Digital Business Strategising in the context of Regulatory Uncertainty - the case of a Financial Services Provider in South Africa

Presented By

Nancy R. Brown

(DCKNAN001)

Research Supervisor: Professor Irwin Brown

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PLAGIARISM DECLARATION

I, Nancy Rubenia Brown, hereby declare that this dissertation is my own original work and that it has been submitted to the Turnitin module. I confirm that the Turnitin report has been discussed with my supervisor and that there are no unresolved concerns emanating from this report.

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PUBLICATION

Further review of literature was needed to gain a broader theoretical basis that would guide the case study research. This was achieved through a systematic literature review on a selected set of journals anchored in the IS discipline. The sources included the widely recognized AIS Top 8 journals and also IS or IT-related journals which publish on digital business strategy and digital transformation. The paper was presented at the SAICSIT conference in Skukuza, South Africa in September 2019. The publication details of this paper are as follows: Nancy Brown and Irwin Brown, 2019. From Digital Business Strategy to Digital Transformation – How: A Systematic Literature Review. *ACM SAICSIT conference*. 17-18 September, 2019. Skukuza, South Africa.

ABSTRACT

With the rise of digital technologies that have disrupted standard business models and created a new level of competition in the market, the need for digital business strategising that shapes the future of organisations and achieves digital transformation is high on the agenda of most firms. The added complexity of uncertainty in the regulatory environment regarding financial products and services, regulation of digital platforms and ongoing financial regulatory changes based on macro-economic turbulence, makes for a complex external environment within which businesses need to effectively compete and achieve performance targets. A qualitative, interpretive case study of a South African based global organisation is undertaken to explore and understand how organisations navigate the macro-environmental landscape while forging a digitally transformed future. The research uses thematic analysis to extract themes in the data collected from both IT and business leaders as they navigate the path of transitioning from traditional to digital business models in the context of regulatory uncertainty. The study provides insight into what is required for firms to achieve digital transformation, and demonstrates the influence that regulatory uncertainty has on the digital business strategising process of a firm. A conceptual model is developed that reflects the key drivers of digital transformation to achieve digital maturity and competitive advantage, and also represents the external influencing factors of regulatory uncertainty. The findings reveal a shift to a more tactical, combined top-down, bottom-up strategising practice with reliance on dynamic capabilities, strong leadership and innovation to overcome challenges of regulatory uncertainty.

Keywords: digital business strategising; digital technologies; digital transformation; digital transformation strategising; macro-environment; regulatory uncertainty

List of Figures

List of Tables

Definition of Abbreviations

CDO – Chief Digital Officer
CIO – Chief Information Officer
DBS – Digital Business Strategy
DC – Dynamic Capabilities
IoT – Internet of Things
IS – Information Systems
IT – Information Technology
Org-FS – Case Study Organisation
POI – Proof of Income
S.A. – South Africa
SISP – Strategic Information Systems Planning

Table of Contents

CHAPTER 1 - INTRODUCTION

1.1 Background to the Research Problem

Organisations rely on an effective information systems (IS) strategising process that dynamically engages business and information technology (IT) teams to achieve its business goals (Karpovsky & Galliers, 2015). This strategising process delivers an IS strategic plan to guide technology investment decisions and creates a shared vision of the future technology journey (Henfridsson & Lind, 2014). The strategising process is one that continuously works through conflicting demands, prioritises these demands, and allocates resources to find creative solutions that achieve business objectives (Marabelli & Galliers, 2017). For businesses to succeed, it is essential for "digital" to become part of business processes and calls for a different management mindset that will drive digital transformation (Fitzgerald, Kruschwitz, Bonnet & Welch, 2013).

1.1.1 The role of "Digital" in the Strategising process

Digital transformation brings about significant business optimisation as well as an enhanced customer experience, through the innovative creation of digital business models (Matt, Hess & Benlian, 2015) using technologies such as "social, mobile, analytics, cloud and Internet of Things [IoT]" (Sebastian, Ross, Beath, Mocker, Moloney & Fonstad, 2017, p. 197). Since digital technologies are inherently disruptive, they trigger a cohesive IS-business engagement model that facilitates the digital business strategising process (Sandberg, 2014). The concept of a digital business strategy (DBS) is described as a strategy that is "formulated and executed by leveraging digital resources to create differential value" (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013, p. 472). The traditional strategic information systems planning (SISP) practice is influenced by the DBS concept (Kahre, Hoffman & Ahlemann, 2017) in a way that transforms traditional business models through the application of digital technologies in products, services, and processes (Mithas, Tafti & Mitchell, 2013). Instead of a constant focus on IT and business alignment, the relationship model becomes an IT-business collaboration (Sandberg, 2014). To remain profitable in a marketplace where the level of competition has increased, organisations need a carefully planned digital business strategy (DBS) that creates business value for customers (Keen & Williams, 2015). Since digital capabilities are easily accessible through copying or imitation (Bharadwaj et al., 2013; Coltman, Tallon, Sharma & Queiroz, 2015), they provide a greater range of choices for customers (Porter & Heppelmann, 2014).To remain

relevant in the market place and compete for market share, digital transformation needs to be high on the strategic agenda of firms (Hess, Matt, Benlian & Wiesböck, 2016). However, constant shifting and uncertainty in the macro-environment, gives rise to volatility and unforeseen complexities within the IT and business environments (Bharadwaj et al., 2013), placing DBS strategies for digital transformation at risk (Lerner, 2015).

1.1.2 Regulatory Uncertainty in the Macro-environment

Uncertainty due to absent, unclear, or constantly changing legislation has a detrimental effect on digital business strategising (Weber, 2015). This highlights a need for further research on the coevolution of IT and business strategies within macro-environments that change at a significantly swift pace (Arvidsson, Holmström & Lyytinen, 2014). It also raises the question as to how firms go about improving business performance by shifting to digital business models despite the constraints of regulatory uncertainty. According to Kane, Palmer, Phillips, Kiron and Buckley (2016), failures in organisational digital transformations are prevalent. This highlights the importance of gaining an in-depth understanding of how to address external factors such as regulatory uncertainty that threaten the firm's aspirational digital future and the success of its digital transformation.

1.2 Purpose of the Research

Extant literature on coping with instability in the macro-environment focuses mainly on developed countries, with few studies undertaking an in-depth investigation of the effect of environmental uncertainty on business strategy and performance in developing countries (Li & Liu, 2014). The purpose of this research is to address this research gap by investigating the case of a financial services provider in a developing country like South Africa. It examines how a South African organisation goes about strategising its digital business while contending with the ongoing influences of regulatory uncertainty in a competitive macro-environment.

1.3 Research Problem Statement

Organisations need to keep up with the quick pace at which technology develops, especially since digital solutions and reliance on technology have become fundamental in all areas of business (Lerner, 2015). Business growth is negatively impacted when firms are not able to stay abreast of the progression of digital technology (Lerner, 2015). Strategising for business digitalisation is critical for an organisation to remain competitive (Mithas et al., 2013) and is not

necessarily only a component of the Information Technology (IT) department plan (Lerner, 2015). The regulatory sphere as a source of environmental uncertainty is of particular interest to this study where uncertainty due to absent, unclear or constantly changing legislation, has a detrimental effect on digital business strategising (Weber, 2015). A well-referenced example is the world-wide financial crisis between 2007 and 2009, caused by the lack of legislation and control of the financial sector (Bordo, Duca & Koch, 2016). Jain and Hazra (2016) support the view that regulatory uncertainty is more complex to assess than business risk. In terms of technology investment decisions being negatively affected by unpredictable changes in laws or regulations, Jain and Hazra (2016) find that high regulatory uncertainty influences firms to opt for lower capacity or low-end technology investments. Hoerr (2011) warns that regulatory uncertainty may increase development costs, negatively affect the financing of technology investments, and cause implementation timeframes to shift. Uncertainty in the regulatory environment therefore impacts progress in the areas of digital technology (Weber, 2015) and business performance (Bordo et al., 2016). This situation of ongoing uncertainty in the regulatory macro-environment prevents business leaders from following through on their future digital business strategies (Granados & Gupta, 2013) and requires further research.

1.4 Research Objectives

To understand how an organisation navigates ongoing uncertainty in the legislative macro environment while keeping abreast of digital technology through its digital business strategising process, the objectives of this study are as follows:

1. To determine how organisations strategise for digital business in the context of regulatory uncertainty within the financial services industry.

2. To determine how regulatory uncertainty influences digital business strategising within the financial services industry.

1.5 Research Questions

To achieve the research objectives, the primary research question, formulated as - *How do organisations strategise for digital business in the context of regulatory uncertainty?* is addressed through the following sub-questions:

1. How does regulatory uncertainty influence digital business strategising?

2. What strategising approach is taken by IS practitioners in achieving digital business strategy while dealing with regulatory uncertainty?

3. What strategising approach is taken by business leaders in achieving digital business strategy while dealing with regulatory uncertainty?

The secondary research question that will be covered by this study is - *How can organisations mitigate against the detrimental impacts of regulatory uncertainty on their digital business strategising process?* and is addressed via the following sub-questions:

1. What are the key factors to consider when evaluating potential negative impacts of regulatory uncertainty on digital business strategies?

2. What can IS practitioners do to mitigate the negative impact of regulatory uncertainty on digital business strategy and growth?

3. What can business leaders do to mitigate the negative impact of regulatory uncertainty on digital business strategy and growth?

1.6 Scope of the Research

The research focuses on a single case study of a large global retail organisation that is a financial services provider with its head office based in South Africa (S.A.), and investigates how the organisation strategises for digital business in the context of regulatory uncertainty.

1.7 Research Context

The research was conducted with business leaders who head up financial services business areas and IS leaders delivering technology solutions in systems affected by the research problem. At a time when the research organisation was contemplating its long-term digital business strategy, new legislation affecting the financial services industry in S.A. needed to be considered in terms

of business process and systems changes. These included the credit affordability regulations requiring customer proof of income (National Credit Regulations including Affordability Assessment Regulations published in Regulation Gazette No 10382 in GG No 38557 of 2015-03-13), the Protection of Personal Information Act (South Africa. Protection of Personal Information Act No. 4 of 2013), financial accounting IFRS9 legislation, debit order regulations and marketing permissions. The credit affordability regulations negatively impacted the growth and performance of the organisation, due to the lack of clarity and uncertainty caused by varied interpretations. The focus on dealing with regulatory uncertainty and its effect on the business detracted somewhat from its strategic plans for digital transformation.

1.8 Research Approach

The research philosophy is exploratory and interpretive in order to uncover the meaning that people assign to the phenomenon being researched (Klein & Myers, 1999). The personal engagement with participants to gain an understanding of their experiences and how it relates to the research problem makes the nature of this research qualitative (Stake, 1995). From an ethical standpoint, to fulfill the research company's request for anonymity, acronyms are used in the data analysis and findings, the company name is not included, and the description of the company is generalised at a high level. The research does not include questions relating to gender, race, ethnicity, age range, religion, income or disability.

1.9 Structure of the Dissertation

Chapter 1 Introduction - This chapter provides the background, research objective, and scope as well as describing the purpose of the research, the research context, approach, and overall structure and flow of the dissertation.

Chapter 2 Literature Review - This chapter presents the literature review of existing literature on the research problem that was undertaken before and during the data collection and analysis process.

Chapter 3 Research Design - The research methods, conceptual research model, and description of thematic analysis are covered in this chapter.

Chapter 4 Findings - This chapter presents the analysis and findings of the research, and reflects these in the revised research model.

Chapter 5 Discussion - The findings are discussed in relation to existing literature, and outlines 5 propositions that can be explored in future empirical studies.

Chapter 6 Conclusion - This is the final chapter that summarises the research study, and discusses the limitations of the research as well as future research options based on the analysis and findings**.**

CHAPTER 2 - LITERATURE REVIEW

Two phases of reviewing current literature were undertaken. The first phase focused on the current body of knowledge on the research topic. The results of the analysis and synthesis of the literature assisted in gaining depth of knowledge on the key concepts as explained in current literature (Watson, 2015). The objective of the second phase was two-fold; to broaden and deepen the understanding of the literature reviewed in phase one and to ensure that the most recent and high-quality literature (AIS top 8 plus other top business journals - Appendix 6) on the research topic of digital transformation was sourced through doing a systematic literature review (Appendix 5). A systematic literature review is defined as "a systematic, explicit and reproducible method for identifying, evaluating and synthesising the existing body of completed and recorded work produced by researchers, scholars, and practitioners" (Fink, 2014, p. 3). These two phases strengthened the quality of the resultant literature review and revealed concepts that relate directly to the research objective. These concepts are described in Table 1 below, followed by a detailed review of all the concepts emerging from the analysis and synthesis of the literature.

Table 1: Definitions of Key concepts

IS strategy	IS strategy "provides a shared understanding across the organisation to guide IT investment decisions" (Henfridsson & Lind, 2014, p. 239).
IS strategising	"IS strategising is, thus, clearly positioned as a dynamic, on-going construct focusing on how organisations deal with the conflicting demands associated with exploiting existing assets such as infrastructures, resources and expertise (based on past experience), and exploring new solutions and tasks through social interactions and creativity" (Marabelli & Galliers, 2017, p. 352).
Digital Technologies	"new combinations of digital and physical components to produce novel products" (Yoo, Henfridsson & Lyytinen 2010, p. 725) that enable digital innovation. "digital technologies (viewed as combinations of information, computing, communication, and connectivity technologies)" (Bharadwaj et al., 2013, p. 471).
Digital Business Strategy	"a fusion between IT strategy and business strategy into an overarching phenomenon we herein term digital business strategy" (Bharadwaj et al., 2013, p. 472). DBS is an "organisational strategy formulated and executed by leveraging digital resources to create differential value" (Bharadwaj et al., 2013, p. 472).
Digital Business Strategising	"Dynamically synchronised, business and IT are mutual drivers of strategic change, business value and ultimately competitive advantage" (Kahre et al., 2017, p. 4707).
Digital Transformation Strategy	"blueprint that supports companies in governing the transformations that arise owing to the integration of digital technologies, as well as in their operations after a transformation" (Matt et al., 2015, p. 340).
Digital Transformation	"the transformation of products, processes, and organisational aspects owing to new technologies" (Matt et al., 2015, p. 339). "go beyond the process paradigm, and include changes to and implications for products, services, and business models as a whole" (Matt et al., 2015, p. 340).
Digital Maturity	"Digitally maturing companies, for example, are more than five times more likely to have a clear digital strategy than are companies in early stages" (Kane, Palmer, Phillips, Kiron & Buckley, 2015, p. 5). "an organisation where digital has transformed processes, talent engagement and business models say that their organisations have a clear and coherent digital strategy" (Kane et al., 2015, p. 3).

