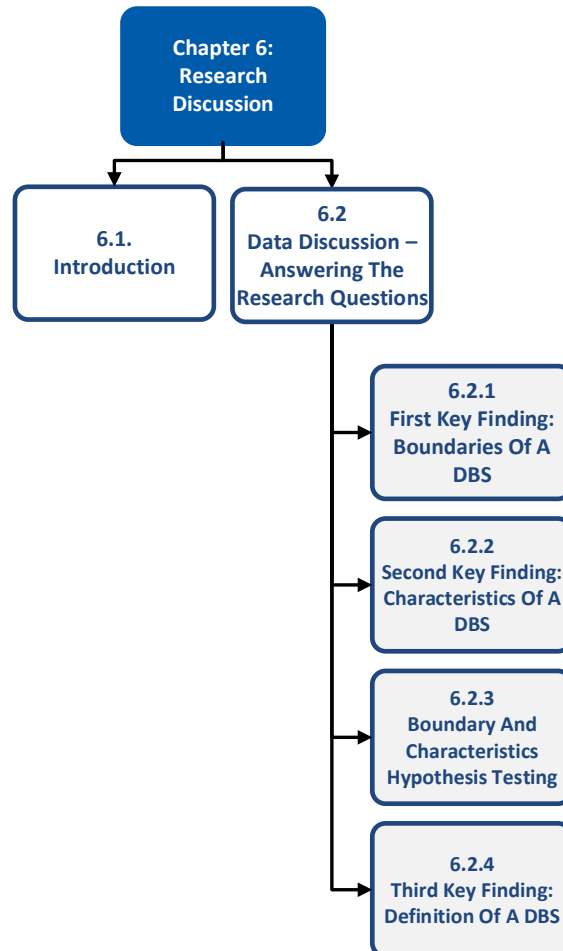


Figure 6.1: Chapter 6 overview



The DBS was observed through the lens of two theoretical frameworks namely the Strategic Alignment Model (SAM) and the Complex Adaptive System (CAS) model. While both the SAM and CAS focused on the internal and external DBS relationships, the SAM was limited to intellectual and operational alignment, while the CAS provided insights into social and cultural alignment, and provided a richer picture of intellectual and operational alignment. Figure 6.2 provides an overview of how these frameworks were transposed.

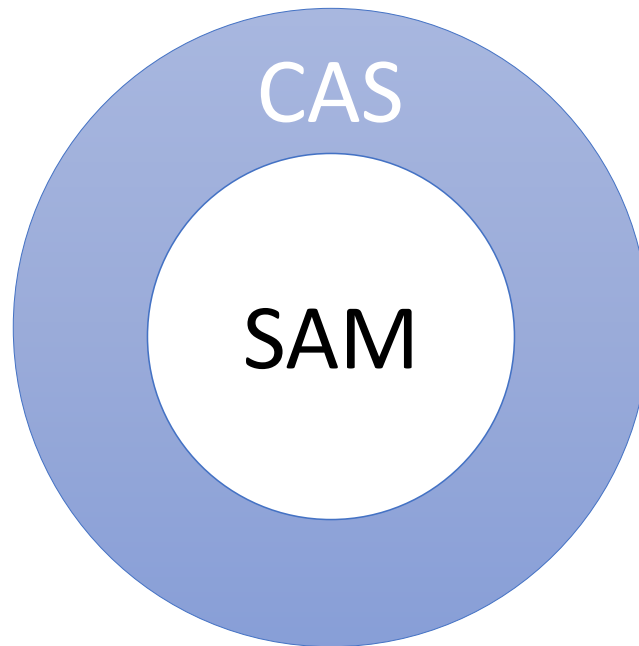


Figure 6.2: SAM and CAS framework relationship

## 6.2 Data discussion - answering the research questions

The primary research question of this study was: what are the boundaries and characteristics of a Digital Business Strategy (DBS)? The secondary research question was: what is the definition of a DBS? The following sections provide a detailed discussion of the data results from both qualitative and quantitative methods as they relate to the primary and secondary questions of this study.



## 6.2.1 First key finding: boundaries of a DBS

To best describe the boundaries of a DBS, one needs to focus on the DBS's relationships with its internal and external environment, which includes entities such as external organisations, internal infrastructure, industries, and customers as covered in the following section.

### 6.2.1.1 External environment

#### 6.2.1.1.1 Customers

The customer is at the centre of the DBS as explained in [section 4.6.1.1.1](#). Not only does the effectiveness of leveraging the DBS depend on the maintenance of a close relationship with the customer, but it also depends on the customer maintaining a close relationship with the DBS's scope, which includes the products and services the organisation is offering. As a result, in the case of FinCo, first, they were obligated to move closer to the customer to better understand and meet their evolving wants and needs. Thereafter, they had to bring the customer closer to the products and services they were offering in order to design fit for purpose offers that could be delivered with agility. This customer empowerment, which manifested itself in the customer playing the role of both customer and 'consultant', allows for a more deliberate and effective leveraging of the DBS. Figures 6.3 and [Figure 6.4](#) demonstrates the relationship with the customer before and after the establishment of the DBS in FinCo.

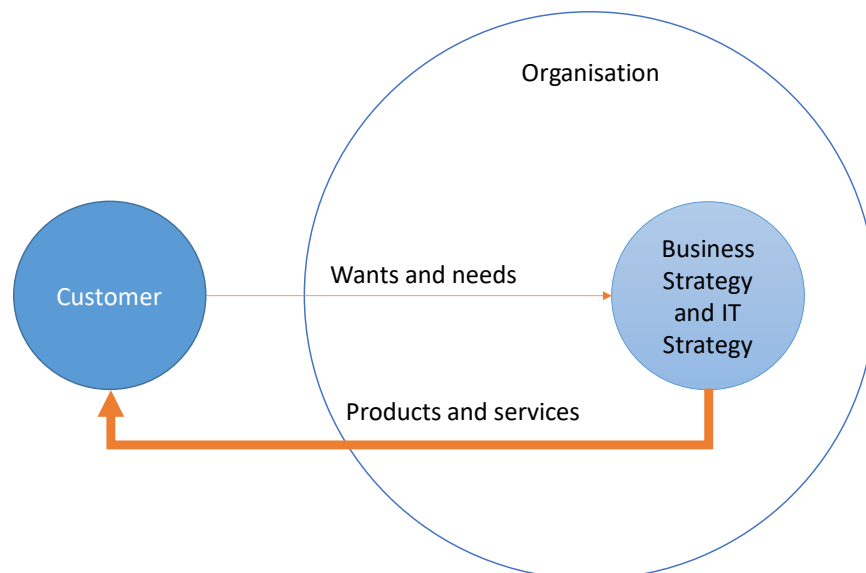
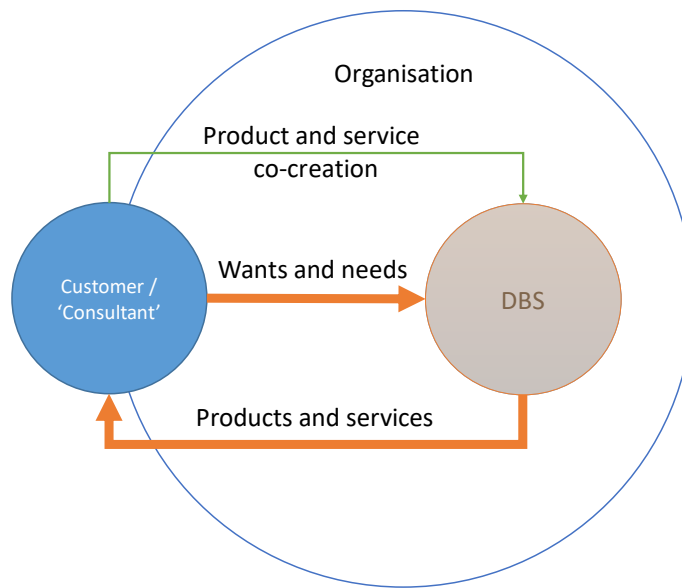


Figure 6.3: Relationship between business and IT strategy and the customer



**Figure 6.4: Relationship between DBS and the customer**

In [section 2.4](#) the themes of business and IT alignment in the digital era, namely micro-foundations of IT alignment, innovation ecosystem and IT alignment, and DBS were discussed. The aim of this research project was to focus on the DBS theme only, however, through the observation of the DBS in FinCo, these three approaches are not mutually exclusive. While FinCo has committed to a DBS, elements of the innovation ecosystem and IT alignment is visible through their relationships with their customer, as they have modified their ecosystem to include the customer as a consultant and in so doing created a partnership that facilitates value co-creation.

The evolution of the relationship between FinCo and the customer was as a result of many elements in the DBS that had to evolve with the help of both traditional and digital resources. For instance, FinCo's IT scope expanded when they built customer-facing interfaces which empowered the customer to transact on their own accounts and to engage with FinCo on a 24/7 basis. Their business scope expanded when they offered the customers value beyond their core products and services through digital solutions such as paperless onboarding and the chatbot. Their systemic competences became more advanced as information about the customer were collected and analysed by more powerful analytical software and processes. Their distinctive competences were even more tailored to the wants and needs of the customer based on the customer information collected and analysed. By understanding that business and IT are co-



equals, especially in service of providing the customer with an improved engagement experience, FinCo's IT governance was amended from IT ownership to shared ownership between business and IT. Their business governance was amended in terms of their more prominent customer-centric values and behaviours. Furthermore, with the elements of the DBS amending to adjust to their elevated customer-centricity, their business and IT infrastructure and processes had to be amended to support their strategic intent as influenced by the customer.

Through these changes, it is clear that even looking at just one aspect of FinCo's external environment, the boundaries of the DBS includes both strategic and functional levels and can be considered as "*transfunctional*". As per Bharadwaj et al. (2013), *transfunctional* refers to the interconnectivity between business functions in the organisation, and with parties outside of the organisation such as suppliers and customers.

#### **6.2.1.1.2 Partners**

The relationships between an organisation and its partners are influenced by the value that must be created to suit the needs and wants of the customer. The motivation for these relationships could most commonly be seen in the form of optimisation of economies of scale and the acquisition of particular resources and activities that are not native to the organisation. In FinCo's case, the motivation can be seen in their "outsourcing" distinctive competence as documented in [section 4.6.1.2.2](#). In the context of the DBS, due to the elevated importance of technology, the partnership relationships are depended on both the motivation for the partnership and the ability to seamlessly integrate IT systems in a network designed for value creation. As could be seen in the case of FinCo, as detailed in [section 4.6.1.1.3](#), a long-standing partnership agreement had to be amended as the technological element of the partnership prohibited FinCo from being innovative in the industry.

As mentioned in the previous section, the DBS approach to alignment between business and IT and the innovation ecosystem approach is not mutually exclusive. However, there is a major difference that separates the two approaches in terms of boundaries and is best explained through a comparison. Apple subscribes to the innovation ecosystem approach to alignment. Their strategy is to expand their business scope, which is the products and services they offer, by partnering with organisations outside of their industry, such as music and gaming providers. The motivation is customer-centricity and the success of the innovative ecosystem is highly dependent on technology.



FinCo has much in common with Apple in terms of their business scope expansion, as they also create partnerships (ecosystems) that help them expand their business scope. Their motivation is also customer-centricity and the success of leveraging their DBS is also highly dependent on technology. But the major difference in the case of FinCo and Apple is *how* partnerships are impacting their business scope. For Apple, their partnerships result in the inclusion of items that are not traditionally related to their industry of operation. For FinCo, on the other hand, their partnerships result in an expansion of their products and services which only included items that traditionally related to their industry. In other words, the boundaries of the DBS are more limited than the boundaries of the innovation ecosystem when it comes to business scope.

#### 6.2.1.1.3 Industry of operation

The comparison between Apple and FinCo, in the previous section, was linked to the type of partnerships an organisation chooses to enter into and the effect those partnerships have on the boundaries of the DBS. The type of partnership is, however, also motivated by how the organisation wants to leverage digital resources. In the case of FinCo, this choice was not merely motivated by whether they would like to be an industry disrupter, fast follower or any of the other ways digital resources could be used to create value for the organisations. In FinCo's case, the industry of operation also played a role as discussed in [section 4.6.1.1.4](#). FinCo, being a financial institution in a highly regulated industry, does not have the same opportunity to expand their business scope to an extreme that Apple does, because the expansion of their business scope can, by government regulation i.e. business governance, only include products and services that are related to their primary suite of offers. This limitation in business scope automatically creates a boundary for the DBS as the business scope is one of the six elements of the DBS.

While this outer boundary on the DBS is government regulated for FinCo, other organisations who have moved from traditional to digital business, also displayed the same natural boundary around their DBS irrespective of their industry of operation. For instance, Nike and Starbucks realised they had to leverage digital resources more aggressively to compete in their respective markets (Westerman et al., 2014). Their strategy was also the DBS approach to alignment and their business scope has only expanded to include products and services that relate to their original suite of offers. While this is a limitation, the scope of the DBS is still much larger than the scope of a traditional business strategy as digital resources allow for value creation beyond asset-specific offers as described in [section 4.6.1.1.4](#).



#### 6.2.1.1.4 Across industry

Apart from the business scope, the DBS also includes the technology scope, which is the organisation's information and IT technology portfolio. The inspiration for expanding the technology scope is often inspired by technological advances that have been proven successful in organisations across industries, as explained in [section 4.6.1.1.5](#). For instance, mobile technology was already proven to be very beneficial when Starbuck decided to leverage it to increase their market share (Westerman et al., 2014) and digitally-enabled advisors were already proven to be successful when FinCo decided to invest in that technology. This means that the DBS's boundaries for technology scope stretch beyond the boundaries of its business scope. However, technology scope is still tethered to the business scope and requires alignment if the organisations want to leverage the DBS optimally. This means that, since the business scope is limited by business governance, which is adhering to law intrinsic to its industry, the technology scope is inherently limited too, ultimately demarcating the boundaries of the DBS itself.

#### 6.2.1.1.5 Competitors

With technology reducing the cost of entry into the market and thus allowing higher levels of competition as explained in [section 2.5](#), FinCo has to constantly adjust all the elements of their DBS in order to respond to or drive competition. For instance, their technology scope was expanded to drive down transaction cost, which enabled them to expand their business scope with a direct market channel as per [section 4.6.1.1.4](#). In this instance technology allowed FinCo to take advantage of becoming a competitor in a market where they were previously not operating in. For FinCo to make opportunistic decisions regarding entering a new market, their business and IT governance structures needed to be set up in such a way that they could leverage the right type of technology, in the right way, in an agile fashion, in order to take advantage of the opportunity. By leveraging digital resources FinCo was able to protect their 'affordability' distinctive competence. In order to take advantage of this opportunity, FinCo also had to adjust their systemic competence to enable them to collect and analyse competitor data to enable strategic thinking and "opportunistic decision-making" (Ward & Peppard, 2002, p. 69), which is part of the actions that organisations have to take in order to secure their strategic position in relation to their competitor.

With the competitor pool increasing due to technology, FinCo is obligated to have a closer relationship with both their existing and potential competitors. Potential competitors, in this case, could be organisations who enters into FinCo's industry or market of operation, or organisations in markets FinCo



decides to enter into. The close relationship must include the monitoring of competitor's digital posture, which is an element of competitor analysis that was not as prominent before when IT was considered functional. This means that the boundaries of a DBS regarding competitor analysis are much broader than that of a business strategy or IT strategy.

### 6.2.1.2 Internal Environment

As per [section 2.6](#), preconditions for leveraging a DBS is a mind-set change about the importance of IT, a fit for purpose organisational structure, and using technology innovatively and effectively. When discussing the boundaries of the DBS, as it relates to the external environment, the emphasis is placed on the third precondition for a DBS which is to use technology innovatively and effectively. Discussing the boundaries of the DBS as it relates to the internal environment, requires a shift in focus to the first two preconditions of leveraging a DBS, which is how the staff in the organisation view IT as a strategic tool and how this belief manifests itself in the way the organisation is structured and operated.

#### 6.2.1.2.1 Organisational staff

As much as the customer is the centre of the DBS, so too are the persons formulating, executing and maintaining it. Therefore, a DBS demands a close relationship with the organisation's staff. To foster this type of relationship, FinCo had to make a number of changes that were not deemed as necessary before their digital transformation. For instance, the number of people formulating the DBS increased from ten people to more than forty people across the width of the organisation's functions and the breadth of the organisation hierarchy. Referring to [section 4.6.1.4.1](#), all invitees, had to be encouraging of change, which is a mindset that is considered a precondition of a DBS. FinCo realised that the increase of attendees will result in a more diverse panel and in so doing will most likely create a more robust DBS. This also meant that staff will have a closer relationship with the DBS as being part of the creation process increases DBS buy-in.

Another change FinCo made was in service of maintaining the close relationship between staff and the DBS throughout the DBS's execution and maintenance phases. FinCo implemented a consolidation of ownership on initiatives, where one person takes ownership of an end to end initiative, including its IT components, as discussed in [section 4.6.1.3.2](#). This practice contributes to the belief in the DBS itself as business and IT is seen as co-equals, both sides making important contributions to the success of initiatives. The shift in ownership can also be seen through IT governance, as the DBS is governed by both



business and IT personnel. With this simultaneous top-down and bottom-up approach to the creation, maintenance and execution of the DBS, the DBS boundaries should be regarded as ‘*transhierarchical*’ in addition to ‘*transfunctional*’. This is in contrast to the traditional business and IT strategies whose boundaries were constricted by the top layer of the organisation or specific functions.

#### **6.2.1.2.2 Business and IT infrastructure**

There is also a close relationship between the DBS, which is strategic, and the functional level business and IT infrastructure and processes. For instance, to promote the relationship between staff and the DBS, FinCo had to devolve decision-making power from senior executives to staff lower in hierarchical rank, as described in [section 4.6.3.5.1](#). Providing this autonomous environment meant that the business and IT infrastructure had to be amended to support this practice. One of these changes was the updating of staff on both business and industry knowledge and skills, and IT-related knowledge and skills (digital literacy). After all, if business and IT is viewed as co-equals, knowledge on both sides of the coin must be appropriate for strategic thinking and opportunistic decision-making.

To further promote elevated importance of IT, FinCo had to adjust their administrative structure where new teams, consisting of both IT and business staff were formed, new roles supporting the new way of working, were created, and unsuitable roles for the new way of working were made redundant. This change to the ‘permanent’ organisational structure shows how dependent the DBS’s ability to deliver business value is on its relationship with business and IT infrastructure. As discussed in [section 5.5.7](#), a fit for purpose business and IT infrastructure creates an environment where the organisation can leverage digital resources in order to improve performance. This view of the DBS also shows how the boundaries of the DBS includes both strategic and functional levels and is influenced by the organisation’s physical size, their state of IT infrastructure and their business process maturity.

#### **6.2.1.3 Balancing external and internal environment**

By viewing the relationships between the DBS and its internal and external environment, it demonstrates the boundaries of the DBS and how and when it impacts its environment and when its environment impacts it. In addition, it demonstrates how making changes to one element of the DBS requires alignment of other elements in and outside of itself, in order to enhance its effectiveness. For this reason, the alignment approaches to the DBS is important as it shows the intricacy of the DBS in relation to its environment. As mentioned in [section 2.3.1](#), alignment in this study was viewed from an intellectual,



operational, social and cultural perspective. Figure 6.5 provides an overview of the different levels of alignment this research employed to study the DBS.

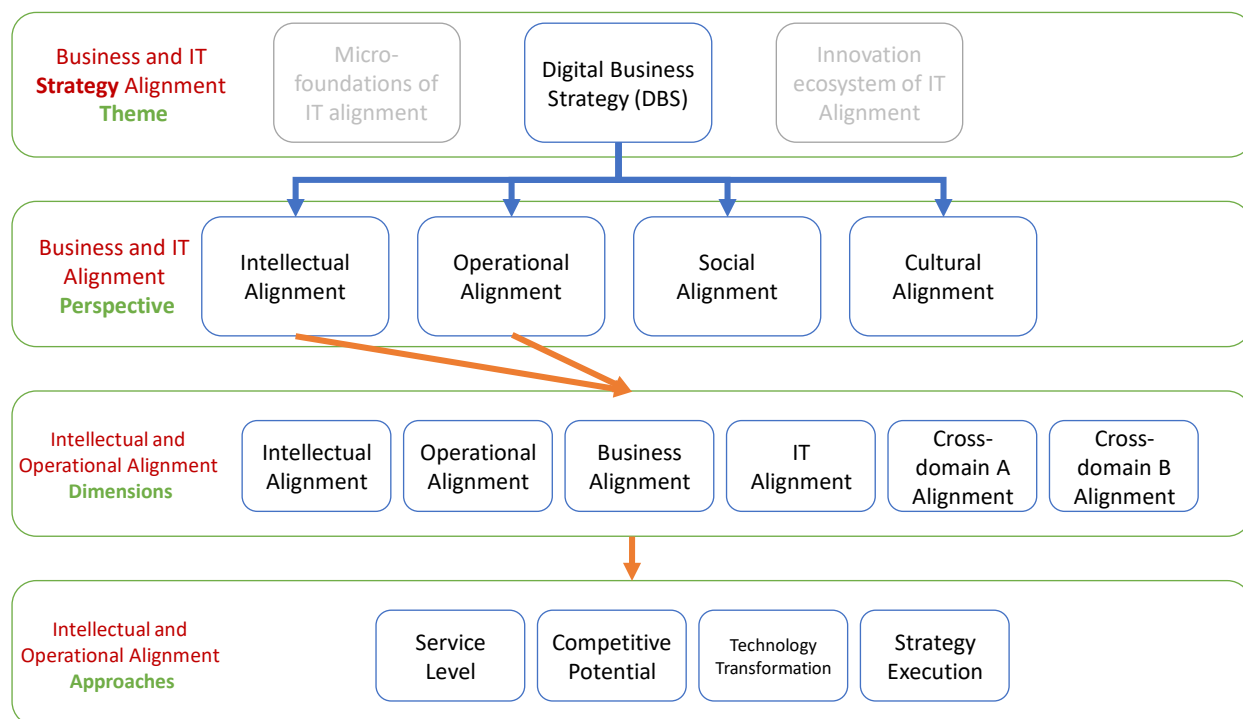


Figure 6.5: DBS levels of alignment

In the following sections the business and IT alignment perspectives (second layer of Figure 6.5), has also been compared to Yeow et al. (2018) alignment phases, as per [section 2.7.1](#), to show how different alignment perspectives assists organisations in different alignment phases.