Regulatory Uncertainty	"As the uncertainties in the regulation standard increases, the firm's capacity investments decrease and the firm tends to invest in the low-end technologies" (Jain & Hazra, 2016, p. 142). "Uncertainty in the regulatory environment has the potential to increase both the costs and time needed for development, thereby making the commercialisation process unpredictable and, in the worst case, incapable of being financed" (Hoerr, 2011, p. 1514)
Regulatory Compliance	"authorised regulatory bodies to issue fines for noncompliance" (Fabrizio, 2012, p. 771).

2.1 Information Systems Strategising

IS strategising is a dynamic, continuous process that examines how companies address conflicting demands while exploiting existing assets and exploring new solutions (Marabelli & Galliers, 2017). Exploring challenges and exploiting opportunities needs to take place between IT and business teams as opposed to focusing mainly on creating the IS plan (Henfridsson & Lind, 2014). IS strategising involves interactive processes facilitated by both IT and business teams, making the cohesiveness between IT and business teams stronger (Karpovsky & Galliers, 2015). These IT and business teams frequently need to address new and uncertain issues that require close collaboration and result in strategy as a practice (Karpovsky & Galliers, 2015). Strategy is then formulated "in-flight" as new demands emerge and reconfiguring takes place to adapt to the on-going dynamic environment (Karpovsky & Galliers, 2015). The way in which firms strategise for IS is largely influenced by volatility in the external environment (Salmela, Lederer & Reponen, 2000). Segars, Grover and Teng (1998) define various characteristics of rationality and adaptation to distinguish alternative ways of IS strategising. Rationality is characterised by comprehensiveness in decision making, formalisation in the IS strategising process, top-down flow of authority, and focus on control rather than innovation (Segars et al., 1998). Adaptation is characterised by the frequency of IS strategy meetings and broad participation in the strategising process (Segars et al., 1998).

2.2 Digital Technologies

Digital technologies are well understood as being "new combinations of digital and physical components to produce novel products" (Yoo et al., 2010, p. 725). Digital technologies are "viewed as combinations of information, computing, communication, and connectivity technologies" (Bharadwaj et al., 2013, p. 471) in the areas including "social, mobile, analytics, cloud and Internet of Things [IoT]" (Sebastian et al., 2017, p. 197). To remain competitive, firms have to find creative ways of embedding these digital technologies into their business models, products and services (Horlacher & Hess, 2016). A good example of the application of digital

technology is how Rolls Royce, the automotive company, monitors the health of engines in their aircraft through real-time analytics of sensor-based digital technologies placed in the turbines of the engines (Barrett, Davidson, Prabhu & Vargo, 2015). The benefit of applying digital technology solutions is visible to competitors who then feel pressured to compete (Woodard, Ramasubbu, Tschang & Sambamurthy, 2013). The use of digital technologies has therefore disrupted the previously well-understood competitor dynamic in the market, making organisations reliant on an effective digital business strategising function that creates value for customers (Bharadwaj et al., 2013) and results in competitive advantage (Kahre et al., 2017).

2.3 Digital Business Strategy

DBS is a business strategy that exploits digital technologies and drives capabilities in response to ongoing environmental changes (Sebastian et al., 2017). Leaders need to communicate the broad, high-level digital business strategy (DBS) to employees at all levels within the organisation (Yoew, Soh & Hansen, 2018). For executives to lead confidently and shift efforts to match fulfillment and monitor progress, they rely on an unambiguously clear DBS that steers the firm towards success (Ross, Sebastian & Beath, 2017). It is important for IS leaders to acknowledge DBS as a replacement of the traditional IT-business alignment model as this will become the common practice (Kahre et al., 2017). The DBS concept can be applied in both passive and active ways where business and IS strategies merge for the passive benefit of a cohesive relationship (Drnevich & Croson, 2013), as well as the active business-IT coupling that creates a competitive advantage (Mithas et al., 2013). Whether these partnerships are passive or active, it is of interest to evaluate (Kahre et al., 2017) the fusion of business and IT, and how this method of strategising improves business performance.

2.4 Digital Business Strategising

The need for Business-IT strategic alignment has over the past few decades become a well-established requirement in organisations with IT often in an enabling role rather than one that drives or influences business strategy (Coltman et al., 2015). For digital business strategising to be effective, the whole organisation needs to participate in innovative thinking and become aware of digital solutions (Kahre et al., 2017; Wunderlich & Beck, 2018). Defined more broadly, digital business strategising is described within the context of four themes, namely the scale, the

scope, the source, and the speed (Bharadwaj et al., 2013). Scope refers to the interconnectedness of the business ecosystem, which encompasses the firm's portfolio of products and services. The scale concept ensures linkages exist between partners and competitors by utilising networks. Due to the nature of digitalisation, business activities occur at faster speeds (Bharadwaj et al., 2013). As new processes and business models expand the workflows of delivery and supply, the sources of value creation are increased (Bharadwaj et al., 2013). In this way, the borders between IT and business become vague (Peppard, Galliers & Thorogood, 2014) with DBS seen as the "new logic of competitive strategy" (Woodard et al., 2013, p. 538). Firms have an edge on their competitors when the strategy is driven in unison by business and IT to realise the business value (Bharadwaj et al., 2013; Sandberg, 2014). Hess et. al. (2016) highlight the opportunity that digital technologies create for IT to change its strategising approach to become more business-centric rather than one that mostly attends to IT infrastructure and application systems. While it is essential to have a sound DBS that clearly communicates the future digital roadmap and vision for the firm, DBS does not provide direction on the transformation process that brings the vision into existence (Hess et al., 2016). A strategy that details how the organisation will go about its digital transformation is required.

2.5 Digital Transformation Strategising

The digital transformation strategising process takes the digital business strategy a step further. It attends to the organisational governance and policies required to steer the company towards becoming digitally transformed (Matt et al., 2015). The digital transformation strategising process maps out the detailed steps toward digital transformation and guides managers through the transformation process that results from the integration and use of digital technologies (Matt et al., 2015). Digital transformation is an undertaking that affects all aspects of an organisation and requires a comprehensive approach to ensure the desired business result is achieved (Hess et al., 2016). To support such undertakings, according to Hess et. al. (2016), a digital transformation framework with four components is recommended:

"1. The use of technologies reflects a firm's approach and capability to explore and exploit new digital technologies. 2. Changes in value creation reflects the influence of digital transformation on a firm's value creation. 3. Structural changes refer to the modifications in organisational structures, processes and skillsets that are necessary to cope with and exploit new technologies.

4. The financial aspects dimension relates to both a firm's need for action in response to a struggling core business, as well as its ability to finance a digital transformation endeavor" (Hess et al., 2016, p. 124). Likewise, four elements: "structure, process, technology and people" (Sia, Soh & Weill, 2016, p. 117) highlight the importance of alignment of a firm's DBS, workforce, culture, technology, and structure to effectively engage with stakeholders and attain maturity in digital transformation endeavours (Kane et al., 2016). According to Yeow et. al. (2018), a dynamic capabilities approach is an effective process for business-IT digital business strategising. This can be achieved through sensing, seizing and transforming or reconfiguring so that mismatching areas that create tension across resources and evolving strategy, can be highlighted and addressed to be effective in its digital strategy transformation (Yeow et al., 2018).

2.6 Digital Transformation

Digital transformation is "the transformation of products, processes, and organisational aspects owing to new technologies" (Matt et al., 2015, p. 339). Digital transformation goes "beyond the process paradigm, and include changes to and implications for products, services, and business models as a whole" (Matt et al., 2015, p. 340). An organisation-wide approach that integrates all operational and functional business areas impacted to achieve effective digital transformation is required (Hess et al., 2016). Transformation of operating models is required to accommodate improved, expanded, or redefined customer value propositions and is an impactful change management exercise (Berman, 2015). Leaders need to bring about changes to their traditional activities, specifically the need for flexible, agile capabilities, to implement digital technology solutions (Bennis, 2013). While digital transformation facilitates the working together of teams to improve products, services, and business models using digital technologies (Hess et al., 2016), leaders need to be aware that effective digital transformation needs a clear digital business strategy rather than relying on digital technology itself (Kane et al., 2015). Socio-technical ways of engaging with customers become a different way to co-create processes (Arvidsson & Holmström, 2018) that customers will value. To achieve effective digital transformation of business models, Westerman (2018) recommends having a holistic, across silo approach with a range of digital technologies as opposed to focusing on specific digital technology solutions only. To benefit from innovative ways of using digital technologies, firms need to create

governance and management practices (Malar, Arvidsson & Holmstrom, 2019). It is widely affirmed that to ensure success, firm executives need to play an integral role in digital transformation (Bonnet, McAfee & Westerman, 2014; Hess et al., 2016).

2.7 Leadership

The digital technology landscape requires continuous and swift adjusting, adapting, resilient behaviours, and creation of new scenarios to lead effectively (Bennis, 2013; Keen & Williams, 2015). Leaders need to be cognisant of how digital technology affects their engagement with stakeholders such as customers, employees and suppliers (Bennis, 2013). To be effective in offering customers memorable omni-channel experiences, IT and marketing teams need to work closely with operations, customer services, and sales teams (Gulati & Soni, 2015). Omni-channel retailing encompasses a broad scope of shopping channels that include mobile and social media channels which shoppers navigate across as part of their purchasing process (Verhoef, Kannan & Inman, 2015). Owners of digital processes need to be quick learners, strong team players and be proficient at rallying financial investments (Gulati & Soni, 2015). Driving digital transformation across an organisation requires a focused effort that will influence a culture that is open to digital innovation (Horlacher & Hess, 2016). To accomplish this, firms introduce roles such as chief digital officers (CDOs) (Horlacher & Hess, 2016) and digital champions (Sia et al., 2016). The CDO role assists the chief information officer (CIO) with bringing about organisational change (Kahre et al., 2017). CDOs tend to have an entrepreneurial approach which is generally different from the CIO who has a stronger focus on technical transformation (Kahre et al., 2017). The CDO's key focus is on the needs of customers and what they require from digital products. The CDO is a strategist who works closely with partners creating the solution (Singh & Hess, 2017). The CIO would also play a critical role in mediating between external and internal resources, since implementing a digital business strategy would mean gathering ideas and innovations from both outside and inside the firm to formulate new technology solutions (Wunderlich & Beck, 2018). In a case study of DBS bank (Sia et al., 2016), the creation of "digital warriors" to champion digital innovation within their respective business areas improved the likelihood of success, as it built a sense of ownership and authority within these areas as well as participation and buy-in to the digital transformation process (Hess et al., 2016). As firms plan to roll out digital solutions, human resourcing becomes a critical factor due to the new types of

competencies and skills required (Hess et al., 2016). To successfully implement a DBS and effect digital transformation, employees and leaders alike need to be innovative, digitally skilled, and have a good understanding of digital technologies, the digital economy and how they can be used to deliver the desired business value (Weinrich, 2017; Chanias, Myers & Hess, 2018). Four options of acquiring the relevant skills (Hess et al., 2016) include development of internal staff, sourcing externally, mergers or acquisitions of digitally competent companies, and partnering with a digital vendor. Leaders can also encourage staff to contribute and provide input to the digital transformation strategy so that they benefit from being included in the process (Westerman et al., 2015). Digital transformation also addresses issues about process redesign and efficiencies as opposed to digital solution implementations only (Li, Su, Zhang &Ye Mao, 2017). Leaders will need to be open to experimentation and adaptability to allow for innovation and speedy product launches (Sia et al., 2016; Ross et al., 2017). Staff participation and input are regularly invited and valued (Sia et al., 2016). Apart from the people impact aspect, digital transformation also takes into account the firm's existing business models and the change impact created by digital technologies (Hess et al., 2016).

2.8 Business Models

The integral role played by IT in building new forms of services and products offered via differentiated business models has the potential to rearrange industry, and requires a new logic of competitive strategy (Woodard et al., 2013). Central to conventional business models are "value creation and capture" (Bharadwaj et al., 2013, p. 477). Keen and Williams (2015) however, posit that future digital solutions will be based on value architectures as opposed to business models. Value architectures refer to a firm's blueprint to meet present customer demands and preferences, while continuously seeking new ways to get the attention of customers (Keen & Williams, 2015; Ross et al., 2017). As the organisation establishes a relationship with the customer, the business model starts to become more value-based, encouraging ongoing revenue (Ross et al., 2017). The demand will be for the development of technology that caters to constant shifts in customer value which is intrinsically linked to customer choice (Keen & Williams, 2015). For example, when customers decided that daily news need not be accessed via newspapers, but rather via the Web, this customer choice caused the newspaper industry to refocus online. Another example is M-Pesa, a service used in developed and emerging

economies, that transfers money using a mobile device. This creative business model enables what could be considered to be a previously unknown customer need (Barrett et al., 2015). A fundamental aspect of DBS is to continuously consider who the customer of the future is, and what he or she values as new options become available through new entrants in the digital marketplace (Ross et al., 2017). Eventually, digital business strategy and business strategy will be seen as the same thing (Bharadwaj et al., 2013; Hess et al., 2016), with the aim to shift business models from ad hoc customer sales to continuous revenue income through its value-based digitised processes (Ross et al., 2017). Digital innovation will transform business models from being products or services to being intermediate frameworks (Keen & Williams, 2015).

2.9 Digital Innovation

Digital innovation is the force that initiates inventive social media, business services, and products (Barrett et al., 2015). It is explained as being the "creation of (and consequent change in) market offerings, business processes, or models that result from the use of digital technology" (Nambisan, Lyytinen, Majchrzak & Song, 2015, p. 224). It can also be seen as a response to the competitive market through leveraging digital technology and focusing on various ways to design new or enhanced products and services by reconfiguring and recombining digital artifacts (Woodard et al., 2013). Digital innovation has developed swiftly in the last ten years (Bharadwaj et al., 2013). It has enabled "new combinations of digital and physical components" (Yoo et al., 2010, p. 725) through technologies such as "social, mobile, analytics, cloud and Internet of Things [IoT]" (Sebastian et al., 2017, p. 197) and stretches across platforms to deliver novel customer experiences (Nambisan et al., 2015). Through the creation of value networks that facilitate the sharing of knowledge and resources, digital technologies foster innovation (Barrett et al., 2015) and may even, via data mining and linking various resources, detect innovations (Lusch & Nambisan, 2015). Digital innovation is facilitated via "layered modular architectures" (Yoo et al., 2010, p. 724) with two distinctive features, namely "convergence and generativity" (Yoo, Boland, Lyytinen & Majchrzak, 2012, p.1398). Convergence describes the joining of customer experiences that can also occur singularly e.g. Internet and cell phone (Yoo et al., 2012), and generativity is technology's "overall capacity to produce unprompted change driven by large, varied, and uncoordinated audiences" (Zittrain, 2006, p. 1980). Companies such as Google and Apple who are leaders in terms of digital innovations have raised the bar by

providing customers with sought after convenience, accuracy and speed of satisfaction (Bharadwaj et al., 2013), creating pressure for other industries to push them towards digital transformation. The use of digital technologies has changed industry standards and how information sharing takes place between competitors (Weber, 2015). When formulating the DBS, firms need to decide what makes sense to share as the right information for the right stakeholder groups (Grover & Kohli, 2013).

2.10 Digital Transparency

Digital transparency is defined as a firm's strategy on what they decide to disclose to stakeholders outside the boundaries of the firm (Granados & Gupta, 2013). Consumers have an increasing expectation to be instantly informed by digital platforms such as the Internet or mobile phones (New, 2010). This demands that stakeholders in supply chains become more transparent about e.g. their products and services information (New, 2010). Firms, therefore, need to decide on what and how much information they will disclose, bearing in mind that to compete in the digital age means that transparency becomes unavoidable even with the risk of abuse (Bennis, 2013). Firms will need to be cautious about what information is provided. Different views exist where some debate that firm strategy should be protected by not disclosing critical information (Grover & Kohli, 2013) while others indicate that the nature of DBS is to share information selectively with key solution partners and stakeholders (Granados & Gupta, 2013). An approach to address this phenomenon is explained in that for every item of data, a choice to "*disclose, distort, bias, or conceal information"* (Granados & Gupta, 2013, p. 638) needs to be made, as it becomes increasingly challenging to secure internet and digital system solutions that use modular architectures (Grover & Kohli, 2013). While this draws attention to regulations around the confidentiality of data, it indicates a clear need for rules of data transparency and data minimisation that will underpin digital solution development (Weber, 2015). Defined at a technical level (Markus & Loebbecke, 2013), the appetite of businesses to share common "commoditised" business processes that allow for nimbleness, effectiveness, and competitive distinction is tested. This idea is proposed as an alternative to replicating the cost and effort of building underlying DBS technologies for each company (Markus & Loebbecke, 2013).

2.11 Digital Maturity

A digitally mature organisation is one where there is clarity on the digital business strategy and where digital transformation has taken effect on the firm's business models, processes, and human competencies (Kane et al., 2015). Digital maturity is defined by Chanias and Hess (2016, p. 4) as "the status of a company's digital transformation". There are various terms used to refer to digital maturity, for example, Neuland (2015) refers to a digital transformation index. When organisations are in the early phases of digital transformation, they tend to focus on specific operationally focused technologies as opposed to a bigger picture view of the full business process transformation (Kane et al., 2015). From a managerial perspective, the company's level of digital maturity is assessed by the digital transformation efforts already implemented (Chanias & Hess, 2016). Less digitally mature firms are typically reluctant to invest in providing employees with the relevant skills as compared to those on the more mature end of the scale where the culture is team focused and risk-taking (Kane et al., 2015). It is also more likely that a digitally mature organisation has a dedicated person or team leading the digital transformation initiative with staff showing a high level of confidence in that leadership and the digital competency of the leader. Leaders are not necessarily experts in the technology field but have a solid grasp on the value and investment for the firm's future growth (Kane et al., 2015). Typically, digitally mature firms focus on developing four technologies (cloud, social media, mobile and analytics) with fairly equal focus (Kane et al., 2015). Organisations can make use of maturity models to assess their current state of digital maturity (Schumacher, Erol & Sihn, 2016). A useful lens is provided in Table 2 (Neuland, 2015) and is based on the dStrategy Digital Maturity Model ™ (Kubrick, 2013) that looks at the path to digital maturity.

Table 2: Elements of Digital Maturity (Neuland, 2015)

D1: Strategy	The consciousness for the digital transformation must be embedded in the company digital business strategy
D2: Leadership	The transformation needs digital leadership and should not be outsourced
D3: Products	Digitalisation leads to new products and services with benefits for customers and new fields of business resulting in Digital transformation
D4: Operations	The digitalisation of the core processes has to be forced by a new operating digital business model which increases the agility inside the organisation
D5: Culture	A change of culture inside the company is necessary which leads to an open digital innovation culture
D6: People	Digitalisation needs experts and digital qualification for the non-experts
D7: Governance	Digital business strategy (DBS) must become part of the objective agreement
D8: Technology	Replacement of older IT-structures with digital technology is necessary

These elements provide a good compass when considering the path to digital maturity while formulating a strategy to cope with regulatory uncertainty.

2.12 Regulatory Compliance

Authorised regulatory bodies are appointed to assess the level of compliance within organisations, and issue fines for non-compliance. These fines could equal or exceed the cost of compliance (Fabrizio, 2012). A study done by Bayer, Norton and Falck-Zepeda (2010) on the cost impacts of regulatory compliance found that while the costs decreased the net present value (NPV) by 1%, postponing the launch of a new product by one year reduced NPV by 12%, and by 34% for a postponement of three years. Continuous negative effects of product delays result in increased expenses for product development, a negative impact on market share, and a poor perception of management (Bayer et al., 2010). While companies spend money to become compliant, monitoring compliance is costly and onerous for public authorities to enforce, and mostly with little success (Finck, 2017).

2.13 Regulatory Uncertainty

Uncertainty within the macro-environment context can be conceptualised as having three measures of uncertainty - heterogeneity, dynamism and hostility (Sabherwal & King, 1992).

Dynamism refers to the unpredictability and the rate of change within the external environment (Sabherwal & King, 1992). When there is a high rate of environmental change, management takes swift action and constantly implements new tactics and strategies (Ray, Wu & Konana, 2009). *Heterogeneity* defines the diversity and the volume of factors in the external environment (Sabherwal & King, 1992). With more diversity taking place, more information needs to be gathered to make sense of the increasingly complex situation (Ray et al., 2009). *Hostility* is about the risk or threat coming from the external environment (Ray et al., 2009). To survive in a competitive market, firms need to manage environmental uncertainty in terms of unpredictability, instability, and information needed for decision making (Ray et al., 2009). Uncertainty in the regulatory environment has negatively impacted progress in the areas of digital technology (Weber, 2015), and business performance (Bordo et al., 2016). Firms need to practically apply the fusion of business strategy and digital technology to ensure success within the context of uncertain regulatory spheres (Kahre et al., 2017) as environmental instability has the potential to slow down progress (Mithas et al., 2013). Brown (2017) discusses the challenges that the UK encountered with creating a bill of law that covers multiple legislative items on the UK digital economy where sensitivity to the rights of individuals need to be considered while also allowing connectivity and transparency. Finding the balance in achieving this is made more complex by the swift growth of digital technologies, the risks and threats inherent in the digital age, and the blur of borders when building digital technology that operates across business areas and jurisdictions (Brown, 2017). Finck (2017) also draws attention to the complexity of defining regulations that take both public protection and enablement of technological creativity and business performance into account, in rapidly shifting environments. Finck (2017) highlights major paradigm shifts taking place whereby global datafication and digitalisation are poorly understood by lawmakers. Technology producers create “black box” solutions that present major challenges for lawmakers when defining digital platform regulations (Finck, 2017). Although businesses tend to challenge the government on regulations, alternatives being explored are co-regulations that rely on some level of data sharing, (Finck, 2017) and self-regulation that requires collaboration between the regulator and the industries being regulated (Baud & Chiapello, 2017). Since markets are dependent on the ability to predict outcomes and manage risk, extended periods of regulatory uncertainty present a challenge and most likely raise the cost and prolong

the development of digital technology solutions (Hoerr, 2011). This situation places risk on capital investments needed to fund digital technology solutions (Hoerr, 2011).

2.14 Coping with Regulatory Uncertainty

To continuously achieve a competitive advantage, firms need to effectively respond to dynamic macro-environments including disruptive technologies or regulatory uncertainty (Frank, Guttel & Kessler, 2017). Strategic use of IT becomes even more significant in highly unstable environments (El Sawy, Malhotra, Park & Pavlou, 2010), as firms seek to remain competitive while growing their dynamic capabilities (DC) to proactively respond to and forecast coming events (Ward, 2012). Firms may decide to adopt specific strategic stances to cope with regulatory uncertainty (Engau & Hoffman, 2011). An offensive stance will directly and proactively tackle the challenges, while a defensive stance is about searching and gathering as much information to analyse and enable the replacement or simplification of uncertain decision criteria (Engau & Hoffman, 2011). A passive stance brings about a once-off impactful change while creating resilience within the firm to cope with the impact so that it can shift into usual business practice thereafter (Engau & Hoffman, 2011). Li & Liu (2014) recommend DC's sensing, seizing and reconfiguring functions as key tools to use in coping with environmental dynamism. Li & Liu (2014) also confirm that DC's drive, rather than moderate as they seize the chance to implement change that enables competitive superiority. Vecchiato (2012) who acclaims DC's ability to create high levels of adaptability by focusing on three key steps, namely, i) continually and actively *sensing* ongoing changes in the environment, ii) *seizing* which is to grasp a firm *understanding* of these changes, iii) synchronising with the external environment through *re-configuring* both tangible and non-tangible investments (Vecchiato, 2012). Gelhard, von Delft and Gudergan (2016) point out, that not all three steps are necessarily always present, nor is it mandatory to follow the three-step sequence at all firms. The distinctiveness of the variations present at different firms may lead to a better result (Gelhard et al., 2016). Wilden and Gudergan, (2015), go as far as to say that regardless of the level of instability in the environment, the dynamic features of sensing and reconfiguring capabilities add value, especially in highly competitive markets. The DC approach calls for firms to be creative, innovative, and to reconfigure as a means of coping with an uncertain and constantly shifting environment (Frank et al., 2017). To be effective when hostility and dynamism in environments

increase, firms need to apply different types of DC that can sense risks, opportunities, reconfigure resources and be decisive with responses that are relevant to the situation (Sandberg, 2014; Frank et al., 2017). Research results show that DC's become even more significant for firms when there is a high level of environmental dynamism (Frank et al., 2017). To maintain control in a situation of turbulence and uncertainty in the macro-environment, Pondeville, Swaen and de Ronge (2013) suggest an ongoing gathering of information both within and outside of the organisation, to keep abreast of upcoming legislative change, potential consumer trends and desires, and directions being taken in the area of digital technology. This situation of ongoing uncertainty in the regulatory macro-environment impedes business leaders from following through on their future digital business strategies (Granados & Gupta, 2013).

2.15 Competitors

Customers come to expect similar experiences from business industries as they do from entertainment and social media industries where they enjoy more advanced digital interfaces (Kahre et al., 2017). Firms therefore are forced to shift existing paradigms and rethink how customers perceive value, and innovatively reshape their operations and processes to compete on a different level (Berman, 2015). To maintain a competitive edge in volatile macro-environments including regulatory uncertainty or disruptive technologies, firms need the ability to effectively respond to markets (Frank et al., 2017) and ensure that there is a strong focus on the strategic use of IT (El Sawy et al., 2010). Being represented on the web and creating visibility with potential customers, has become paramount for businesses to survive in the digital age (Lerner, 2015). Digital transformation could mean that existing services and offerings become outdated, giving rise to new products and services readily available on websites and promoted across a range of social media platforms (Mithas et al., 2013). Ross et. al. (2017) advise firms to come up with a distinctive customer value offer, utilising digital technologies that cannot easily be copied by their competitors. Mithas et. al. (2013) however, warn that digital business solutions are more likely to disappoint due to business leaders not having a firm view on competitor response, as opposed to failure of the IT solution deployment.

2.16 Conceptual Research Model

Figure 1 below represents the proposed conceptual research model based on themes emerging from the literature review outcomes. The conceptual diagram shows key elements, based on the above review that exists in the external regulatory environment as well as the internal organisational environment and which affect digital business strategising within the context of regulatory uncertainty in the financial services industry. The themes and sub-themes within the internal and external environmental contexts are depicted as follows:

External regulatory environment:
Regulatory uncertainty in terms of dynamism, heterogeneity, hostility, and the competitor market as well as the competitor dynamic concerning digital disruption that influences the competitor market.

Internal organisational environment:
Compliance with regulations, coping with regulatory uncertainty, digital business strategising, digital transformation strategising, digital transformation and digital maturity, as well as digital technologies, leadership, business models, digital innovation, and digital transparency that are inherent in achieving organisational digital transformation that leads to digital maturity.

Volatility in the macro-environment affects the ability of firms to achieve their business strategies (Hoerr, 2011). To remain successful, organisations need to carefully negotiate uncertainty coming from the external regulatory environment (Frank et al., 2017). The research explores these two environmental contexts (the internal organisational environment and the external regulatory environment) and how regulatory uncertainty in the external environment affects the firm's ability to achieve its digital business strategy.