#### 6.2.1.3.1 Intellectual and operational alignment

Intellectual alignment, in the context of this study, is the crux of the DBS as it represents the amalgamation of the business and IT strategy into one. It signifies the perspective change on the business and IT strategy from a socio-technical view, where these strategies are viewed as interactive but separate entities to a socio-material view, where these strategies are co-constituting and are viewed as two sides of the same coin. The DBS's external relationships are more prominent at the strategic level because exogenous factors, such as current and potential threats and new digital opportunities are explored. This can be seen



as the ‘exploratory’ phase of the alignment process. While intellectual alignment gives rise to the DBS, it does not mean automatic alignment between business and IT strategy as discussed in [section 5.5.1](#).

In contrast to intellectual alignment, the DBS’s relationships with the internal environment are more prominent at the functional level. Operational alignment plays an important supporting role to intellectual alignment as this is the ‘building’ phase of alignment process where the organisation acquires or align the resources to support the strategy. Operational alignment can also be seen as part of the ‘extension’ phase of the alignment process, where the organisation focusses on sustaining the strategic direction through adjusting ‘permanent’ organisational and IT infrastructure. The integration between intellectual and operational alignment is significant as there is a positive correlation between strategic and functional alignment and organisational performance as described in [section 5.5.7](#). As can be seen in FinCo’s case, the impact cross-domain, i.e. strategic and functional level alignment, has on the organisational performance differs depending on the alignment approach the organisation adopts. The significant effect that the DBS has on organisational performance shows that the boundaries of the DBS include the organisation’s strategic position.

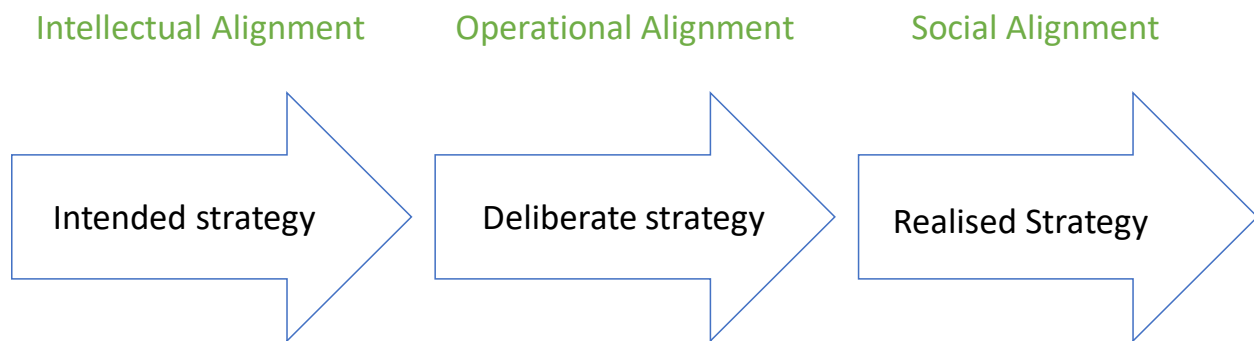
#### **6.2.1.3.2 Social alignment**

Much like operational alignment, social alignment is also very focused on the relationships the DBS has with its internal environment. As a reminder, social alignment is the shared understanding and commitment to the organisation’s goals and the role IT plays in it. The importance of social alignment, in the execution of the DBS, can be seen in the formal and informal actions FinCo takes to ensure that each staff member has bought into the DBS and is committed to realising its potential. For instance, to promote a shared understanding between business and IT actors, FinCo rolled out a new way of working, which amongst others, is assisting business actors in improving their knowledge of IT and their digital literacy capability. FinCo has also extended the DBS formulation to include more than 30% of the population in an effort to ensure shared understanding and commitment. They also have formal processes in place to disseminate the DBS to each staff member. Each month the DBS is discussed in multiple forums to ensure its effectiveness and that staff is actively working towards executing it.

Considering one of FinCo’s distinct competences are “ownership”, where managers have to run their function as if they are the owners of their particular part of the organisation, social alignment has become even more important to minimise conflicting goals that managers may have, as such conflicting goals will



ultimately contribute to substandard performance. While intellectual alignment is key for creating the intended strategy, and operational alignment is key for enabling the intended strategy thus creating a deliberate strategy, social alignment ensures that actors are aligned to the deliberate strategy in order to realise the strategy. Figure 6.6 provides a visual representation of the relationship between intellectual, operational and social alignment in the context of the DBS.



**Figure 6.6: Intellectual, operational and social alignment importance**

Source: Adapted from (Mintzberg, 1987)

By examining the social alignment efforts of FinCo, it is evident that social alignment is an important part of the aligning process between business and IT.

Hypothesis	Description	Result
H <sup>7</sup>	DBS alignment must include social alignment	Supported

**Table 6.1: Social alignment hypothesis testing results**

The idea that the DBS demands a closer relationship with internal staff, demonstrates that the DBS boundaries are not limited to staff as a collective only, but also include staff on an individual level. This means that it is dependent on each staff member buying into the potential of the DBS and show their commitment through individual actions. This dependency, is borrowing elements from micro-foundations of IT alignment, showing that the DBS theme of IT alignment and the micro-foundations theme of IT alignment is not mutually exclusive.

### 6.2.1.3.3 Cultural alignment

Cultural alignment is focused on the visible cultural and behavioural changes in the business and IT executives. This includes creating the conditions where staff on all levels can see the commitment senior



leadership has to alignment. These changes are focussed on creating an infrastructure that influences the belief and value system of each individual. In FinCo's case, this included rolling out a new way of working, creating new structures where business and IT works together as one team, devolving decision making power from senior managers to those lower in hierarchical rank, rolling out a new code of conduct that staff members must adhere to, and performing culture fit tests as part of the hiring process.

By making these changes FinCo enabled the DBS to have a close relationship with its internal environment. Where intellectual, operational and social alignment requires the deliberate focus of staff to formulate and execute the DBS, cultural alignment is working on the principles of performing DBS supporting activities as part of the 'business as usual' operations. To clarify, if the individual and organisational beliefs and value system are compatible, it increases the likelihood that the individual will perform activities in support of the organisational goals. In the context of the DBS, this results in individuals performing DBS supporting activities as part of the norm and not as the exception. This shows that the DBS's boundaries do not only include the activities an individual performs but also extend to the individual's beliefs.

By examining the cultural alignment efforts of FinCo, it is clear that cultural alignment is also an important part of the aligning process between business and IT.

Hypothesis	Description	Result
H <sup>8</sup>	DBS alignment must include cultural alignment	Supported

Table 6.2: Cultural alignment hypothesis testing results

## 6.2.2 Second key finding: characteristics of a DBS

In an effort to understand the DBS from a socio-material view, it was observed in its natural habitat and the following characteristics were identified. These characteristics are also compared to extant literature as shown in [section 6.2.3](#).

### 6.2.2.1 Customer-centric

The DBS is driven by exogenous factors, most of all the wants and needs of the customer. To this end, the DBS is considered customer-centric. Not only does the DBS respond to the needs of the customers by collecting and analysing customer-specific data scientifically, but it also anticipates their needs by examining trends in and outside of its industry of operation. The customer-centricity is shown by providing



value beyond asset-specific offers, improved customer engagements and creating an environment where the customer is part of the production team, essentially building their own products.

### **6.2.2.2 Flexible forward-looking plan**

In addition to the customer, the DBS is also driven by short- and long-term market trends. For robustness, the DBS monitors both the industry of operation and across industries for trends and opportunities. Considering the DBS is an amalgamation of the business and IT strategy, these opportunities include both traditional and digitally-enabled prospects. By monitoring the external environment, which changes rapidly, the DBS is also flexible and is subject to change in order to take advantage of opportunistic developments with agility. By looking at short- and long-term trends and taking advantage of potential futuristic opportunities the DBS caters for both short-term responses to the market and for long-term relevance.

### **6.2.2.3 Competitor attentive**

Being forward-looking requires paying close attention to existing and potential competitors. Since entry to markets is less of a barrier in modern society, the DBS is required to be more competitor attentive than a traditional business strategy. Competitor attentiveness includes understanding the evolution of the competitor's offer to the customer and understanding their digital posture. This all-inclusive competitor analysis assists the DBS in being able to be reflexive to competitor strategic moves. Equally important, it aids the DBS in being proactive, not just reflexive, regarding leverage digital and traditional resources.

### **6.2.2.4 Self-aware of the strategic position**

As part of being attentive to competitors, the DBS must take into consideration its own organisation's strategic position, relative to its competitors. This ties into how the organisation chooses to leverage traditional and digital resources. For instance, if the organisation chooses to be a fast-follower, they have to ensure that they constantly position themselves in such a way for that strategy to be beneficial. To control or influence their strategic position, in the context of the DBS, the organisation must ensure that their internal infrastructures enable the DBS's reflexiveness to market changes in order to quickly create a match between the internal and external environment.



### 6.2.2.5 Dependent on traditional and digital resources

To be reflexive or disruptive in the industry, the DBS is dependent on the innovative and effective use of both traditional and digital resources. Digital resources are required as many benefits digital businesses want to achieve cannot be done without technology. Traditional resources are required as a DBS is reliant on more than just technological advances. For example, quick and opportunistic decision-making is person dependent (traditional resource), however, the gathering, analysis, and pivoting of the information is done by leveraging digital resources.

### 6.2.2.6 Co-constituting business and IT direction

IT strategy has been elevated to a strategic level but it has not lost its ability to support the business direction. The DBS treats the elements formally belonging to the business strategy and elements formally belonging to the IT strategy as co-equals and allows each element to influence the others. This co-constituting characteristic allows an organisation, such as FinCo, to have traditional distinctive competences that leverage digital resources to remain relevant. In other words, the approach of how to leverage IT for differential value may differ from organisation to organisation, but it does not change the notion that IT either directly creates or enable differential value when leveraging a DBS.

### 6.2.2.7 Transparent

Due to the increased reliance on IT to create or enable competitive advantage, the DBS is more transparent than traditional strategies. This means that it becomes easier for competitors to follow the organisation's visible strategic moves which could lead to short-lived differential value. To this end, organisations who leverage a DBS must carefully consider the trade-offs between system visibility and value, plan for the obsolescence of their visible strategic moves, and accept the idea that the DBS is a constantly evolving entity.

### 6.2.2.8 Evolving and adaptive

Taking into consideration exogenous factors, which are constantly changing, the DBS is required to adjust depending on the demand of these factors. In order to adequately respond or take advantage of disruptive opportunities, the elements the DBS interacts with is also in constant need of adjustment. As mentioned before, the DBS is dependent on internal infrastructures and as a result, continuous alignment efforts must be made to keep the DBS and its supporting functions in alignment.



### **6.2.2.9 Rooted in culture**

With the appropriate social and cultural alignment, the DBS is considered a guide to staff as it specifies what the organisation aims to achieve. This shared understanding of what the organisational goals are is irrespective of how many times it is adjusted in response to- or disruption of the market. The social and cultural alignment is especially effective if the continuous adjustment of the DBS is done, not only from the top-down but also from the bottom-up. As transparent as the DBS is, it could be difficult to replicate as the DBS is rooted in the organisation's culture. That is, the execution of the DBS is dependent on the actions and the beliefs of the individuals within the organisation. The collective beliefs, value system and skills are part of business infrastructure and processes, through which the DBS has influence over organisational performance. Therefore, should a competitor attempt to replicate the visible strategic move but have an incompatible organisational culture to enable the replication, the attempt would most likely result in an unrealised strategy.

### **6.2.2.10 Accepting of paradoxes**

The DBS adopts an and/both approach to strategy execution as opposed to an either/or approach. For example, part of the purpose of the DBS is to achieve efficiency without compromising competitive advantage or flexibility. These are seemingly conflicting goals, but in the context of the DBS, these paradoxes have to co-exist to make an effective DBS. This acceptance of paradoxes is mirrored in the elements the DBS interacts with. For instance, IT has to run a dual IT service which focusses on both traditional and agile IT.

### **6.2.2.11 Bold and encouraging of failing forward**

Being in a dynamic environment, afforded by technological advances, the DBS encourages the execution of bold ideas in the shortest amount of time. Bold ideas are how organisations can respond to competitor moves or create disruption in the market. Seeing that the probability of an innovative idea being perfect when first launched, the DBS is also encouraging of failing fast, learning from the mistake and improving it on the next launch. This approach is mirrored in the internal infrastructure, for example, business processes where product launches are following the approach of the minimum viable product (MVP) concept.



### 6.2.3 Boundary and characteristics hypothesis testing

As discussed in the purpose of the study, existing literature has not delved into the boundaries and the characteristics of the DBS, as the notion is fairly new. However, existing literature has mentioned some characteristics of the DBS. Part of this study was to test if these characteristics were observed through this case study. Table 6.3 is a summary of the hypothesis testing.

Hypothesis	Description	Result
H <sup>9</sup>	<p>A DBS has the following characteristics:</p> <ul style="list-style-type: none"><li>• Creates differential value</li><li>• Is organisation-wide</li><li>• Is strategic, not just functional</li><li>• Is dynamic / flexible / agile</li><li>• Is customer-centric</li><li>• Is disruptive</li><li>• Is exploratory and adaptive</li></ul>	Supported

Table 6.3: boundary and characteristic hypothesis testing results

### 6.2.4 Boundaries of a DBS as it relates to scale, speed and value creation of a DBS

In [section 2.4.2](#) the themes relating to the DBS, namely scope or boundaries, scale, speed, and value creation were discussed. The aim of this research project was to focus on the scope or boundaries of the DBS, however, through the observation of the DBS in FinCo, it is evident that these themes share interconnectivity. As in, a development in one theme may have an impact on the other. In the following sub-sections, these relationships will be explored within the parameters of the definitions as per Bharadwaj et. al (2013).

#### 6.2.4.1 Boundaries of the DBS in relation to the scale of the DBS

As a reminder, the scale of the DBS is concerned with how an organisation leverages technology to lower operating and production costs of their products and services offering (Bharadwaj et al., 2013; Grover & Kohli, 2013). As discussed in [section 4.6.1.2.3](#), a systemic competence of FinCo is using IT to exploit economies of scale. This exploitation of the scale of the DBS allowed them to expand their business scope



(boundaries of the DBS) by breaking into the direct market channel and expand their market reach. This expansion of their service portfolio is possible because FinCo adopts the cost and economics leveraging form of IT as part of their DBS.

#### **6.2.4.2 Boundaries of the DBS in relation to the speed of the DBS**

The speed of the DBS is concerned with how an organisation can leverage technology to quickly launch new products or services into the market (Bharadwaj et al., 2013; Grover & Kohli, 2013), evaluate an abundance of data and make decisions, and coordinate activities across their value chain (Bharadwaj et al., 2013). FinCo's overarching vision is "Customer led and Digital First", meaning they aim to be first to market with products and services. To enable the realisation of this vision, FinCo made multiple changes in their organisation including progressing the way they use technology to enable the collection and analysis of customer-related data for quick decision making as discussed in [section 4.6.1.1.1](#), and speeding up their product and services launches as discussed in [section 4.6.2.2.7](#) and [section 4.6.3.4](#). By leveraging the speed of the DBS, FinCo controls how quickly their service portfolio i.e. DBS boundaries changes. This speed of the service portfolio changes and realising their goal of being first to market, is influenced by FinCo adopting the IT as innovation, IT as reshaping and adapting, and IT as flexible and agility forms.

#### **6.2.4.3 Boundaries of the DBS in relation to the value creation of the DBS**

The value creation of the DBS is concerned with how an organisation leverages technology to derive value from information (Bharadwaj et al., 2013), optimising existing-, or designing new innovative products and services (Bharadwaj et al., 2013; Reijnen, 2018). FinCo's service portfolio is largely influenced by analysing and transforming copious amounts of data relating to the customer preferences as discussed in [section 4.6.1.1.1](#) and industry trends as discussed in [section 4.6.1.1.3](#). The value is derived from having access to this information in a format that allows for opportunistic decision-making on a continuous basis. This value is enabled through technology. Value is also derived from FinCo rolling out innovative technology that enables the customer to become a co-value creator, effectively empowering the customer as discussed in [section 4.6.1.1.4](#) and focusing on operational excellence as discussed in [section 4.6.2.2.6](#). With each of these initiatives to create value, the boundaries of the DBS are amended accordingly.

As mentioned in [section 2.4.2](#), value can be derived from digital resources in a financial form. In the case of FinCo, it is evident that value can also be derived from traditional resources (such as decision making)



in a financial form. The alignment between the digital-enabled activities and non-digital activities as encapsulated by the DBS has a positive impact on organisational performance as discussed in [section 5.5.7.6](#). This means the continuous alignment between the boundaries, scale, speed and value creation of a DBS is an important aspect of creating financial value.

### 6.2.5 Third key finding: definition of a DBS

In an effort to provide a definition of the DBS, first, a deconstruction of the terms making up the DBS, i.e. 'digital business', and 'strategy' will be done. Since the term digital business has been discussed at length in [section 2.5](#), the first section will only be a summary of the discussion. The term strategy, however, will be explored in detail and will be compared to the characteristics of the DBS to see how the DBS relate.

#### 6.2.5.1 “Digital Business”

A digital business refers to a business whose organisation's infrastructure is reliant on technology. It exists within a dynamic and uncertain environment, enjoy a high level of competition, has IT-based business processes and uses multiple ways of doing business.

#### 6.2.5.2 “Strategy”

In [section 2.2](#) a strategy has been defined as an “integrated set of actions aimed at increasing the long-term well being and strengths of an enterprise relative to its competitors”. By looking at this definition and considering the five P's of strategy approaches as defined by Mintzberg (1987), it is clear that part of a strategy is a forward-looking plan (P1) that is used by the organisation as a guideline. It is important to note that while strategy as a plan is deliberately created by the organisation, it can also be a result of an emerging strategy that unfolded and is later adopted as a plan once the emerging strategy is recognised as profitable (Mintzberg, 1987). As described in [section 6.2.2.2](#), one of the characteristics of a DBS is forward-looking.

Strategy as a plan can be specific or generic, and if it is specific it could lead to strategy as a ploy (P2). A ploy is a specific move to outsmart competitors (Mintzberg, 1987). As described in [section 2.2](#), the elements that make a plan strategic is the inclusion of exogenous factors which contains information about competitors. By looking at Porter's definition of a strategy, the competitor and the competitive



moves that the organisation makes is an important part of a strategy. As described in [section 6.2.2.3](#), one of the characteristics of a DBS is a response plan to competitors.

A strategy can be forward-looking, i.e. a plan or guideline, but it must also focus on the “integrated set of actions” i.e. strategy execution. This leads to the third ‘P’ of strategy which is a strategy as a pattern that could be a deliberate set of behaviours as lead by strategy as a plan. Strategy as a pattern can also be unintentional, i.e. not lead by a plan, but can still be observed as a pattern (Mintzberg, 1987). This observable pattern should be observed by those internal to the organisation and may be observed by those outside of the organisation. As described in [section 6.2.2.9](#), the DBS is rooted in culture (internally observable). As described in [section 6.2.2.7](#) the DBS is transparent (externally observable).

Another side of a strategy, as it is influenced by competitors, is a strategy as a position (P4) (Mintzberg, 1987), i.e. where an organisation finds itself “relative to its competitors”. From a business perspective, this refers to where in the market the organisation either finds itself currently or plan to be in the future in order to maximise on economic profits (Mintzberg, 1987). In the digital era, this would also include the digital posture of the organisation. As per [section 6.2.2.4](#), the characteristics of the DBS includes self-awareness of digital posture and creates a match between the internal and external environment.

The last ‘P’ approach to strategy is a strategy as a perspective. This means that strategy is a concept and is a shared world-view amongst the individuals within the organisation (Mintzberg, 1987). In other words, a strategy is socially constructed and as such its power is derived by the belief of the individuals which would manifest itself in the organisation’s culture as culture is derived from actions influenced by belief. As per [section 6.2.2.9](#), the characteristics of the DBS is rooted in culture.