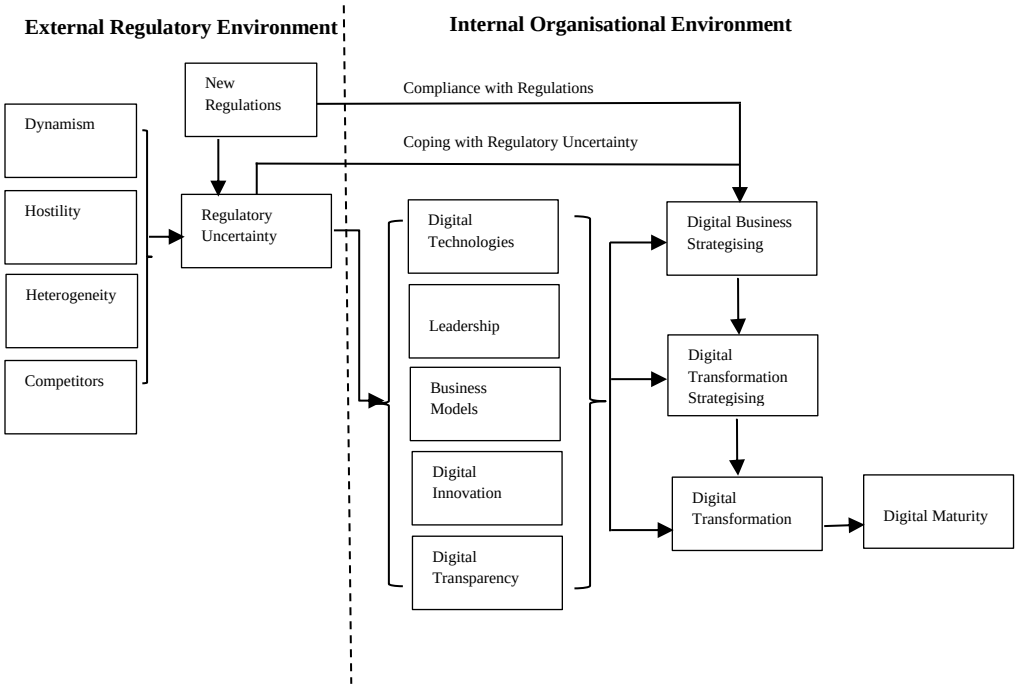

Figure 1: Conceptual Research Model – Digital Business Strategising in the context of Regulatory Uncertainty

CHAPTER 3 - RESEARCH METHODOLOGY

The research approach is outlined in this chapter. Creswell (2014) recommends ensuring clarity around the research approach to support the phenomenon under investigation. The research paradigm, conceptual research model, data collection, data analysis methods and techniques are presented in this chapter to provide a coherent picture (Easterby-Smith, Thorpe, Jackson, 2012) of the research.

3.1 Research paradigm

Due to the nature of the research problem and based on the literature, it makes sense that seeking to understand how IS and business leaders effectively strategise for digital business in uncertain macro and regulatory environments require a research philosophy that is exploratory and interpretive. The key principle of interpretivism is to discover the meaning that people assign to the phenomenon being researched (Klein & Myers, 1999). When scrutinising the phenomenon of digital business strategising in the face of uncertainty, the research is interested in the varying perceptions and different, possibly conflicting realities that people live with, to gain an in-depth understanding (Mason, 2002; Stake, 2005). The interpretive epistemology is characterised by subjectivism and based on the empirical phenomenon, where the world does not exist separately from knowledge (Grix, 2004). Relativism is the ontological position of interpretivism and means that reality for each person is subjective and different (Guba & Lincoln, 1994). The combination of the above-mentioned ontological and epistemological assumptions, define the research paradigm (Mack, 2010) applied in this study.

3.2 Research Method

Given the above-mentioned research paradigm, the nature of this research is qualitative. Stake (1995) describes qualitative research to be a research method that provides an understanding of the research problem rather than one that explains it. Knowledge is discovered rather than constructed, and the researcher's role involves personal engagement with participants to gain in-depth insights from their experiences (Stake, 1995). The unit of analysis is a selected organisation for a single case study that matches the research problem criteria, since it has prior and current experience with regulatory change and uncertainty that affects realisation of its digital business strategy. The organisation based in South Africa has had rich experiences in navigating the unpredictability of constant regulatory change and uncertainty. With the research

problem being one of intricacy and considerable breadth, it needs to be studied within the context in which it occurs (Yin, 1994). A single case study considering real-life phenomenon is studied to achieve an in-depth understanding of how strategising for digital business is influenced by regulatory uncertainty in the context of the financial services industry (Flyvberg, 2006). This approach is supported by Yin (2013) who recommends an exploratory case study to understand responses to the 'how' and 'why' questions in an empirical real-life context, especially when there are no clear borders between phenomenon and context (Keutel, Michalik & Richter, 2014). Case studies provide in-depth descriptions of true to life scenarios (Flyvbjerg, 2006; Keutel et al., 2014) due to the researcher being inserted into its context, and interpreting the context-dependent knowledge in a way that is useful and can be practically applied (Stake, 2005). To construct a refined view of reality requires these two criteria (Flyvbjerg, 2006). Context-dependent knowledge adds value where predictive or context-independent theories cannot be relied upon, and case studies are ideal to provide this context-dependent knowledge (Flyvbjerg, 2006). The depth of investigation within single case studies often lead to creative new ways of thinking and uncovers further challenges or opportunities that IS and business managers need to address (Keutel et al., 2014).

3.3 Data Collection, Sample and Analysis

The data collection included multiple methods such as interviews, company reports, presentations and media articles. The research study focused mainly on strategic level activities and hence included semi-structured face-to-face interviews with senior and executive-level leaders in both IS and business environments. The sampling was purposive in that it targeted specific business leaders where regulatory uncertainty directly affected their digital business strategising processes, operational processes, staff and structures. Similarly, a specific group of IS leaders responsible for systems architecture and technology solutions required to support these business leaders was targeted for inclusion in the research. The total amount of employees found to match this description were five IS and six business leaders. All of these eleven interview candidates availed themselves for the interviews. The research questions were broad and aimed at the organisational context (Cohen, Manion & Morrison, 2007). The approach yielded data-rich detail due to the personal nature of the qualitative data collection approach (Keutel et al., 2014). The data gathered via audio recording and note-taking was transcribed and analysed using inductive thematic analysis with the assistance of the NVivo research analysis tool. Access to the

data stored in the NVivo analysis tool was protected through the use of a password only known to the researcher. The thematic analysis enabled the identification of repeat patterns in the gathered data (Braun, Clarke & Rance, 2015). The themes emerging from the collected data were compared to the conceptual research model (reflected in Figure 1) to enrich the model and depict the added or modified elements based on research results and findings, also confirmed in the literature (reflected in Figure 2).

3.4 Research Validity

Internal validity was developed through comparing interview responses across the two groups of leaders (business and IS) in conjunction with referencing the company reports, presentations and media articles. The data analysis findings were also compared to literature. The comparisons strengthened internal validity and generalisability for the formulation of propositions based on the themes emerging from the data analysis. The company documentation was useful for triangulation (Jick, 1979) to validate research data collected, corroborate and highlight gaps, misinterpretations, or errors in the interview information gathered, and enhance accuracy and integrity (Benbasat et al., 1987).

3.5 Thematic Analysis

The technique used in most qualitative analysis methods is searching the qualitative data for patterns (Braun & Clarke, 2006). Thematic analysis (TA) therefore entails a search for recurring patterns or features in the data (Braun et al., 2015). TA does not support data analysis through a theoretical framework, and in this way enables flexibility in the research design for data collection and analysis (Braun et al., 2015). TA develops themes based on the data analysis and requires the finding of meaning in the data, to identify these themes (Braun & Clarke, 2006). An interpretive or 'latent' level of data analysis identifies underlying assumptions and ideas as opposed to surface descriptions based on data patterns (Braun & Clarke, 2006). A TA is made up of data extracts, initial codes, sub-themes and themes. Data extracts are subsets or portions of data in the full set of data that holds relevance for the research study (Miles, Huberman & Saldaña, 2014). To bring meaning to the data, data extracts are coded and rely on the researcher to apply in-depth internal discourse in order to interpret the data thoroughly (Miles et al., 2014). These codes may become themes, are linked to other codes or become obsolete. Themes are generated through concepts evidenced in the data and reflected key considerations relating to the

research questions (Braun & Clarke, 2006). Sub-themes are themes that are part of a larger theme and add refinement to the overall theme as well as breaking down and simplifying a large or complicated theme making it easier to understand (Miles et al., 2014). TA requires continuous studying of the full data set, analysis of the data extracts, along with the results arising from this analytical process (Braun & Clarke, 2006). TA is an iterative process and not executed in sequence as reflected in Table 3, but is rather a constant revisiting of these phases (Braun et al., 2015). It is during the continuous process of comparing data to identify linkages between themes, possible new themes or alignment to theory results, that new theory emerges (Braun et al., 2015; Corbin & Strauss, 2015).

Table 3: The Phases in Thematic Analysis (Braun et al., 2015, p. 188-189).

Phase	Description
1 Familiarization with the data	Reading and re-reading the data.
2 Coding	Generating succinct labels that identify important features of the data relevant to answering the research question; after coding the entire data set, collating codes and relevant data extracts.
3 Searching for themes	Examining the codes and collated data to identify significant broader patterns of meaning; collating data relevant to each candidate theme.
4 Reviewing themes	Checking the candidate themes against the data set, to determine that they tell a convincing story that answers the research question. Themes may be refined, split, combined, or discarded.
5 Defining and naming themes	Developing a detailed analysis of each theme; choosing an informative name for each theme.
6 Writing up	Weaving together the analytic narrative and data extracts; contextualizing the analysis in relation to existing literature.

3.5.1 Thematic Analysis process applied in the research

An interview schedule of questions (Appendix 1), based on the conceptual research model, was developed to assist participants in their thought processes and articulation of their experiences relating to the research questions. The pre-set questions minimised researcher interference as it linked directly to the research model tenets and was reviewed by the research supervisor and Ethics in Research Committee prior to the interviews commencing. The semi-structured interviews were approximately one hour each. This was to enhance the richness of the data gathered as it gave participants time to consider the questions as it relates to their experience within the organisation. The interviews were individually transcribed and coded using Nvivo. Initially, the interviews were studied separately followed by cross-interview comparisons in order to see differences and similarities in the answers to the interview questions. From this iterative process of data analysis utilising Nvivo coding and constructs found in the data, themes

and sub-themes that formed the basis of the propositions emerged. A summary of themes and sub-themes that emerged from the data analysis is provided (Table5). The propositions developed from the research results were linked to the research questions (Table 6).

3.6 Research Resources

This study required the researcher to collect information from a single organisation. Face to face interviews were conducted at the firm's head office in a non-contrived natural setting. All face to face interviews were recorded and transcribed verbatim. All participants were available to meet face to face, with no necessity for interviews to take place via the telephone. Interviews were transcribed verbatim and captured into the NVivo system. Apart from semi-structured interviews, due to the research taking the form of a case study, supporting documentation, researcher notes, and artifacts from the organisation as well as relevant observations were referenced in the research results (Eisenhardt, 1989). Consolidation of multiple collated data sources enabled triangulation (Jick, 1979) and strengthened the research findings to enhance accuracy and integrity (Benbasat et al., 1987).

3.7 Ethical Considerations

The case study research proposal, signed ethics form and research instrument were submitted to the University of Cape Town's Ethics in Research Committee and was approved. Management approval to proceed with the case study at the selected organisation was duly secured prior to contact being made with the identified participants. Once management approval to proceed with the case study research was received, participants were contacted face-to-face or via telephone, and informed of the study, its aims and benefits. The cover letter to management and individual participants clearly stated the purpose of the study and that the study was being completed for academic purposes. Participants who responded positively were made aware that their participation was voluntary and that they had the right to withdraw at any time. Signed agreement to participate was collected from all participants. To ensure anonymity and individual privacy, acronyms were used during the data analysis, result outputs and findings, and the identity of the organisation is not revealed. The research did not include questions relating to gender, race, ethnicity, age range, religion, income or disability and did not require engagement with UCT staff or students. A plagiarism declaration was included in the documentation provided, to ensure no form of plagiarism took place.

CHAPTER 4 - RESEARCH FINDINGS

This chapter describes the data analysis results of the primary and secondary research questions and the findings from this analysis in two sections. The first section describes the profile of the case company. The next section scrutinises how the company navigated regulatory uncertainty while striving to achieve its digital business strategy and addresses the research questions.

4.1 Background

This section provides context to the research study in the form of background information on the context of the organisation (Org-FS) in which the case study research is conducted. The organisation is a large global retailer with its head office based in S.A, selling its merchandise both online and in physical outlets.

4.1.1 Organisational Case Study Context

At a time when Org-FS was contemplating its strategic approach in the digital arena, new legislations in the credit financial services environment were introduced. Over approximately three years, an average of two new legislations (affecting Org-FS) per year needed to be considered in terms of its impact on business processes. Of these, the most impactive to the performance of Org-FS were the credit affordability regulations (National Credit Regulations including Affordability Assessment Regulations published in Regulation Gazette No 10382 in GG No 38557 of 2015-03-13). This is supported by both primary (interviewee data) and secondary (business reports) research sources. Adhering to the legislation regarding proof of income introduced a cumbersome business process and resulted in an onerous experience for customers. The legislation required that customers provide evidence of their regular income for three consecutive months before being allowed the benefits of a credit facility. The multiple interpretations and lack of clarity around exactly how this legislation was meant to be practically implemented, meant that an already cumbersome process became even more complex as each interpretation was unpacked, implemented in systems and processes, and executed by staff and customers. The formulation of the organisation's long term strategic digital business objectives for the most part had to be placed on hold due to the focus required to become compliant with regulations. Two groups of research participants, "Financial Services Business leaders" and "Information Systems (IS) leaders" were identified as being key to the research, as they had first-

hand leadership experience of the research phenomenon. The description of these two groups along with case study related organisational documents are detailed in Table 4.

Table 4: Composition of the Data Sources

Research Source	Description		Participants
Business leaders in the Financial Services division of Org-FS	Business Leader interviews	Individuals holding executive or senior management positions	BS1; BS2; BS3; BS4; BS5; BS6
IS leaders in the Information Systems department of Org-FS	IS Leader interviews	Individuals holding executive or senior management positions	IS1; IS2; IS3; IS4; IS5
Business reports	Impact of regulatory uncertainty on business performance	Impact of digital transformation on business performance	
Newspaper Articles	Court case on Affordability regulations		

4.2 Themes in the Data

This section describes the analysis of the interview data and how themes and sub-themes that relate to the empirical data in this research study were identified. The interviews were individually transcribed and coded using Nvivo. Initially, the interviews were studied separately followed by cross-interview comparisons to see differences and similarities in the answers to the interview questions. The interview responses from the business and IS leader groups were also compared for differences and similarities. At this stage, organisational data, like company management reports and presentations were included to support the interview data analysis. From this iterative process of data analysis utilising Nvivo coding and constructs found in the data, themes and sub-themes emerged, and formed the basis of the propositions. The propositions were linked to the research questions (Table 6). Sub-themes focused on specific characteristics that align with the core concept of the theme (Braun et al., 2015). Although the data analysis generated many initial codes, not all the codes ended up being themes as the codes would only be considered as a theme if it was found to be pertinent to several data incidents and portrayed a structured concept that linked to the research question (Braun & Clarke, 2006). The codes that did not become themes were then excluded from further analysis (Braun & Clarke, 2006). A list of the emerging themes and sub-themes (Table 5) summarise the data analysis results that were used to develop the research propositions.