These approaches to strategy can be perceived as competing, considering one can replace the other (Mintzberg, 1987). However, as can be seen through the collective characteristics of the DBS, in [section 6.2.2](#), it would be in the organisation’s favour to think about all of these as one part of the whole and adjust the strategy in a self-organising fashion in order to deliberately respond to the external environment and take advantage of emerging strategies that presents itself. By taking into consideration the boundaries of the DBS as per [section 6.2.1](#), the characteristics of the DBS as per [section 6.2.2](#), the definition of a digital business as per [section 2.5](#), and the five forms of a strategy that the DBS reflects, the following definition of the DBS has been constructed.



***A DBS is an organisation-wide bought into set of competitive actions, leveraging an integrated pool of digital and traditional resources aimed at generating short- and long-term differential value.***

Table 6.4 provides a breakdown of how this definition was constructed.

Definition	Characteristic, boundary or strategy form represented
<b>Organisation-wide bought into</b>	<ul style="list-style-type: none"> <li>• The strategy must be understood and supported by all staff in the organisation through social alignment</li> <li>• Each individual action must be aligned to the strategic direction of the organisation through cultural alignment</li> <li>• Strategy as a perspective was used as inspiration</li> </ul>
<b>Set of competitive actions</b>	<ul style="list-style-type: none"> <li>• Exogenous factors must be taken into consideration in order to place the organisation in a strategic position of their choosing through intellectual alignment</li> <li>• All five P's of a strategy was used as inspiration</li> </ul>
<b>Leveraging an integrated pool of digital and traditional resources</b>	<ul style="list-style-type: none"> <li>• Elements formerly belonging to the business and IT strategies are co-constituting in the context of the DBS and are aligned with both business and IT infrastructure and process through intellectual and operational alignment</li> <li>• All five P's of a strategy was used as inspiration</li> </ul>
<b>Generating short- and long-term</b>	<ul style="list-style-type: none"> <li>• Agile and flexible responses to short-term market trends must be balanced with long-term strategic direction through intellectual and operational alignment</li> <li>• All five P's of a strategy was used as inspiration</li> </ul>
<b>Differential value</b>	<ul style="list-style-type: none"> <li>• Actions must be geared towards differentiating the organisation from its competitors through intellectual and operational alignment</li> <li>• All five P's of a strategy was used as inspiration</li> </ul>

Table 6.4: DBS definition deconstruction



### 6.3 Chapter summary

In summary, this chapter combined the qualitative and quantitative data analysed to answer the primary and secondary research questions of this study. The first key finding was focussed on understanding the boundaries of the DBS in relation to its internal and external environment. The second key finding was directed at describing the characteristics of the DBS and the third key finding was developing a definition for the DBS.

The following chapter will conclude the research with a summary, a reflection of the research and recommendation for future research as it relates to the DBS.



## Chapter 7

### 7. Conclusion

#### 7.1 Introduction

The objectives of this study were as follows:

- To define the boundaries and characteristics of a DBS
- To define the concept of a DBS
- To understand the DBS from both a technical (intellectual and operational alignment), and people (social and cultural alignment) perspective
- To transpose the Strategic Alignment Model (SAM) and the Complex Adaptive System (CAS) frameworks in order to understand the DBS from an intellectual, operational, social, and cultural alignment perspective.
- To understand the impact of the DBS on organisational performance

To satisfy these objectives, the researcher collected data from a single organisation in the financial industry over a period of thirteen months. Data were collected from staff members across the organisation's hierarchy. The penultimate chapter focused on the research discussion where both qualitative and quantitative data were combined to answer the primary and secondary research question, which were "what are the boundaries and characteristics of a DBS" and "what is the definition of a DBS" respectively. In this final chapter, the focus will be on an overview of the data analysed as it relates to the primary and secondary research questions. The chapter also provides a summary and evaluation of the research conducted and provides recommendations for future research. Figure 7.1 provides an overview of this chapter.

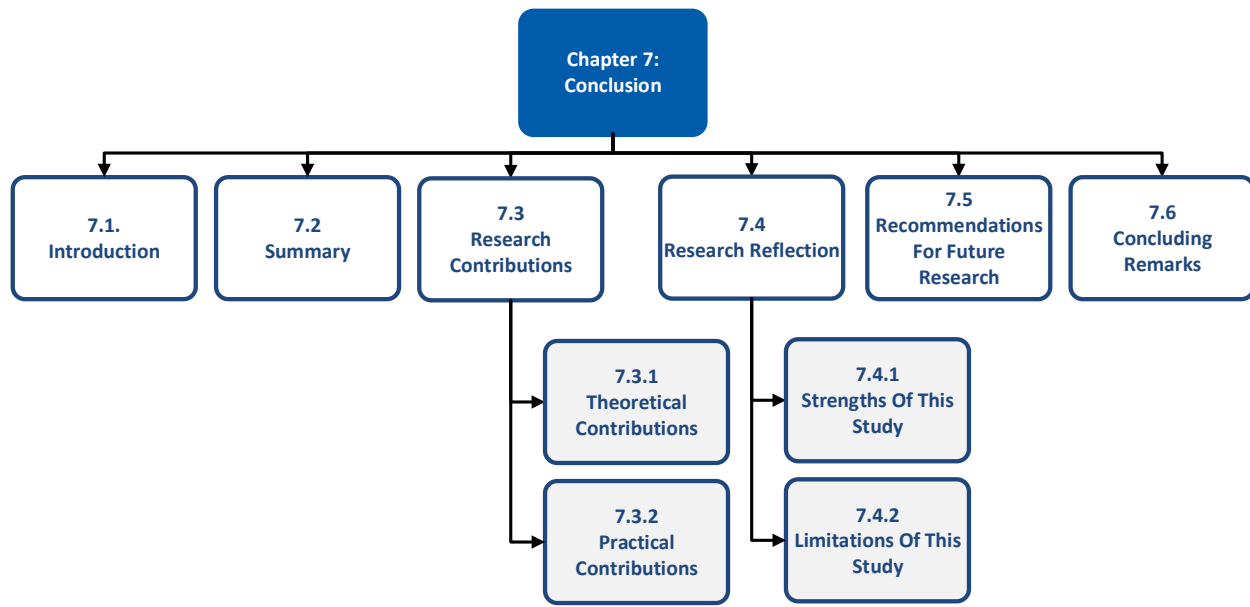


Figure 7.1: Chapter 7 overview

## 7.2 Summary

As explained in [Chapter 1](#), alignment between business and IT strategy has been a topic of concern for managers for over thirty years. With the dependency of organisational success on IT becoming more prevalent in modern society, IT has over time, been recognised as strategic as opposed to merely functional. With this elevation of IT rank, a new notion, that amalgamates business and IT strategy into one, has emerged. This amalgamation gave rise to the Digital Business Strategy (DBS). Since the DBS is a new concept, not many research studies have been conducted on the phenomenon regarding, what its boundaries are, what its characteristics are, and if it positively impacts the organisation financial performance. To expand on existing research conducted on the DBS, this study investigated the DBS in its natural habitat. The results were synthesised into a description of the relationship of the DBS with its internal and external environment and a description of the DBS itself.

In [Chapter 2](#) a review of the extant literature on the DBS was presented. Since there was not much existing literature of the DBS as a phenomenon, especially in the theme of boundaries, most of the literature was focused on the individual components making up the DBS, which is the business strategy and the IT strategy. The literature included strategy development, the evolution of business and IT strategy alignment, the importance of business and IT strategy alignment, and the different types of alignment perspectives one can use to promote the integration between business and IT strategy. In addition,



considering the unattainable nature of alignment itself, it was important to include alignment challenges. The research on business and IT strategies were coupled with limited existing literature of the DBS itself. This included working definitions of the DBS from various authors, how the DBS may impact organisational performance and under which conditions the DBS would exist in the first place.

Based on existing literature it was evident that there were much of the DBS that was unknown. It was also clear that most of the studies that were focused on alignment between business and IT strategy were mostly focused on intellectual and operational alignment which were more technically orientated. From what was already in the existing literature and what was projected about the DBS, a gap to review this phenomenon from a social and cultural alignment perspectives were identified. In order to observe the DBS from intellectual, operational, social and cultural alignment the SAM and CAS frameworks were transposed and contributed to the lens used for observing the DBS.

To examine the DBS, as defined in [Chapter 3](#), a carefully crafted research lens was selected. First, this study found that the interpretivism research philosophy was most appropriate considering the DBS is a socially constructed notion. Second, since the DBS was to be observed in its natural habitat, the most appropriate research strategy was a single case study with a carefully selected case that complied with the study's selection criteria. Third, to combat the critique of using a single case study, the researcher employed a mixed-method approach, which included qualitative and quantitative methods to observe the DBS from multiple angles. The recommendation for the mixed methods included a questionnaire to evaluate the status of the organisation's alignment and interviews, informal conversations, document collection, and observations to provide the rich context for the DBS.

[Chapter 4](#) through [Chapter 6](#), was dedicated to analysing and discussing the DBS as it relates to the primary and secondary research questions. The findings from both the qualitative and quantitative data provided interesting observations. One of the most interesting observations was that the alignment approach that had the most significant impact on organisational performance was competitive potential, which is concerned with business infrastructure and processes, and not technology transformation, which is concerned with IT infrastructure and processes, as one would have expected considering the projected nature of the DBS. This demonstrated that an organisation may be heavily reliant on technology, but factors such as skills and culture play a very important role in the success of leveraging digital technology to impact organisational performance. Another interesting finding was the magnitude of changes FinCo



## Chapter 7: Conclusion

had to make in order to leverage a DBS. These changes included but were not limited to, upgrading IT infrastructures, changing relationships with partners, customers and competitors, adopting new ways of working, re-engineering business processes, overhauling business models and organisational structures, and changing their organisational culture.

By analysing the qualitative and quantitative data the following hypothesis extracted from extant literature were evaluated, as depicted in Table 7.1.

	Hypothesis	Result
H <sup>1</sup>	Merging business and IT strategy into a DBS <i>does not</i> automatically result in perfect intellectual alignment	Supported
H <sup>2</sup>	IT alignment has a positive effect on performance through operational alignment (Path: IT alignment → operational alignment → performance)	Supported
H <sup>3</sup>	Intellectual alignment has a positive effect on performance through business alignment (Path: Intellectual alignment → business alignment → performance)	Supported
H <sup>4</sup>	Intellectual alignment has a positive effect on performance through IT alignment (Path: Intellectual alignment → IT alignment → performance)	Not supported
H <sup>5</sup>	Business alignment has a positive effect on performance through operational alignment (Path: Business alignment → operational alignment → performance)	Supported
H <sup>6</sup>	DBS has a positive effect on performance through IT alignment, business alignment, and operational alignment.	Supported
H <sup>7</sup>	DBS alignment must include social alignment	Supported
H <sup>8</sup>	DBS alignment must include cultural alignment	Supported
H <sup>9</sup>	A DBS has the following characteristics: <ul style="list-style-type: none"> <li>• Creates differential value</li> <li>• Is organisation-wide</li> <li>• Is strategic, not just functional</li> <li>• Is dynamic / flexible / agile</li> <li>• Is customer-centric</li> <li>• Is disruptive</li> <li>• Exploratory and adaptive</li> </ul>	Supported

**Table 7.1: Overview of hypothesis results**



## 7.3 Research contributions

The purpose of this study was to highlight the DBS's boundaries and characteristics and to provide a definition of the DBS. The findings of this research make both theoretical and practical contributions and are described in the following section.

### 7.3.1 Theoretical contributions

This study makes six theoretical contributions. First, this research contributes to the DBS literature as this is one of the few studies that observed the DBS in its natural habit, through intellectual, operational, social and cultural perspectives, in an effort to understand the relationships between the elements within the DBS and DBS's relationships with its internal and external environment. Second, this study combined two theoretical frameworks namely the Strategic Alignment Model (SAM) and Complex Adaptive System (CAS), in order to observe a phenomenon from four different alignment perspectives. Third, this study detailed the significance of the four alignment perspectives per alignment phase in order to demonstrate the relationship between alignment perspectives and the importance of using all four alignment perspectives when observing the DBS. Similar to the third theoretical contribution, this study also showed the connection between intellectual, operational and social alignment and its relationship with the three forms of strategy namely, intended strategy, deliberate strategy and realised strategy. Fifth, this study tested recently developed measurement scales of intellectual and operational alignment (Gerow et al., 2015) and in so doing provided insights on how a specific organisation may use the results for further their alignment advancement. Last, this study empirically shows that the DBS has a significant positive effect on organisational performance through the IT alignment, business alignment and operational alignment dimensions. On a practical note, these findings could assist traditional organisations with implementing a DBS as part of their digital journey and could assist a digitised organisation to leverage a DBS more effectively. The following section highlights the practical contributions of this study.

### 7.3.2 Practical contributions

The findings, as discussed in [Chapter 6](#), suggest that organisations leveraging a DBS should be concerned with more than just implementing digital technologies innovatively. They should also pay attention to the following summarised list of actions:



## Chapter 7: Conclusion

- External environment
  - Empower the customer to become part of the product design team and co-creating products and services
  - Remain in close proximity with the customer and create multiple ways to improve the customer engagement experience
  - Understand and anticipate the needs and wants of the customer and competitor strategic moves by leveraging digital resources and monitoring industry of operation and across industry short- and long-term trends
  - Create competitive opportunities from understanding competitor strategic position and digital posture
  - Leverage digital resources and the organisation's ecosystem to expand the organisation's service portfolio beyond asset-specific value, but do so without breaching business governance limitations
  - Place the most emphasis on the alignment approach that is most appropriate for the organisation
- Internal environment
  - Ensure the elevated role of IT is understood and bought into organisational wide. This is in conjunction with investing in the organisation's digital literacy capability.
  - Leverage both traditional and digital resources across the hierarchy of the organisation to create financial and non-financial value concurrently.
  - Include all influential and appreciative of transformation staff in the DBS development in order to promote DBS buy-in and an organisational culture devoted to the DBS execution
  - Perform social alignment activities such as formal and informal dissemination of the organisation's strategy for staff members who are not involved with DBS formulation
  - Create a culture where change is embraced and adequately managed
  - Create a culture where bold experimentation and failing forward is embraced
  - Create a culture of autonomy in order to promote the ethos of continuous alignment in a self-organising fashion where decisions are not constraint by centralised control
  - Align business and IT infrastructure and processes to the DBS in order to ensure that digital initiatives are not disjointed from the organisation's strategic intent.



## 7.4 Research reflection

### 7.4.1 Strengths of this study

The DBS is a new concept that has not previously been defined in terms of its definition, characteristics or boundaries. In order to understand the concept of the DBS, it had to be observed in its natural habitat. As a result, the best possible platform to do so was through an in-depth case study. One of the strengths of this study was that the DBS could be observed in an organisation that was not restrictive in providing information about their engagements with the DBS.

Another strength of this study is the use of two theoretical frameworks. There is no one theoretical framework that could be used to observe the DBS from the four alignment perspectives that the study required. As a result, two fitting theoretical frameworks were transposed to provide the necessary lens through which the DBS could be observed. By doing this, the DBS could be observed from multiple angles which strengthened the findings in relation to what it is and what its characteristics and boundaries are.

The mixed-method methodology could also be considered as a strength of this study. By observing the DBS through both qualitative and quantitative methods, a richer picture of the DBS could be developed as it relates to the role the DBS plays in organisational performance. It also demonstrated that the strengths of each method could overcome the weaknesses of the other.

### 7.4.2 Limitations of this study

No research is without its limitations as Table 7.2 will demonstrate. Despite these limitations, researchers and organisations alike could still benefit from the findings of this study.

Limitation	Discussion
A small sample size for quantitative analysis	While there is no exact number for when a sample size for quantitative analysis is adequate, Saunders et al. (2009) advise that a sample size of 30 or more should suffice. This study only obtained a sample size of 29, however, based on the small pool of eligible respondents the researcher accepted this sample size and continued with the analysis.



Limitation	Discussion
Single case study	The single case study was a strength in the sense that it provided the best platform to observe the DBS, especially since the “boundaries between phenomenon and context were not clearly evident” (Yin, 1984, p. 13). However, one of the biggest criticisms of the single case study is its generalisability to population. In light of this, this study mainly focused on making a theoretical contribution, however practical contributions were identified for organisations that are on a similar journey as FinCo.
Time horizon	This study only observed FinCo for thirteen months and they are still in the middle of the reengineering of their operations. Nonetheless, the changes they have already made provided valuable insights into how the DBS influences its environment and how it is influenced by its context.

**Table 7.2: Study limitations summary**

## 7.5 Recommendations for future research

Future researchers can build on the phenomenon of the DBS by creating the following:

- A practical guide to creating and executing a DBS, which includes concepts such as roles, responsibilities and accountabilities.
- An integrated model and metrics to measure the effectiveness of a DBS from a social, operational, social and cultural alignment perspective
- Observe the DBS in digital-born organisations and compare the results to digital-turned organisations
- Determine the effect of a DBS on organisational performance in a less regulated industry and compare results

## 7.6 Concluding remarks

It is hoped that the results of this study contribute to how the DBS is perceived and leveraged. While this study was based on a single organisation with very specific boundaries in terms of industry constraints and a digital journey unique to them, the hope is that their journey and their use of and changes, because of their DBS, can assist other organisations in achieving their goals by leveraging a DBS.



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## Appendices

### Appendix A: Ethical Clearance (Original)

	<b>Faculty of Commerce</b> <b>Private Bag X3, Rondebosch, 7701</b> 2.26 Leslie Commerce Building, Upper Campus Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4388 E-mail: <a href="mailto:com-faculty@uct.ac.za">com-faculty@uct.ac.za</a> Internet: <a href="http://www.uct.ac.za">www.uct.ac.za</a>  @Commerce_UCT  UCT Commerce Faculty Office
---	--

22/06/2018

Prof Jeanne Fredericks  
Department of Information  
Systems  
University of Cape Town

REF: REC 2018/006/042

Dear Jeanne Fredericks,

Towards an understanding of the boundaries and characteristics of a digital  
business.strategy

We are pleased to inform you that your ethics application has been approved. Unless  
otherwise specified this ethical clearance is valid for 1 year and may be renewed upon  
application.

Please be aware that you need to notify the Ethics Committee immediately should any  
aspect of your study regarding the engagement with participants as approved in this  
application, change. This may include aspects such as changes to the research design,  
questionnaires, or choice of participants. The ongoing ethical conduct throughout the  
duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

Modie Sempu  
Administrative Assistant  
University of Cape Town  
Commerce Faculty Office  
Room 2.26 | Leslie Commerce Building

Office Telephone: +27 (0)21 650 2695/4375  
Office Fax: +27 (0)21 650 4369  
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## Appendix B: Ethical Clearance (Extension)

	<b>Faculty of Commerce</b> Private Bag X3, Rondebosch, 7701 2.26 Leslie Commerce Building, Upper Campus Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4369 E-mail: <a href="mailto:com-faculty@uct.ac.za">com-faculty@uct.ac.za</a> Internet: <a href="http://www.uct.ac.za">www.uct.ac.za</a>  @Commerce UCT  UCT Commerce Faculty Office
---	---

21<sup>st</sup> June 2019

Ms Jeanne Fredericks  
Department of Information  
Systems  
University of Cape Town

Dear Ms Fredericks

REF: REC 2019/000/062

### TOWARDS AN UNDERSTANDING OF THE BOUNDARIES AND CHARACTERISTICS OF A DIGITAL BUSINESS STRATEGY

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid for 1 year and may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.


Shandre Swain  
Administrative Assistant  
University of Cape Town  
Commerce Faculty Office  
Room 2.26 | Leslie Commerce Building

Office Telephone: +27 (0)21 650 2695 / 4375  
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## Appendix C: Questionnaire



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---

**What is your name?**

---

**What is your position in the company?**

---

**How long have you been in this role in your current organisation ?**

☐ 1-3 Years

☐ 4-5 Years

☐ 6-10 Years

☐ 10-15 Years

☐ 16+ Years

---

**How long have you been in this role throughout your career?**

☐ 1-3 Years

☐ 4-5 Years

☐ 6-10 Years

☐ 10-15 Years

☐ 16+ Years

---

**How old are you?**

☐ 18-25

☐ 26-30

☐ 31-39

☐ 40-49

☐ 50-60

☐ 61+

---



---

**How old are you?**

- ☐ 18-25
- ☐ 26-30
- ☐ 31-39
- ☐ 40-49
- ☐ 50-60
- ☐ 61+

---

**Are you part of...**

- ☐ Senior Management
- ☐ Mid-level Management
- ☐ Junior Management
- ☐ Non Management

---

**Are you directly involved with determining the strategic direction of the organisation?**

- ☐ Yes
- ☐ No

---

**Are you directly involved with decisions on IT investments?**

- ☐ Yes
- ☐ No

---

0%  100%





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In this section we are trying to get a sense of whether your IT strategy supports how your business competes in the market.