4.2.1 Digital Business Strategising

Org-FS had envisioned ways to enhance its digital account originations platform when the credit affordability legislation (National Credit Regulations including Affordability Assessment Regulations published in Regulation Gazette No 10382 in GG No 38557 of 2015-03-13) was passed. It was now required that customers provide proof of income before being allowed to open a credit account. A holistic long-term digital business strategy for Org-FS had not been formulated at this time. The focus was on growing the credit base of customer accounts through promotional marketing campaigns and enhancing an existing web-based digital application. The back-office operation supporting the business processes were running off legacy systems that needed replacing to enable future digital transformation. With the introduction of the new regulatory laws, the credit growth, credit risk, and credit operations processes and business rules were turned on its head. This was due to a demand for significant increases in person-power and operational costs required to implement compliance rules and processes, that consequently resulted in significant reductions in revenue due to a sharp drop in account growth as indicated by both business leader BS1 and IS leader IS5. *"direct financial impact because we had significant reduction in accounts opened. We had decreased demand, decreased approval rate. So, it had material impacts on the bottom line. The cost of running business increased probably by R15m in a year in terms of the additional headcount now required to manage the additional administrative tasks" (BS1). "I think it (regulations) turns our existing processes on its head…I don't think we have flexible systems…legacy applications in my view specifically from a financial services account originations space. My view is that it complicated our ability to respond to compliance" (IS5).* In addition, unpredictability and uncertainty around interpretations of legislation left Org-FS ill-prepared for the impact to the business. *"in our experience there is no accurate way to determine which way the regulatory change is going to impact" (BS2).* This problem scenario became the catalyst for the organisation doing a turnabout in the way it approached its digital business strategising process as expressed by BS1 and IS3. *"The more that we can enable our customers digitally, then we might be able to implement smarter, better technologies when there are these compliance requirements"* (*IS3).* "*it's ironic... It certainly reinforced digital..I think it has expedited it...forced us to re-evaluate large parts of our business processes & platforms on a regular basis" (BS1).*

4.2.1.1 Strategising Approach

While Org-FS had been operating with a predominantly top-down formalised strategising approach for many years, the period of regulatory uncertainty and adoption of digital technology solutions saw a shift in the strategising approach. It steadily became a combination of top-down and bottom up with data analytical tools being used to feed into the bottom-up strategising process. Typically, the strategising process would commence as top-down and then incorporate bottom-up information flows. BS1 and BS2 describe this phenomenon where the top-down formalised process started becoming a less formal, emergent process reliant on customer data analytics and where various levels of staff contributed to the strategising process. *"So, whilst there was the initial top-down strategy in terms of saying that we need to adopt a mobile application process, a lot of the end result was shaped more with input from staff and from customers. A combination" (BS2). "It (strategising process) was ongoing. I think the reason for that, is that new data became available quickly and on a regular basis which shaped our thinking and became more emergent as the new data arrived" (BS1).* In the IS environment, the formal top-down board strategic direction determined priorities and investment spend for IS planning, budgets and resourcing. IS2 and IS5 describe this *"It is a top-down model that we follow. Board go and agree on the key strategies ...the 3 to 5, year plan, and that translates into key IT projects, IT deliverables, key investments. With focus on growth… obviously we are in business to keep our shareholders happy" (IS5). "Our mandate is to understand business strategy and understand how technology can enable it, or grow it, or support it. Then to work with business to understand which of those technologies should be implemented to leverage the biggest business value" (IS2).* While IS2 and IS5 subscribe to the strictly top-down strategising model, IS1 recognises the value of a top-down, bottom-up strategising combination. *"a very responsive organisation should be top-down and bottom-up, because bottom-up is where the data is…Financial Services which is generally more mature around thinking from a data point of view… have good insights of what is going on in the business" (IS1).* Instead of focusing on an existing web-based digital platform only, the financial services business strategising process started to incorporate a variety of digital business technologies and digital business models. The business strategising approach focused on reducing costs and optimising processes through deploying digital technology solutions where the business pain points occurred as indicated by BS1. *"We did lots of short tactical interventions within the broader strategic framework" (BS1).*

It was highlighted by BS3 that for the success of Org-FS, business and Information Technology (IT) needed to converge *"Business and technology is converging very quickly… acknowledge that there is a convergence happening. Do we need more business in IT side or more IT skills or responsibilities in business.We need the business KPIs to reflect more strongly in the IT areas...so that they understand ultimately what we are trying to achieve" (BS3).* As described by BS3, the organisational resources were however constrained to maintain focus on becoming compliant and place on hold its envisioned digital business strategy. *"...we are not in the luxurious position where we can multitask appropriately. We have a single pipeline in terms of our technologies, and that tends to mean that.... It's not negotiable, the regulatory changes will happen and that will get priority"* (*BS3).*

4.2.2 Digital Transformation Strategising

The value of transforming the business digitally and strategising to achieve this is expressed by BS5 *"the organisation is open to innovative and new ways of working. I think we have more than proven in a number of business cases, how you can positively take steps ahead of your competitors and gain market share, just by simply doing things a little bit different...there are BOTS out there... there's automated software out there. There are different ways of engaging. There is a bouquet of channels out there and customers have the choice on how he wants to engage with you. For me the company has realised that… South Africa is catching up to that" (BS5).* BS6 added *"In some ways I think going digital is one way of keeping your compliance costs down. So, for example, affordability regulations required you to bring in three proofs of income. In the old world we would have said, come into the store with three pieces of paper and then we will take a photocopy of them and then we'll fax it. Now what we do is we take a picture of it, upload it and send it through on WhatsApp. And then we also realise ... why do they have to fax the application form, why don't we send it through digitally as well. So sometimes compliance makes you rethink your entire business and has other impacts that actually helps you reduce costs without you even realising it. I have to rethink how I do business. Digital forces you because it's cheaper...how do we do automation. How do we use the BOTS etc ...how do we give customers service. Actually, I think digital transformation helps us to drive down costs" (BS6).* To speed up the collection of proof of income documents as required by the new legislation, a different approach was taken by the operational teams across stores and head office. The existing digital web-based application was made accessible to store staff who could use the digital

process to onboard new customers in every store in S.A. as opposed to the previous business model whereby the web-based application was only being used by tech-savvy or technology adapted customers to apply for a credit account using their laptop or cellphone. BS1 indicated the effectiveness of this strategy *"biggest successes that we've had was because we shifted the data capture point from a centralised capture point at Head office down to a decentralised data capture point in stores" (BS1).* As a result, as BS2 described, the volume of credit account applications coming through the web-based channel increased to 92% and paper-based credit account applications from stores decreased to 8% of the total volume of account applications processed. *"…where traditionally a large portion of our customers engage with us through our stores. They send in physical applications…close on more than 60% used to be normal (paper) forms versus now the adoption is hovering on about 92% of customers using the digital platform" (BS2).*

4.2.3 Digital Transformation

To navigate a tricky landscape during regulatory uncertainty and the need to progress digital transformation, leadership was the cornerstone to Org-FS achieving success during this time. BS1 and BS2 describe how leadership in the business was rationalised to create cohesiveness across the business teams. Business teams were under immense pressure to contain costs, increase credit account growth and optimise operational processes while implementing new regulations that were fraught with misinterpretations, unclear regulatory rules and demanded a cumbersome proof of income validation process. *"leadership is important. Having a clear strategy and vision is important, regardless of the business transformation you are going about. The leadership structure was rationalised to get consistency of execution, around a defined strategy. the rationalisation of leadership structure in the credit space…allowed for a lot of wins and gains" (BS1). "They brought teams to alignment on the common goal… So there definitely was a more collaborative approach" (BS2).* While IS had a dedicated team supporting the business regulatory changes, leadership in IS remained siloed and provided little capacity to focus on the digital transformation while delivering compliant system solutions. IS3 explained *"We had to onboard a significant team to comply with proof of income regulations. There's a whole bunch of other lost opportunity costs…project resources that get allocated to compliance projects means that there is another potential business opportunity project that has to get*

parked" (IS3). This situation became a catalyst for innovative thinking. *"once you realise that, then you have to throw that constraint off and say ok, I can't use my current platforms, I have to augment with platforms I've never used before, you say let's do so, and in doing so you suddenly become very creative" (BS1).* IS1 cautioned around preparing for the impact on employees. *"…you're never going to completely get away from the human factor, and as a result you can't underestimate how change really affects and how your people need to be from a cultural point of view and accommodate for that" (IS1).* Ironically, the mechanisms used to gain control over the impacts of regulatory uncertainty became a management model for introducing and managing the business change impacts of digital transformation. New digital business models were introduced to alleviate costs, improve customer experience and increase business growth. *"What is interesting is the relationship between digital transformation and compliance regulation in terms of the fact that, digital transformation is often about creating new business models" (IS1).*

4.2.4 The Role of Digital Technologies

The use of data analytics as described by BS3 was a key digital technology used during periods of regulatory uncertainty and allowed business and IS stakeholders to make firmer decisions in areas that were grey. *"We try to debunk the assumptions that the regulator had made. We can also use analytics to illustrate to them what the unintended consequences were" (BS3).* To contain the cost of hiring additional staff needed to ensure that regulations were adhered to, BS2 described the use of RPA (robotic process automation) technologies, AI (artificial intelligence), and digital communication channels such as WhatsApp that were explored and some of which were implemented. *"Where the opportunity lies now is how can we take our internal processes and where we have people doing certain mundane activities, how can we automate that from a BOT perspective. The second thing would be, how can we leverage off AI in terms of our customer interactions and being able to facilitate a lot of your common questions that customers may contact you for. How can we leverage off chatbots and artificial intelligence in order to facilitate those conversations" (BS2).*BS1 described the paradigm shift where instead of trying to collect proof of income documents, rather placing customers in control of sending their documents via WhatsApp. The documents were then be routed to the teams who validated them according to the new regulatory compliance rules. *"…WhatsApp, the use of self-service channels which puts the consumer back in control, allows them to use the technology that they have"*

(BS1). Further to the collection of documents, BS2 highlighted the benefits of targeted messaging that the WhatsApp digital communication channel was used for. *"…we could segment and target our messaging and …we could use WhatsApp to do that" (BS2).*

4.2.5 Innovation

4.2.5.1 Control versus Innovation

BS1 emphasised the need for both innovation and control in that while there was pressure to come up with creative and innovative solutions to mitigate business risk, it was also important to ensure proper governance and controls to protect the business. *"control & innovation are opposite sides of the same coin" (BS1).* New processes and solutions may well open the business up to fraudulent behaviour as described by BS5. *"We picked up a lot of fraud. We picked up a lot of customers who had given false numbers and false names"* (*BS5).* BS3 described the journey from control to innovation. *"was control focused and then we become innovative… understanding where there is opportunity. In the end we had a lot of innovative solutions" (BS3).* BS1 and BS4 cautioned that digital platforms have high visibility in the media and any impactful error of faux pas or gaps in a process would be immediately highlighted in the public arena. *"Digital transformation though, is a very visible way, so if you get it very wrong ...because it is very much consumer-facing, then if you get it wrong you get it wrong very badly" (BS1). "We live in a world where you don't just trip over your feet and no one sees. Everyone sees. With that everyone is becoming risk-averse. If you don't try anything you are not going to make any mistakes...but you are also not going to make any business" (BS4).* Controls and governance were therefore key when assessing innovative digital solutions to counter the pressures of poor business performance and cost reduction as BS5 discussed. *"I'm glad that when we do innovate…that we do have technology partners at the moment that don't just shoot down…" (BS5).* IS1 confirmed the attitude described by BS5 and recommended developing a learning culture. *"It starts as being a culture thing. Before we even talk about innovation, what you require is a learning culture" (IS1).*

4.2.5.2 Innovation Triggers

Regulatory uncertainty and the need to become compliant by an externally set deadline meant that business and IS leaders were under pressure to deliver systems and operational processes

that were not only compliant, but that addressed the increasing costs, poor customer experience, and poor business performance brought about by new regulations. This called for innovative thinking. BS5 expressed the business response to the cost impact, *"… we had to innovate, it forced us… we explored other opportunities. When your back is up against the wall, you need to become creative" (BS5).* BS6 concluded that without these external pressures, it would have been easy for Org-FS to move at a slower pace and with a sense of complacency. *"Legislation forced us with all the changing ...how much (do you) understand your business. What problem are you solving for your consumer..how do you protect yourself from all those threats. I think it's made us a better organisation… complacency I think is a terrible thing for a business. If you become complacent you never actually take some of those bigger risks... Definitely, I think we were pretty complacent before (regulatory compliance). I don't think there was an urgent need to keep re-inventing or challenging… ourselves" (BS6).* The negative impact of regulatory compliance and associated uncertainty on the success of the business therefore became a trigger for innovative and creative solutions. *"legislation creates a pain point. The pain point drives innovation, so ironically it has driven some innovation" (IS3).*

4.2.5.3 Digital Innovation

To contain the increase in costs brought about by legislation and iterative changes to compliance rules as a result of the varied interpretations of legislation, business managers as well as business and IT teams were driven to find smarter, innovative digital solutions. The aim was to find innovative ways to implement digital solutions that both support legislative compliance and enhance customer digital experience. Business and IS leaders felt that regulatory compliance and the uncertainty that came with it was a deterrent to the teams being innovative due to constant change and demand for productivity and delivery. IS2 explained, *"it has hindered our ability to be innovative…take products to market... invest in proof of concepts. Because we don't have the luxury of having that buffer of resources because we are having to deal with regulation" (IS2).* BS2 and BS5 described the business experience, *"Your BAU (business as usual) practice and ability to grow or do anything innovative or anything that you had planned..that came to an absolute standstill" (BS2). ".. my team could not be innovative during the day because we were stuck in the reality" (BS5).* BS6 indicated that Org-FS realised the importance of building capacity for innovation. *"What we are now actively doing is… to make some funding available for innovation…because you can't afford not to innovate" (BS6).* To achieve digitally

transformative processes within the constraints of blurry regulatory rules and multiple interpretations of these rules, the business and IS teams developed strong dynamic capabilities through sensing, seizing and reconfiguring skills required to survive the dynamism, hostility and heterogeneity as new data became available and revised interpretations of legislation came through. This capability proved to be of great value in building digital solutions as the organisation transformed and adapted to change brought about by unfamiliar digital processes within the business. BS2 mentioned the importance of being able to quickly implement change. *"technical solutions to accommodate any of those changes and again being in the position to quickly turn off and on, filters or segmentation. So that the speed to execution is quicker" (BS2).*

4.2.6 Business Models

4.2.6.1 Customer Expectations

As regulatory uncertainty created cumbersome business processes and poor customer experiences, it became the trigger for adopting digital business models that would improve both the customer and staff experience. Digital solutions such as Robotics and WhatsApp communication channels were trialled and readily adopted by customers and staff. Customers enjoyed the convenience of having contact and communication (via robotics) during times in the day that suited them and when staff generally stopped working. This increased the usage and adoption of digital business models. Digital experiences in terms of transacting online at any time of day, using convenient channels of communication, accessing information about their favourite brands, products and deals via social media have become a new norm, making digital engagement with customers a tough competitive arena as affirmed by IS5. *"Customers expect 24 by 7 service. They don't like standing in queues, they want to be serviced remotely. They want choice. They want to be communicated with and serviced in their own preferred manner. They want their service provider to know them well enough to be able to offer them that. You've got to be able to differentiate your customer in terms of preference, in terms of channel, in terms of location, in terms of age...there are so many different dimensions, especially the young consumer. If you don't keep up with them, they will find somebody who does" (IS5).* Customers expect to be able to transact at any place, at any time and on any device. They are also being wooed with rewards, loyalty programmes and discount coupons to attract them to various digital applications and sites. *"A customer in my opinion will need to start a conversation in WhatsApp,*

to seamlessly transfer to online ... a facebook messenger platform and come back into WhatsApp depending on where he is at that point in time. It's all about customer convenience... the customer is becoming more and more spoilt as other organisations provide these various functions and opportunities for customers to be more flexible ...it's an expectation" (BS5).
Social media has become like the digital "shopping windows" similar to those in bricks and mortar stores. The convenience of being able to transact "at your fingertips" has raised the bar in terms of keeping up with customer expectations. Every process is assessed by the customer based on the level of convenience, flexibility and range of choices that it provides.

4.2.6.2 Creating Customer Value

While customers expect to choose how they engage with businesses, digital business models, as described by BS5, can add value and enhance the customer experience. *"Customers that we were engaging with would say this is not a convenient time to talk, I'm a call centre agent, I'm a security guard. What we did was, we introduced an automated solution, WhatsApp, channel of choice...and here is someone on the other side…actually a BOT that could handle all of the information that it needed to in a controlled basic decision tree" (BS5).* Business leader BS3 however expressed concern around the importance of the IT leadership role in creating customer value "*our IT leadership is a little bit too divorced from business… which makes it difficult to come up with technologies and solutions that are truly customer-focused" (BS3).* While digital business models increase customer value and enhance customer experience, there are instances where there is a reliance on regulations to be put in place to facilitate such business models, as described by IS1. *"New business models often clash directly with whether there is regulation to accommodate for those things...regulation cannot keep up with technology...we don't have the laws to know what to do in those circumstances. So, technology has moved ahead of our ability to respond to it…. South Africa was the first country in the world to make it legal to use biometrics to make payments…once that legislation was in place, people could then go ahead. Technology could do it, but (S.A.) was the first country in the world to allow it" (IS1).*

4.2.7 Competitive Advantage

The negative impact of regulatory uncertainty on business performance and its ability to compete in the market place drove executive leaders to build stronger relationships with lawmakers. They also engaged with forums and decision-making bodies to anticipate potential legislative impacts coming through. This helped to gain clarity a lot faster so that scenario planning could be carried out to contain further potential revenue losses. In implementing unclear, ambiguous legislative rules and cumbersome business processes, the organisation experienced substantial financial losses due to a sharp reduction in new credit accounts and a steep increase in operational costs as expressed by BS1, BS5 and BS6. *"The cost of running business increased probably by R15m in a year in terms of the additional headcount now required to manage the additional administrative tasks" (BS1). "...it was almost 70% drop in the total volume of accounts that we opened" (BS5). "we lost R3m in turnover in one year" (BS6).* Ironically, due to the financial pressures created, it triggered a shift from complacent "business as usual" to a culture of creativity to trial innovative digital business models that grew its level of digital maturity and eventually caused the organisation to become more responsive and improve its position in the market place. *"we are actually got feedback that Org-FS was the best and the fastest to react to that ruling" (BS4). "Definitely, I think we were pretty complacent before (regulatory compliance). What we are now actively doing is… to make some funding available for innovation…because you can't afford not to innovate" (BS6).*

4.2.8 Leadership

4.2.8.1 Structure

Org-FS realised that to achieve compliance as well as deliver on digital strategies, it needed to be appropriately structured to ensure that both objectives to be met. *".. an area where we had both compliance as well as the ability to focus on digital…I think it's creating capacity to do both" (IS4).* Business leadership also realised that due to the ambiguities of regulatory uncertainty, they needed to create cohesiveness across the various teams. To achieve this, they rationalised leadership and consolidated multiple teams under a single leadership. *"It's not so much the innovation itself per se, it's capacitating and structuring the right parts of the business to shorten or reduce the time it takes to get the benefit" (BS1).* Technical teams were co-located with business teams to enhance the speed to deliver and lessen any gaps that distance may cause.

"Making sure that you get the right people together. I don't believe that us sitting apart in any way speeds up delivery. My view is that we should be seated together, we should be delivering together. If you want to get into a digital landscape...it's having the ability to respond in an agile fashion" (IS4). The complex and diverse compliance requirements called for strong leadership to steer teams through the ambiguities and complexities. Innovative thinking was required to come up with ways to address complex scenarios. Utilising dynamic capabilities allowed teams to be responsive and agile with their solution implementations in a constantly changing environment. *"... making sure that you've got that digital focus. making sure that you have the right teams and capacity and leadership allocated to both elements to make sure it's successful. As a leadership team, it is about creating the priority and focus so that we can get it done" (IS4).*

4.2.8.2 Digital Leadership

BS3 believed that senior leadership should drive digital change. *"Any digital change has to have a very strong top-down aspect and element. You need senior leaders to buy into it and you need senior leaders to help drive it" (BS3).* IS5 commented on the CIO being responsible for the long-term digital transformation plan which is part of his KPIs. *"digitilisation is one of the key board-led strategies, it's a strategy that is owned by the chief information officer, our CIO. He has his own set of KPIs and one of them is all about digitalisation" (IS5).* This, however, is not the approach and structure preferred by business leadership. As indicated by BS4 and BS6, business leadership expected ownership of the digital transformation strategy to reside within the business. *"It must be integrated, there must be one person at the top. It will be a massive portfolio for one person that can oversee and say that's been built over there, that's been hosted there, this is how the customer likes to engage ...bring it all together so that it flows" (BS4). "I think it (DBS) has to be driven by the business. I don't see that it should be driven by IT. Business needs to be saying 'we envisage a world like this. We envisage this is how we would talk to our customers. This is how we would interact with our customers'. I see the CIO's role of making it happen… the CIO has a responsibility to look at the trends… I see it as a supplier" (BS6).*

4.2.8.3 Long term planning

Business leader BS6 cited a shift away from short term planning as being a key learning from the period of regulatory uncertainty. *"One of the things we have really learnt from this, is to move away from this short term, complacent way of working...to actually five year planning" (BS6).*

While both business and IS teams use a three to five year strategic planning approach to map at a high level their future strategies, they found that regulatory uncertainty challenged their ability to achieve this plan and it needed to be reworked with new variables not previously considered. *"although we're on this digital transformation journey and let's say a new piece of legislation comes into effect, there is often very tight deadlines associated with the implementation from a compliance perspective. Which means it's hard to factor that into your current journey and roadmap" (IS3).* The plan formulated for digital transformation was created as an eight-year view. According to BS6, the macro-economics of the country was a key consideration in preparing the long-term plans. *"one of the things we've done is the five-year planning tool. In the past, five-year planning was almost a* straight *calculation. You just assumed that you will increase your profits by 6%... One of the things that the legislation has shown us is that it is unpredictable now. Now, the five-year plan actually has none of those assumptions in there" (BS6).*

4.2.9 Dynamic Capabilities

4.2.9.1 Scenario Planning

In the period while legislation was being challenged in the courts of law, business and IS teams workshopped the various scenarios that could potentially arise depending on the detail of the legislation and its impact on existing business processes. This preparation as described by BS2 allowed the teams to proactively address the impacts and also positioned them to have keen sensing, seizing and reconfiguration mindsets of dynamic capabilities that allowed them to achieve compliance with the required timeframes. *"what we did right in the early stages, was to develop operational plans that looked at different scenarios… there may be option one, two and three and then we would apply certain models from a risk perspective… Then also develop the technical and operational solutions to cater for each of those scenarios" (BS2).* The teams reaped the benefits of their proactive and dynamic approach that placed Org-FS at a competitive advantage as described by BS4. *"example of how we are proactive, is proof of income… when we saw that it might be taken away...we actually got feedback that Org-FS was… the fastest to react to that ruling" (BS4).* BS3 indicated the influence that this had on the future way of working within Org-FS. *"make strategic changes based on analytical evidence..the extent of*

change impact.. and scenario planning. Which now influences how we do our strategies in the future. It definitely had an impact on the strategising process" (BS3).

4.2.9.2 Agility

The Org-FS business and IS teams became increasingly agile in their delivery capabilities despite the challenges of misinterpretations of the legislation and constant operational change required as the legislative requirements became clearer. BS2 and BS5 recount their experiences where Org-FS teams needed to be agile for the business to succeed. *"when we initially got the court ruling, there was one particular view at the time on the operational process that we were going to follow. That lasted for probably about a week before we gained further clarity where legal opinions came back...then we had to pause that process…We then implemented a second round of operational changes based on that interpretation... once new information came to light, it threw a curveball and we had to redesign and put in place a new process. Because you had limited information or understanding of which way something may go, you are constantly rejigging...whatever operational plan you may have, or operational process or even technical solution that you may have...as the information comes through, ... you would then have to adapt and look at… does this contingency that we put in place…meet this new change... If not, ok, then we start from scratch and rejig that whole plan in order to comply with the process" (BS2). "…you've got to tweak the machine real time, you've got to educate real time. You've got to make the process of collecting (documents) easier. All of that required daily and weekly tweaks... the good thing was that the company was agile enough to enable those tweaks and to see the return on that investment" (BS5).* BS1 confirmed that an agile delivery approach became a culture within the organisation and facilitates business strategising within Org-FS. *"We are very strong on the test and learn approach. That methodology has now become inculcated within our business culture. In many ways our business strategy is influenced… by that process...that constant sensing of internal and external environment, whether it is economic or regulatory. We have become a sensing, learning organisation" (BS1).*

4.2.10 Regulatory Uncertainty

4.2.10.1 Dynamism

Several new legislations affecting business processes within the financial services industry in S.A. needed to be considered. These included the credit affordability regulations (National Credit Regulations including Affordability Assessment Regulations published in Regulation Gazette No 10382 in GG No 38557 of 2015-03-13) requiring customer proof of income, the Protection of Personal Information Act (South Africa. Protection of Personal Information Act No. 4 of 2013), financial accounting IFRS9 legislation, debit order regulations, and marketing permissions. BS6 commented on this phenomenon: *"we have seen a mass acceleration of legislation… Some of it has driven this need because there have been some big failures... You have the failing of African bank. I think some of that has driven this need" (BS6).* The credit affordability regulations were ultimately set aside in a S.A. court of law after Org-FS had completed complex implementation processes. *"The courts indicated …the way they were going about it had a lot of unintended consequences that they did not foresee. A lot of that volatility isn't resolved yet. So, the legislation has been repelled effectively…but we know it is pending again. So, we don't know what shape and form it will take" (BS3).* Future compliance regulations like debt intervention and POPIA (South Africa. Protection of Personal Information Act No. 4 of 2013) remain on the radar. The high rate of change imposed on organisations through these regulations means that businesses divert their resources from their digital business strategies and focus on becoming compliant by the given deadlines as described by BS3. *"because the legislation came as a surprise with tight timelines, we did not have all the systems in place to have all the data feed through appropriately. So, we could not do analysis to see what customers actually do. Unfortunately, our organisation struggles to do multiple things on the same platforms. Effectively it means, pause all digital transformation initiatives and all our strategies and focus on compliance and getting that sorted first… the organisation effectively drops everything in terms of all other priorities, all other strategies and focuses on this (legislation) as a key initiative" (BS3).* Not only is the rate of change unexpectedly high, but the types of laws and the timing of the compliance deadlines are unpredictable as indicated by IS3 and IS5, and appear to be politically motivated as mentioned by BS5 and IS1. *"I think… it (regulations) has been used for political gains as opposed to consumer protection" (BS5). "In terms of the detail of what is*

coming it is not predictable. I think also the expectation of when a change needs to be enacted or enforced is very unpredictable" (IS3). "some of the stuff came as a surprise and with fairly short turnaround times without much option... that caught us off guard" (IS5). "triggered by political rhythm in the country... a lot of stuff that is related to credit, if you think about it from a point of view of the population, it's a question of people's indebtedness…so there is a strong relationship there" (IS1). As indicated by BS2 and BS6, the legislation does not necessarily achieve its intention to alleviate indebtedness of consumers, and instead creates a negative economic impact as in the case of the affordability regulations where certain population segments are unintentionally excluded from access to credit. *"it's largely there to protect customers. In some cases, I don't think it takes into account all the knock-on effects…through those regulatory changes there is also a form of exclusion with POI, proof of income, that left a certain large portion of the market being excluded from being able to afford credit" (BS2). "we were as surprised as anybody when they just implemented it" (BS6).* The high volume and rate of change combined with the unpredictability and timing of these legislations as well as the uncertainty around interpretations of the laws, demanded highly skilled resources. Teams relied on strong leadership when doing scenario planning and applying dynamic capabilities through continuous sensing, seizing and reconfiguring. Business and IS leaders steered teams, prioritised and provided direction as the landscape constantly changed. *"our experience there is no accurate way to determine which way the regulatory change is going to impact" (BS2).*