On a 5-point Likert scale, please rate the following as it pertains to your organisation:

**Note:** If you do not know the answer to a question please select 'Not Sure'. All questions must be answered before moving to the next section.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Our <u>IT strategy</u> and <u>business strategy</u> match each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <u>IT strategy</u> to business strategic change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <u>business strategy</u> to IT strategic change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>IT strategy</u> aligns with our business strategic plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We assess the <u>strategic importance</u> of emerging technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <u>IT goals and objectives</u> to our business goals and objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We identify the fit between our <u>IT-related strategic opportunities</u> and our <u>business strategic direction</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>IT strategies</u> and <u>business strategies</u> correspond to each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% 100%



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In this section we are trying to get a sense of whether you have technical capabilities in place to support your business processes.

On a 5-point Likert scale, please rate the following as it pertains to your organisation:

**Note:** If you do not know the answer to a question please select 'Not Sure'. All questions must be answered before moving to the next section.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Our <u>IT processes</u> match our <u>business processes</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <u>IT processes</u> to our business processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <u>business processes</u> to our IT processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We identify the fit between our <u>IT infrastructure</u> and our <u>business infrastructure</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>IT infrastructure</u> corresponds to our <u>business infrastructure</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>IT infrastructure</u> aligns with our <u>business infrastructure</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% 100%





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In this section we are trying to get a sense of whether your technical capabilities help you execute and develop your strategy for competing in the market.

On a 5-point Likert scale, please rate the following as it pertains to your organisation:

**Note:** If you do not know the answer to a question please select 'Not Sure'. All questions must be answered before moving to the next section.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Our <u>IT processes</u> support our <u>business strategy</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our internal <u>IT processes</u> to our <u>business strategy</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>business strategy</u> and internal <u>IT processes</u> match each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We identify the fit between our <u>business-related strategic opportunities</u> and our <u>IT infrastructure</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>IT infrastructure</u> and <u>business strategy</u> correspond to each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>IT infrastructure</u> aligns with our <u>business strategy</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% 100%



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In this section we are trying to get a sense of whether your business processes help you execute and develop your IT strategy.

On a 5-point Likert scale, please rate the following as it pertains to your organisation:

**Note:** If you do not know the answer to a question please select 'Not Sure'. All questions must be answered before moving to the next section.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Our <u>IT strategies</u> support our business processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <u>IT strategy</u> to our internal business processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <u>externally-focused IT strategy</u> and internal business processes match each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We identify the fit between our <u>IT-related strategic opportunities</u> and our business infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our business infrastructure and <u>IT strategy</u> corresponds to each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our business infrastructure aligns with our <u>externally-focused IT strategy</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% 100%





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In this section we are trying to get a sense of whether your *technical capabilities* help you execute and develop your *IT strategy*.

On a 5-point Likert scale, please rate the following as it pertains to your organisation:

**Note:** If you do not know the answer to a question please select 'Not Sure'. All questions must be answered before moving to the next section.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Our <i>IT processes</i> supports our <i>IT strategy</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <i>IT strategy</i> to our <i>internal IT processes</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <i>IT strategy</i> and <i>internal IT processes</i> match each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We identify the fit between our <i>IT-related strategic opportunities</i> and our <i>IT infrastructure</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <i>IT infrastructure</i> and <i>IT strategy</i> corresponds to each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <i>IT infrastructure</i> aligns with our <i>IT strategy</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% 100%



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In this section we are trying to get a sense of whether your *business processes* help you execute and develop your *strategy for competing in the market*.

On a 5-point Likert scale, please rate the following as it pertains to your organisation:

**Note:** If you do not know the answer to a question please select 'Not Sure'. All questions must be answered before moving to the next section.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Our <i>business processes</i> supports our <i>business strategies</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We adapt our <i>business strategy</i> to our <i>internal business processes</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <i>business strategy</i> and <i>internal business processes</i> match each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We identify the fit between our <i>business-related strategic opportunities</i> and <i>business infrastructure</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <i>business infrastructure</i> and <i>business strategy</i> correspond to each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our <i>business infrastructure</i> and <i>business strategy</i> align	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% 100%





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For each of the statements below, how has your firm performed relative to your competition during the last 5 years:

On a 5-point Likert scale, please rate the following as it pertains to your organisation:

**Note:** If you do not know the answer to a question please select 'Not Sure'. All questions must be answered before submitting the questionnaire.

	Very Low	Low	Not Sure	High	Very High
Our executive team's satisfaction with return on sales is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our executive team's satisfaction with the sales growth rate is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our executive team's satisfaction with the return on corporate investment is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The return on corporate investment position relative to our principle competitors is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The market share gains relative to our principle competitors is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The sales growth position relative to our principle competitors are...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The net profit position relative to our principle competitors is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The financial liquidity position relative to our principal competitor is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0% ☐ 100%





## Appendix D: Cover Letter



### Department of Information Systems

Leslie Commerce Building  
Engineering Mall, Upper Campus

OR

Private Bag X3 - Rondebosch - 7701  
Tel: +27 (0) 21 650 2261 Fax: +27 (0) 21650 2280  
Internet: <http://www.commerce.uct.ac.za/informationssystemsf/>

11 May 2018

Dear Participant

I would like to invite you to participate in an academic research study on understanding the boundaries and characteristics of a Digital Business Strategy. This study will be towards the completion of my PhD Degree in Information Systems at the University of Cape Town. This research has been approved by the Commerce Faculty Ethics in Research Committee.

The aim of this study is to investigate what a Digital Business Strategy is made up of and who is accountable for the development and execution thereof. A working definition of a Digital Business Strategy is "organisational strategy formulated and executed by leveraging digital resources to create differential value". However, this definition is vague and is not widely accepted. Therefore, the basis of my study is to answer the following questions: 1) what are the boundaries and characteristics of a digital business strategy? And 2) what is the definition of a digital business strategy?

This study will be done through an electronic survey questionnaire and in-depth conversations or interviews with selected persons in the organisation and will be done over the next two to three months. The in-depth conversations or interviews will take approximately 1 – 2 hours at your organisation's premises or via electronic communication and the survey questionnaire will take approximately 10 to 15 minutes to complete. If you are willing to participate in this study, kindly sign the attached form and return to me at your earliest convenience.

Your participation in this research is voluntary. All information will be treated in a confidential manner and used exclusively for the purpose of this study. You will be requested to supply identifiable information



## Appendices

for purposes of the study but the researcher will ensure the anonymity of your responses in the findings and any subsequent publications.

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

You can choose to withdraw from the research at any time for whatever reason, in accordance with ethical research requirements.

Should you have any questions regarding this research, please feel free to contact me on redacted or email: FRDJEA004@myuct.ac.za.

Thank you for your time and participation.

Sincerely,

**Jeanne Fredericks**

PhD Student, (UCT)

Department of Information

Systems

Email: FRDJEA004@myuct.ac.za.

**Dr Sumarie Roodt**

Research Supervisor (UCT)

Department of Information

Systems

Email: sumarie.roodt@uct.ac.za

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

Name & Signature

Date

---

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## Appendix E: Semi-structured interview questions

### *Scope of a Digital Business Strategy*

1. What is the extent of fusion and integration between IT strategy and business strategy?
2. **IS** IT your strategy for gaining a competitive advantage?
3. How do you create a sustained competitive advantage in your organisation?
4. Is there any part of your strategy that can be achieved WITHOUT technology?
5. Adopting IT – how do you know when and how to adopt new IT solutions?
6. How well does IT support the needs of the business? Scale from 1 – 5. How effective is IT used in the organisation, regarding current market demands and anticipated future demands?
7. How can you tell if your IT resources create differential value for your organisation? Both short term and long term.
8. In the investment industry as a whole, are you converging or diverging from the digital trends?
9. Do you develop your IT strategy separate from your business strategy? Or is developing your IT strategy essentially developing your business strategy?
10. How well do you exploit the digitization of products and services to obtain competitive advantage?
11. How has your strategy formulation evolved over the last 10 years?
12. How many people are involved with developing your strategy? Is this more than what it was 10 years ago? Why?
13. How does the organisation align on strategic intent and IT investment and management?
  - a. What is the process of developing your IT strategy? Is it once off? Continuously
  - b. Are roles and responsibilities clearly defined?
  - c. Are there effective communication between actors to ensure the right IT is invested in (and executed) at the right time?
14. How well do you take advantage of data, information, and knowledge abundance? Is this more now in the digital era?
15. How well do you exploit the extended business ecosystem for operations? E.g. Apple. Networks – is this in your DBS. Technology provides the platform for Value Chain and Partnering. How do you do that in your strategy? (Value co-creation)



## Appendices

16. How does technology influence what you offer to the client? (New Services) – is this in your strategy? How do you introduce new value creation through portfolio based on technology?
17. How important is innovation to your company?

### *Speed of a Digital Business Strategy*

1. How quickly does it take for decisions to be made that influences the direction of the company and how to leverage digital resources?
2. Who takes accountability for setting the direction and implementing a DBS
3. How effective is the digital business strategy in accelerating new product launches? Digital Fastlane
4. How easy is it for the organisation to amend the IT infrastructure to respond to different needs?
5. How well does IT support the needs of the business?

### *The scale of a Digital Business Strategy*

1. How easy is it for your organisation to scale IT infrastructure according to market demands?
2. How has the firm's technological infrastructure change over the last decade?

### *Alignment Process / Roles*

1. Have the roles changed? Previously roles were so clearly defined. E.g. Business does this. IT does that. Do you feel as if you need to learn more about business as the years went on?
2. How does the organisation keep up with the customer and regulatory demands? Is that your responsibility or that of the business stakeholders?
3. Do all parties share the same language when discussing strategy?
4. Do you feel that sometimes you speak but the other side does not understand?
5. How often do you do an alignment between business and IT?
6. Over the past 5 years, have you seen a change in the role of business players in their knowledge of IT? And vice versa?
7. If yes, does this influence how quickly decisions are made?
8. Do you think the skills of your IT staff is in itself a contributing factor to a competitive advantage?



## Appendices

### Transparency

1. How do you manage the visibility of your IT advances?
2. How easy is it for other organisations to imitate your products or services or the processes of developing them?
3. Does your organisation pay special attention to the following aspects of transparency? For information, processes and software.
4. How does the organisation respond to competitor displays of information?