4.2.10.2 Heterogeneity

The diversity of the various regulations over three years meant a broad impact across multiple teams and resource utilisation in the organisation, especially due to the interpretation complexities as confirmed by IS1. *"I think it is extremely complex. If nothing else, it's worth having dedicated resource which only does that (interpret). The legal aspects, the interpretation of the law is so critical" (IS1)*. Not only the diverse types of legislation but also the complexity of the rules, more specifically the credit affordability and proof of income regulations, that as expressed by BS1, resulted in multiple interpretations across the various teams. *"between the credit risk team...would have one interpretation, credit legal team would have a legal interpretation. The group compliance team, the operations team and even the leaders of those functions would have very different views and interpretations. That added to the complexity"*

(BS1). This resulted in prolonged implementation processes, constant changes with some being self-imposed as indicated by BS1, and the organisation course-corrected as misinterpretations were detected. *"A lot of the changes we went through were self-imposed as our thinking and thought processes around... how to work within the regulations and within the legislative acts, became clearer and more data became available" (BS1).* Some of these complexities are described by BS3, IS3 and BS1. *"The bank statement is obviously a nett income after your taxes are deducted. These two don't link up anywhere in the legislation. Initially we were very nervous to use this amount" (BS3). "they don't take into account the subtleties of the South African population...what constitutes formal and informal employment" (IS3). "biggest one is around electronic communications and under what conditions can you or can't you communicate. There are many differences of opinion within the industry" (BS1).* The impact on the inability of the organisation to move forward due to this situation of complexity and uncertainty is expressed by BS5. *"You really can't aim to implement projects based on guesswork. It is just not going to be financially viable. You end up with 90% or 95% of your projects that you have initiated, sitting and waiting for something to happen" (BS5).* The use of digital technologies like data analytics was used to steer understanding and inform business decisions. *"Using data analytics to try and inform the decisions we were making...we believe is the right way" (BS3).*

4.2.10.3 Hostility

The risk of the organisation being non-compliant for credit affordability legislation specifically, meant it could lose its license to offer credit, be charged penalties of three times its annual turnover, and jail time for certain board members. BS1 indicates that Org-FS took a conservative approach to compliance. Reputational damage of customers seeing the organisation as being non-compliant was another concern that would impact revenue and shareholder interests. *"The organisation took a conservative approach to be fully compliant with the act and regulations from day one and then evolve interpretation as more data became available" (BS1).* Not only were these threats imposed, but by implementing unclear, ambiguous legislative rules and cumbersome business processes, the organisation experienced substantial financial losses due to a sharp reduction in credit product sales and a steep increase in operational costs required to implement compliant processes and systems as expressed by BS5 and BS6. *"...it was almost 70% drop in the total volume of accounts that we opened" (BS5). "we lost R3m in turnover in one*

year" (BS6). The key factors under the spotlight for the organisation in this hostile environment were a.) rapidly deteriorating business performance b.) loss of market share to competitors, c.) compliance penalties and reputational damage d.) delays in realising its digital business strategies. Ongoing legislative changes would be expected to target the industry for non-compliance. *"Compliance is the new norm and controls are the new norm… I don't see future legislation or compliance legislation lessening in the future… Compliance is starting to dominate our every waking thought, and if you become more and more focused on compliance it just means that you are not spending as much time on opportunities on innovation and creativity on what consumers want" (BS6).* Business leadership sought to manage risk by refocusing on cash sales to offset the credit sale losses, implementing digital technology solutions to contain costs and minimise process impacts to consumers. IS and business leadership presented a strong case for investment in replacing legacy system platforms and progressing digital transformation. *"Right now, one of our strategies is that we will be 50% credit and 50% cash for the S.A. market…for when there is an economic downturn or a piece of legislation comes in that will impact credit" (BS6).* Another strategising approach to manage business risk as mentioned by BS2, was for leadership teams to build strong relationships with the credit regulator as well as competitors in the industry. *"stay close to regulatory bodies that affect the credit lending and financial services environments" (BS2).* While legislation levelled the playing fields with competitors, it also brought about common challenges that caused competitors to build relationships and participate in forums and decision-making bodies to collectively influence potential legislative impacts. Alignment with competitors eventually resulted in the credit affordability regulations being set aside. BS2, BS3 and IS3 indicated that Org-FS responded well to the competitor environment. "*we also looked extensively at what other competitors were doing and how they were interpreting that information" (BS2). "the status quo is challenged, which is what regulation tends to do…It does leave you with opportunity to get market share again, depending on who looks at it the best and who is the most agile at the moment, they tend to benefit. So, I think we benefitted from that" (BS3). "We've done that a bit better than some of our competitors…we've invested in operational processes and in systems that have enabled us to be compliant but still be competitive" (IS3).*

4.3 Summary of Themes and Sub-themes

Table 5 presents a summary of the themes within the internal and external environmental contexts, the sub-themes, and the contributions from the two Org-FS leadership groups that emerged from the research data analysis process.

Table 5: Summary of Emerging themes and sub-themes

Environmental Contexts	Themes	Sub-themes	Source	
			Business Leader	I.S. Leader
Internal Organisational Context	Digital Business Strategising	Strategising Approach	BS1; BS2	IS1; IS2; IS3; IS5
	Digital Transformation Strategising		BS1; BS2; BS5; BS6	
	Digital Transformation		BS1; BS2	IS1; IS3
	Role of Digital Technologies		BS1; BS2; BS3	
	Innovation	Control versus Innovation; Innovation Triggers; Digital Innovation	BS1; BS2; BS3; BS4; BS5; BS6	IS1; IS2; IS3
	Business Models	Customer Expectations; Creating Customer Value	BS3; BS5	IS1; IS5
	Competitive Advantage		BS1; BS4; BS5; BS6	
	Leadership	Structure; Digital leadership; Long-term planning	BS1; BS3; BS4; BS6	IS4; IS5
	Dynamic Capabilities	Scenario Planning; Agility	BS1; BS2; BS3; BS4; BS5	
External Regulatory Context	Regulatory Uncertainty	Dynamism; Heterogeneity; Hostility	BS1; BS2; BS3; BS5; BS6	IS1; IS3; IS5

It is interesting to note that Org-FS business leaders were very vocal on digital transformation, the role of digital technologies and dynamic capabilities. This could be attributed to the culture of strategy being driven more strongly by business than IS, as described by IS2. *"Our mandate is to understand business strategy and understand how technology can enable it, or grow it, or support it. Then to work with business to understand which of those technologies should be*

implemented to leverage the biggest business value" (IS2). Another contributing factor, as BS1 indicates, is the reality of the impact on business performance that became the impetus for business leaders to expedite their digital transformation and utilise dynamic capabilities. "*The cost of running business increased probably by R15m in a year in terms of the additional headcount now required to manage the additional administrative tasks" (BS1).* "*it's ironic... It certainly reinforced digital...I think it has expedited it...forced us to re-evaluate large parts of our business processes & platforms on a regular basis" (BS1). "We are very strong on the test and learn approach...that constant sensing of internal and external environment, whether it is economic or regulatory. We have become a sensing, learning organisation" (BS1).*

These findings are discussed in more detail in Chapter 5, where propositions are formulated to answer the research questions.

CHAPTER 5 - DISCUSSION

This chapter explains the key relationships depicted in the research model (Figure 2) and links the case study data analysis and findings to the literature. In the first section, the research model is extended to include additional concepts based on data analysis and the findings. The next section describes propositions that focus on the influence of regulatory uncertainty on digital business strategising and business growth as outlined in the research questions. The third section summarises the findings (Table 6) to reflect the propositions that answer the research questions.

5.1 Revised Research Model

Digital business strategising in the context of regulatory uncertainty was conceptualised in the research model at the end of the Literature review chapter (Figure 1). This model allowed for the empirical part of the study to be conducted in a structured manner. Additional concepts (dynamic capabilities and competitive advantage) that emerged from the data analysis are reflected in the revised research model (Figure 2).

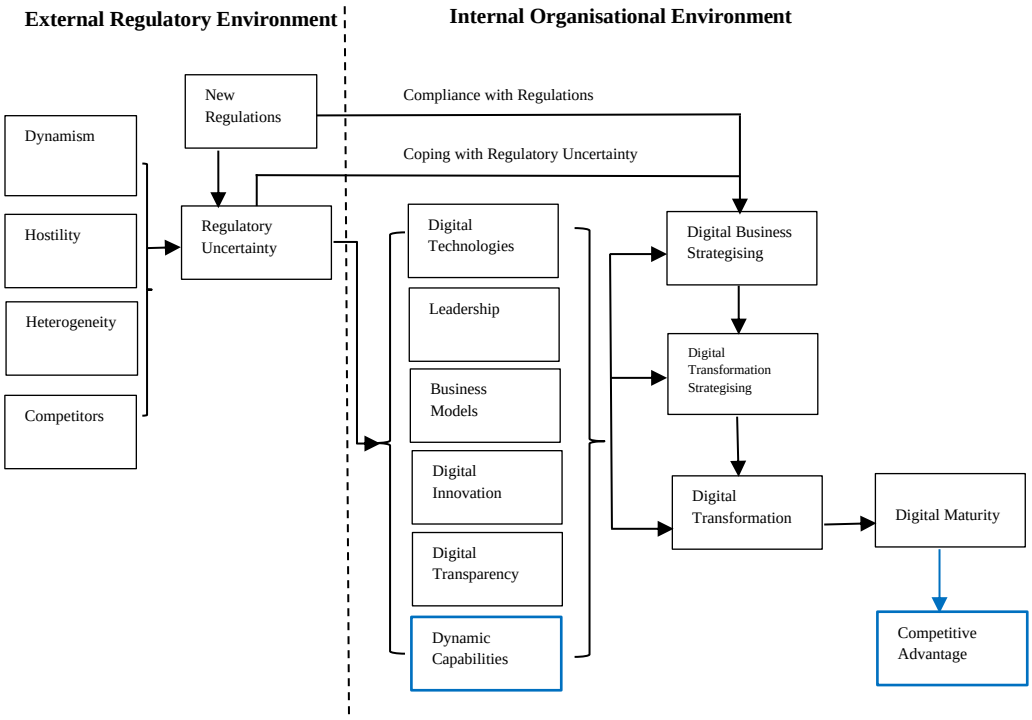

Figure 2: Revised Conceptual Research Model – Digital Business Strategising in the context of Regulatory Uncertainty

5.2 Research Propositions

The findings regarding the research questions are discussed in relation to the research data analysis and relevant literature resulting in the formulation of five propositions (P1, P2, P3, P4 and P5).

5.2.1 Influence of regulatory uncertainty on digital business strategising

Due to pressures for the organisation to contain costs, achieve performance targets and compliance, despite existing levels of uncertainty, development and strategising for its future digital business vision was deferred in favour of short-term digital transformation solutions in its operational environment.

*P1: **When** organisations contend with long periods of regulatory uncertainty, and the firm is in the early stages of its digital transformation journey, its digital business strategising process **may** be too focused on short-term tactical digital transformations that reduce operational costs and detract from their long-term digital business strategy.*

Literature acknowledges that a situation of continuous uncertainty caused by missing, ambiguous or ongoing change in legislation negatively affects digital business strategising (Weber, 2015). This situation creates a barrier for business leaders to fulfil their future digital business strategies (Granados & Gupta, 2013), more specifically when the firm is in initial stages of digital transformation (Kane et al., 2015), it tends to implement tactical strategies (Kane et al., 2015). Prolonged periods of regulatory uncertainty result in increased costs, lengthened timeframes to deliver digital technology solutions, and increased risk for securing funding of digital technology solutions (Hoerr, 2011).

5.2.2 Influence of regulatory uncertainty on business growth and competitive advantage

Delays in the organisation's growth strategy compounded by its focus on regulatory compliance and associated uncertainties resulted in cumbersome customer processes, a sharp drop in revenue and an increase in operational costs. This resulted in an overall negative effect on the performance of the business as a whole.

*P2: **When** organisations contend with regulatory uncertainty that results in poor customer experience and delays in new products and services, business performance, growth and competitive advantage are **most likely** to be negatively impacted.*

Literature confirms a negative impact on business performance as a result of uncertainty in the regulatory environment (Bordo et al., 2016) causing delays in new products or services, increased operational costs, market share loss in the competitor environment as well as a poor perception of business management (Bayer et al., 2010).

5.2.3 Influence of regulatory uncertainty on digital transformation

The organisation responded to the levels of unpredictability around regulations and its negative effect on business performance and growth by expediting and expanding the application of digital technologies to contain costs and regain market share. The use of digital communication channels such as WhatsApp were piloted and rolled out in order to reduce operational compliance costs and improve cumbersome business processes imposed by legislation. Extensive use of data analytics informed business decisions and brought clarity for business and IS leaders grappling with high levels of uncertainty. The digital account opening process was made accessible to all store staff and replaced the paper-based process. These actions to adjust 'business as usual' processes may have never been considered had it not been for the situation of concern.

*P3: **When** an organisation's business performance and growth is negatively impacted due to regulatory uncertainty, this **may** highlight prior complacency with existing 'business as usual' processes and expedite its digital transformation through tactical digital business models that reduce operational costs, and enhance business performance and competitive advantage.*

Literature corroborates the positive effect on an organisation that swiftly progresses implementation of its digital business strategy in a situation of uncertainty (Kahre et al., 2017), to counter a delay in progress due to volatility in the environment (Mithas et al., 2013). Utilising digital technologies to provide input to decision making and keep business informed, is key for firms to survive in the competitor market and unstable macro-environment (Ray et al., 2009).

5.2.4 Influence of regulatory uncertainty on leadership and their teams

Compliance penalties for the organisation would have meant fines of ten percent of annual turnover and jail time in certain instances. With the added challenge of uncertainty within the regulatory context due to multiple and non-definitive interpretations of legislative rules, the pressure on leaders and their teams to attain compliance by the external deadlines and achieve internal business performance and growth targets were immense. Business and IS leaders along with their teams applied dynamic capabilities and came up with creative solutions and innovations.