## Appendix F: Document Catalogue Extract

File Name	Type	Theme	Date Received	Sender	Purpose
<b>9 box talent grid handout</b>	Document	Strategy Development	16-Apr-19	Redacted	To understand the characteristics of the personnel selected to be part of strategy development
<b>GIDPeopleModelAnnexureV01</b>	Document	Process	16-Apr-19	Redacted	To understand the rationale for the transition from pre-digital to digital
<b>JD agileroledescriptionssquads tribeschapters4.1171121</b>	Document	Actors	16-Apr-19	Redacted	To analyse the impact of digitisation on roles
<b>JD Business Analyst II</b>	Document	Actors	16-Apr-19	Redacted	To analyse the impact of digitisation on roles
<b>JD Business Analyst III</b>	Document	Actors	16-Apr-19	Redacted	To analyse the impact of digitisation on roles
<b>JD Business Analyst Team Leader</b>	Document	Actors	16-Apr-19	Redacted	To analyse the impact of digitisation on roles
<b>JD Divisional Director</b>	Document	Actors	16-Apr-19	Redacted	To analyse the impact of digitisation on roles



## Appendix G: Approval from host organisation

(Pseudonym used and actual names redacted)

### AGREEMENT TO USE FINCO INFORMATION (IP) FOR FURTHER STUDIES

#### STUDENT INFORMATION

Staff Member ☐

Non-Staff member ☒

Name and Surname: Jeanne Fredericks

Company (if not FinCo) University of Cape Town

Contact number (if not FinCo): redacted

Contact email address (if not FinCo): FRDJEA004@myuct.ac.za

Staff number: NA Cluster: NA

#### Envisaged topic:

Towards an understanding of the boundaries and characteristics of a digital business strategy.

#### IP/Information requirements:

- Descriptions of the product and services the company offers
- High-level customer-facing processes and how it is enabled by technology
- Current Business and IT alignment status
- High-level IT and business governance processes
- Organisational structure
- Job descriptions of both business and IT senior personnel
- The high-level process for doing IT and Business strategy alignment

#### FinCo

IP/Information requirements approved: Yes ☐ No ☐

Redacted Redacted

Managing Executive

HR Executive

#### INSTITUTION



## Appendices

I, Jeanne Fredericks, representing University of Cape Town (institution) hereby agree to the above and agree that the IP in the final thesis/dissertation belongs to FinCo Ltd.

Signature Removed

14 August 2018

Signature:

Date:



## Appendix H: Extract from transcription

The screenshot displays the NVivo 12 Pro interface. The top menu bar includes File, Home, Import, Create, Explore, and Share. The 'Document Tools' tab is active, showing options like Zoom, Annotations, Quick Coding, Layout, Coding Stripes, and Highlight. The 'Files' pane on the left shows a project structure with 'Quick Access' (Files, Memos, Nodes), 'Data' (Files, File Classifications, Externals), 'Codes' (Nodes, Interview Questions, Relationships, Relationship Types), 'Cases' (Cases, Case Classifications), and 'Search' (Queries, Query Results). The main window shows a document titled 'C2: Competitive Advantage' by Jeanne. The text reads: 'So, speaking of those tools, do you think in the last, how do you fair against your competition in terms of technology being a tool that you do use for competitive advantage.' Below the text is an 'Annotations' table with 9 items. A blue box labeled 'Redacted' covers a portion of the 'Codes' column in the 'Files' pane and a portion of the 'Content' column in the 'Annotations' table.

Name	Codes	References
	47	196
	46	167
	41	153
	53	299
	43	195
	42	195
	38	174
	39	181
	31	153

Item	Content
6	Link this to <b>Redacted</b> comment about other industries have done this, we are the first to do it in ours, but they had all the teething problems. Other industries also have an impact on how we work on our industries because one consumer can belong to multiple industries. Create a little 1 to many diagram between customers, industries and technology. So technology changes the customer. The Customer demands change in other industries.
7	Legacy does not only refer to system. It also refer to the type of business that has to adapt to the new world. This manual industry was comparing themselves to fast pace global organisations in completely different industries. Like Amazon and Uber.
8	Again, trying to apply lessons from other industries to this industry because the client demands it.
9	It's a drive to go digital or at the very least use digital tools



## Appendix I: Codebook

Digital Business Strategy (DBS)	
<b>Construct / variable name</b>	<b>Business scope</b>
<b>Definition</b>	The products and services the business provides including market information such as known and potential competitors.
<b>Description</b>	Anything in the organisation's service catalogue that is designed to bring value to its external customers.
<b>Construct / variable name</b>	<b>Technology scope</b>
<b>Definition</b>	The organisation's information and IT technology.
<b>Description</b>	The way that technology is being used (e.g. innovation, reshaping the industry, adapting to industry, competitive advantage, efficiency or effectiveness, flexibility).
<b>Construct / variable name</b>	<b>Distinctive competences</b>
<b>Definition</b>	Elements which lends the organisation with a competitive advantage, such as pricing structure and value chain optimisation.
<b>Description</b>	Any action the organisation is pursuing to differentiating the organisation from its competitors.
<b>Construct / variable name</b>	<b>Systemic competences</b>
<b>Definition</b>	The organisation's IT-enabled capabilities. E.g. access to information.
<b>Description</b>	Any way the organisation uses technology to create business value.
<b>Construct / variable name</b>	<b>Business governance</b>



<b>Definition</b>	The process by which the organisation manages stakeholders and regulatory requirements issued by the government.
<b>Description</b>	Any way the organisation remains compliant to laws intrinsic to its location and industry
<b>Construct / variable name</b>	<b>IT governance</b>
<b>Definition</b>	The process by which the organisation shares the responsibility for IT between IT and business partners, including suppliers. This also includes project selection and management.
<b>Description</b>	The way the organisation make decisions about IT investments and the implementation thereof.
<b>Business infrastructure and processes</b>	
<b>Construct / variable name</b>	<b>Administrative structure</b>
<b>Definition</b>	The method the organisation arranges its business. E.g. functional, horizontal etc.
<b>Description</b>	The impact digitisation had on the organisation's hierarchy.
<b>Construct / variable name</b>	<b>Business processes</b>
<b>Definition</b>	The way the organisation executes its operations through people.
<b>Description</b>	The impact digitisation had on the organisation's way of performing business functions
<b>Construct / variable name</b>	<b>Business skills</b>
<b>Definition</b>	The way the organisation performs Human Resource (HR) activities, such as hiring and retention.



<b>Description</b>	The impact digitisation had on the organisation's way of performing hiring, interacting with and retaining staff.
<b>IT infrastructure and processes</b>	
<b>Construct / variable name</b>	<b>Architecture</b>
<b>Definition</b>	The way organisations select and manage hardware, software, data and applications to work together as a cohesive unit.
<b>Description</b>	The process by which the organisation ensures their IT components are compatible
<b>Construct / variable name</b>	<b>IT processes</b>
<b>Definition</b>	The way the organisation manages applications and IT infrastructure.
<b>Description</b>	Any model the organisation uses and reasons for changing models regarding IT infrastructure.
<b>Construct / variable name</b>	<b>IT Skills</b>
<b>Definition</b>	The way the organisation performs Human Resource (HR) activities, such as hiring and retention for IT-specific resources.
<b>Description</b>	The impact digitisation had on the organisation's way of performing hiring, interacting with and retaining staff.
<b>Complex Adaptive System (CAS)</b>	
<b>Construct / variable name</b>	<b>Agents</b>
<b>Definition</b>	Business actors, IT actors and IT resources within the organisation
<b>Description</b>	Resources leveraged to create or execute the organisation's strategy



Construct / variable name	Agent relationships (Interaction)
Definition	Interconnectivity between actors
Description	The way social and cultural interactions between actors and how they influence each other and other actors outside of the network of the organisation.
Construct / variable name	Environment (Context)
Definition	The situation within which the actors exist
Description	The contextual constraints that the actors have to take into consideration when operating in their environment



## Appendix J: Factor loadings iterations

Indicator	Iteration 1	Iteration 2	Iteration 3	Iteration 4
IA1	<b>0.531</b>			
IA2	0.625	<b>0.619</b>		
IA3	0.808	0.801	0.811	0.805
IA4	0.817	0.801	0.784	0.781
IA5	0.666	0.673	<b>0.674</b>	
IA6	0.769	0.788	0.783	0.786
IA7	0.813	0.828	0.823	0.834
IA8	0.819	0.835	0.844	0.856
BA1	0.859	0.860	0.859	0.860
BA2	0.780	0.778	0.779	0.778
BA3	0.886	0.885	0.886	0.886
BA4	0.851	0.852	0.851	0.851
BA5	0.925	0.926	0.926	0.926
BA6	0.958	0.959	0.959	0.959
ITA1	0.725	0.737	0.732	0.731
ITA2	<b>0.673</b>			
ITA3	0.900	0.895	0.898	0.899
ITA4	0.786	0.801	0.803	0.805
ITA5	0.911	0.917	0.916	0.915
ITA6	0.909	0.916	0.916	0.915
OA1	0.907	0.905	0.899	0.899
OA2	0.672	<b>0.669</b>		
OA3	0.695	0.701	0.738	0.738
OA4	<b>0.588</b>			
OA5	0.856	0.856	0.836	0.836
OA6	0.868	0.869	0.855	0.855
PERF1	0.685	<b>0.638</b>		
PERF2	<b>0.601</b>			
PERF3	0.896	0.877	0.871	0.871
PERF4	0.898	0.924	0.927	0.928
PERF5	0.849	0.856	0.857	0.857
PERF6	0.801	0.780	0.776	0.776
PERF7	0.756	0.742	0.740	0.740
PERF8	0.832	0.827	0.828	0.828



## Appendix K: Parameters for measurement model

### Cronbach's alpha and DG.rho

Construct	Code	Cronbach's alpha				DG.rho			
		Iteration 1	Iteration 2	Iteration 3	Iteration 4	Iteration 1	Iteration 2	Iteration 3	Iteration 4
Intellectual alignment	IA	0.886	0.892	0.888	0.886	0.918	0.916	0.915	0.918
Business Alignment	BA	0.940	0.940	0.940	0.940	0.953	0.953	0.953	0.953
IT alignment	ITA	0.907	0.907	0.907	0.907	0.932	0.932	0.932	0.932
Operational Alignment	OA	0.861	0.872	0.861	0.861	0.910	0.912	0.910	0.910
Performance	Perf	0.921	0.924	0.921	0.921	0.938	0.939	0.938	0.938

### First eigenvalue and second eigen value

Construct	Code	eig.1st				eig.2nd			
		Iteration 1	Iteration 2	Iteration 3	Iteration 4	Iteration 1	Iteration 2	Iteration 3	Iteration 4
Intellectual alignment	IA	3.47	4.29	3.87	3.47	0.685	0.869	0.868	0.685
Business Alignment	BA	4.64	4.64	4.64	4.64	0.577	0.577	0.577	0.577
IT alignment	ITA	3.67	3.67	3.67	3.67	0.635	0.635	0.635	0.635
Operational Alignment	OA	2.89	3.41	2.89	2.89	0.799	0.875	0.799	0.799
Performance	Perf	4.30	4.82	4.30	4.30	0.785	0.883	0.785	0.785