*P4: **When** organisations contend with strict regulatory compliance deadlines carrying serious non-compliance penalties, coupled with regulatory uncertainty, they **may** rely on skillful, responsive teams to apply innovative and dynamic capabilities that digitally enhance business processes, systems and customer engagement, to achieve compliance deadlines and business performance targets for competitive advantage.*

Literature as expressed by Frank et. al. (2017), as well as Wilden and Gudergan (2015), supports the scenario whereby firms experiencing dynamic macro-environments with ongoing regulatory uncertainty will rely on its teams to effectively apply dynamic capabilities (DC) that can sense risks, opportunities, reconfigure resources and be decisive, to maintain a favourable position in the market place (Li & Liu, 2014). In the face of fines that may well equal or exceed the cost of compliance (Fabrizio, 2012) should deadlines not be met, applying DC requires creativity and innovation (Frank et al., 2017) where leaders need to ensure broad employee participation and allow for experimentation and adaptability to achieve innovative solutions (Sia et al., 2016; Ross et al., 2017).

5.2.5 Influence of regulatory uncertainty on the digital business strategising process

Contending with regulatory uncertainty and new strategies that include digital business models, leadership starts to rely more extensively on broader IS and business teams as sources of inputs into the digital business strategising process.

*P5: **When** organisations contend with regulatory uncertainty and use digital solutions to address this challenge, leadership **may** rely on input across a broad spectrum of business and IS*

employees that causes the digital business strategising process to become a combined top-down, bottom-up process with inputs from both business and IS employees.

The literature emphasises the need for IS and business teams to work together through issues of uncertainty where they would need to collaborate and resolve emerging requirements in an agile fashion within a constantly changing environment (Karpovsky & Galliers, 2015). The strategising process relies on input from both IS and business teams that result in unified, strengthened teamwork (Karpovsky & Galliers, 2015). The top-down flow of control described by Segars et. al. (1998) is adapted to include innovation with broad bottom-up participation in the strategising process between business and IS which could also result in speedier strategising outcomes (Brown, 2004).

5.3 Answers to Research Questions

Table 6 presents a summary of the findings in the form of five propositions that answer the primary and secondary research questions.

Table 6: Propositions that answer the Research Questions

Research Questions	Propositions
How does regulatory uncertainty influence digital business strategising?	P1, P2 & P3
What strategising approach is taken by IS practitioners in achieving digital business strategy while dealing with regulatory uncertainty?	P4 & P5
What strategising approach is taken by business leaders in achieving digital business strategy while dealing with regulatory uncertainty?	P4 & P5
What are the key factors to consider when evaluating potential negative impacts of regulatory uncertainty on digital business strategies?	P1, P2 & P3
What can IS practitioners do to mitigate negative impact of regulatory uncertainty on digital business strategy and growth?	P4 & P5
What can business leaders do to mitigate negative impact of regulatory uncertainty on digital business strategy and growth?	P4 & P5

CHAPTER 6 - CONCLUSION

This chapter concludes the research by discussing practical implications, outlining research contributions to the IS field, future research, limitations of the study and concluding remarks. The practical objective of this research was to gain a holistic understanding and offer insights to business and IS leaders.

6.1 Practical Implications for business and IS leaders

Inclusion of both business and IS leaders involved in the empirical situation allowed for comparison of described perspectives, experiences and approaches of these two leadership groups. This provided interesting insights that built a deeper understanding of the research problem. The propositions highlight practical insights that alert leaders of the following:

i. focus on strategising for a digital future may be lost in the efforts to manage internal pressures to contain costs and achieve performance targets, and external pressures to achieve compliance with constantly changing regulatory requirements.
ii. responding to constantly changing regulatory requirements that lead to poor customer experience will negatively affect the growth and performance of the company.
iii. the pressure of responding to constantly changing regulatory requirements may expedite its digital transformation through uncovering complacency when existing processes are closely scrutinised and replaced with digital solutions.
iv. Internal and external pressures to comply with constantly changing regulatory requirements and achieve business performance calls for teams to be skilled in dynamic capabilities and scenario planning to provide innovative digital solutions and create a culture of testing and learning.
v. Effective digital business strategising in the context of regulatory uncertainty requires a fusion and working together of a broad spectrum of teams across all levels within business and IS areas to bring about digital transformation.

6.2 Research Contributions to the IS Field

6.2.1 Theoretical Contributions

The main theoretical contribution is the conceptual model derived from the literature review and further enhanced by the case study analysis and findings. The application of inductive reasoning in this research confirms that emergent concepts are grounded in the data. In this way, the study allays concerns around the understanding of IS as it relates to IS practice as opposed to pure theorising of IS concepts (Grover & Lyytinen, 2015; Hassan & Lowry, 2015).

6.2.1.1 Theoretical Propositions

Five theoretical propositions are detailed in relation to the practice of digital business strategising in the context of regulatory uncertainty. These propositions provide a platform for future research. Since the propositions are grounded in the empirical data, the risk of these propositions not applying to real-world situations is mitigated (Glaser, 2002).

6.3 Limitations

The research focus was limited to regulatory uncertainty in the macro-environment. Different types of instability in the macro-environment could yield additional insights that can be explored in future research. The geographical context was limited to South Africa as a developing country. Developing countries other than South Africa may yield different results given the differences in economic, cultural and behavioral contexts.

6.4 Suggestions for Future Research

The five propositions detailed in chapter 5 presents options for future research in this field of study. Additional research opportunities that will be interesting to pursue are the conflicting views and approaches to the research problem scenario across the business and IS leadership groups as highlighted in the analysis and findings chapter of this dissertation. This research could assist IS leaders and teams in how to go about shifting from a focus on alignment with business strategy, to cohesive engagement in strategising for digital transformation. Instead of a scope that includes mainly IT application systems, tools and infrastructure platforms, the IS role can be strategically redefined to become more business-centric (Hess et al., 2016). Another research

opportunity for further study is to consider whether the role of the CIO should also fulfill the digital leadership role, or whether this role profile requires a different set of skills and characteristics. The development of dynamic capabilities as a coping mechanism to deal with regulatory uncertainty can be explored further as to how teams benefit from applying these skills across multiple business and IS problem scenarios regardless of the type of challenge presented. Interesting conflicts arose in the analysis and findings which are worth further investigation. For example, how regulatory uncertainty or other types of macro-environmental instability may, on the one hand, expedite technological innovation within the firm, but may also slow it down due to the shift from the long-term strategic focus. Another example is the interaction between control versus innovation and how these concepts work together as well as oppose each other. The shift in competitor dynamics where competitors join forces in coping with common challenges like regulatory uncertainty is another interesting avenue to explore.

6.5 Concluding Remarks

This section concludes the case study research regarding digital business strategising in the context of regulatory uncertainty in the financial services industry in S.A. Since few studies address uncertainty in the macro-environment and its effect on the business strategising processes in firms within developing countries (Li & Liu, 2014) like S.A., the research results and practical implications are relevant for S.A. companies dealing with similar challenges. The contribution it provides is an increased understanding of the influences of regulatory uncertainty on organisations in the process of transitioning from traditional to digital ways of doing business, and how organisations can tackle these real-world problem scenarios to achieve the firm's business goals and strategic direction. The derived conceptual model and theoretical propositions create an avenue for further research that considers macro-environmental influences on organisational digital business strategising and transformation processes.

7. References

Arvidsson, V., Holmström, J., & Lyytinen, K. (2014). Information systems use as strategy practice: A multi-dimensional view of strategic information system implementation and use. *Journal of Strategic Information Systems, 23*(1), 45-61. DOI: 10.1016/j.jsis.2014.01.004

Arvidsson, V., & Holmström, J. 2018. Digitalization as a strategy practice: What is there to learn from strategy as practice research? in *The Routledge Companion to Management Information Systems,* R. D. Galliers & M. K. Stein (Eds.). London, UK: Routledge, 218 –231.

Barrett, M., Davidson, E., Prabhu, J., & Vargo, S.L. (2015). Service innovation in the digital age: Key contributions and future directions. *MIS Quarterly, 39*(1), 135-154.

Baud, C., & Chiapello, E. (2017). Understanding the disciplinary aspects of neoliberal regulations. The case of credit-risk regulation under the Basel Accords. *Critical Perspectives on Accounting, 46,* 3-23. DOI: 10.1016/j.cpa.2016.09.005

Bayer, J.C., Norton, G.W., & Falck-Zepeda, J.B. (2010). Cost of compliance with biotechnology regulation in the Philippines: implications for developing countries. *AgBioForum 13*,53–62.

Benbaset, I., Goldstein, D.K., & Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly, 11*(3), 369–386.

Bennis, W. (2013). Leadership in a Digital World: Embracing transparency and adaptive capacity. *MIS Quarterly*, *37*(2), 3-4.

Berman, S. (2015). Digital Transformation: Opportunities to Create New Business Models. *Strategy & Leadership, 40*(2), 16–24. DOI: 10.1108/10878571211209314

Bharadwaj, A., El Sawy, O.A., Pavlou, P.A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly, 37*(2), 471–482.

Bordo, M.D., Duca, J.V., & Koch, C. (2016). Economic policy uncertainty and the credit channel: Aggregate and bank level U.S. evidence over several decades. *Journal of Financial Stability, 26,* 90-106. DOI: 10.1016/j.jfs.2016.07.002

Braun, V., & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology. 3*(2),77-101.

Braun, V., Clarke, V., & Rance, N. (2015). How to use thematic analysis with interview data. In A. Vossler, & N. Moller (Eds.), *The Counselling and Psychotherapy Research Handbook* (pp. 183-197). London: SAGE Publications Ltd.

Brown, A. (2017). UK Digital Transformation Strategy. The end of the beginning? *UK Government Reboot, March 2017, Surrey CoDE centre for Digital Technology.* Retrieved from: www.SurreyCoDE.org

Brown, I. (2004). Testing and Extending Theory in Strategic Information Systems Planning through Literature Analysis. *Information Resources Management Journal, 17*(4), 19-47.

Brown, N., & Brown, I. (2019). *From Digital Business Strategy to Digital Transformation–How: A Systematic Literature Review*. Paper presented at the South African Institute of Computer Scientists and Information Technologists Conference, Skukuza, South Africa, 1-8. DOI: 10.1145/3351108.3351122

Chanias, S., & Hess, T. (2016). How Digital are We? Maturity Models for the Assessment of a Company's Status in the Digital Transformation. *Management Report / Institut für Wirtschaftsinformatik und Neue Medien, 2*(2016), 1-14.

Chanias, S., Myers, M.D., & Hess, T. (2018). Digital transformation strategy making in pre-digital organizations: The case of a financial services. *The Journal of Strategic Information Systems 28*(1), 17-33. DOI: 10.1016/j.jsis.2018.11.003

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London: Routledge.

Coltman, T., Tallon, P., Sharma, R., & Queiroz, M. (2015). Strategic IT alignment: Twenty-five years on. *Journal of Information Technology, 30*(2), 91–100. DOI: 10.1057/jit.2014.35

Corbin, J., & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory.* Thousand Oaks, California: Sage publications.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, California: Sage publications.

Drnevich, P. L., & Croson, D. C. (2013). Information Technology and Business-Level Strategy: Toward an Integrated Theoretical Perspective. *MIS Quarterly, 37*(2), 483-509.

Easterby-Smith, M., Thorpe, R., & Jackson, P.R. (2012). *Management research*. London, UK: SAGE Publications.

Eisenhardt, K.M. (1989). Building theories from case study research. *The Academy of Management Review, 14*(4), 532–550. DOI: 10.5465/amr.1989.4308385

El Sawy, O. A., Malhotra, A., Park, Y., & Pavlou, P. A. (2010). Seeking the Configurations of Digital Ecodynamics: It Takes Three to Tango. *Information Systems Research, 21*(4), 835-848. DOI: 10.1287/isre.1100.0326

Engau, C., & Hoffman, V.H. (2011). Strategizing in an Unpredicatable Climate: Exploring Corporate Strategies to Cope with Regulatory Uncertainty. *Long Range Planning 44*(1), 42-63. DOI: 10.1016/j.lrp.2010.11.003

Fabrizio, K.R. (2012). The Effect of Regulatory Uncertainty on Investment:Evidence from Renewable Energy Generation. *The Journal of Law, Economics, and Organization*, *29*(4), 765-798. https://academic.oup.com/jleo/article-abstract/29/4/765/832844

Finck, M. (2017). Digital Regulation: Designing a Supranational Legal Framework for the Platform Economy. *LSE Law, Society and Economy Working Papers*, 15, June 2017. DOI: 10.2139/ssrn.2990043

Fink, A. (2014). *Conducting research literature reviews.* London, UK: SAGE Publications.

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing Digital Technology: A New Strategic Imperative. *MIT Sloan Management Review*, 1–12.

Flyvbjerg, B. (2006). Five Misunderstandings about Case-Study Research. *Qualitative Inquiry*, *Sage Journals*, *12*(2), 219-245. DOI: 10.1177/1077800405284363

Frank, H., Guttel, W., & Kessler, A. (2017). Environmental dynamism, hostility, and dynamic capabilities in medium-sized enterprises. *The International Journal of Entrepreneurship and Innovation*, *18*(3), 185–194. DOI: 10.1177/1465750317723219

Gelhard, C., von Delft, S., & Gudergan, S.P. (2016). Heterogeneity in dynamic capability configurations: Equifinality and strategic performance. *Journal of Business Research*, *69*(11), 5272-5279. DOI: 10.1016/j.jbusres.2016.04.124

Glaser, B.G. 2002. Conceptualization: on theory and theorizing using grounded theory. *International Journal of Qualitative Methods*, *1*(2), 23-38. DOI: 10.1177/160940690200100203

Granados, N., & Gupta, A. (2013). Transparency Strategy: Competing with Information in a Digital World. *MIS Quarterly*, *37*(2), 637-641.

Grix, J. (2004). *The foundations of research*. London: Palgrave Macmillan.

Grover, V., & Kohli, R., (2013). Revealing Your Hand: Caveats in Implementing Digital Business Strategy. *MIS Quarterly*, *37*(2).

Grover, V., & Lyytinen, K. 2015. New state of play in information systems research: the push to the edges. *MIS Quarterly*, *39*(2), 271-296.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105-117). London: Sage Publications.

Gudergan, G., & Mugge, P. (2017). *The gap between practice and theory of digital transformation*. Paper presented at the Proceedings of Hawaii International Conference of System Science (2017), Hawaii, 1-15.

Gulati, R., & Soni, T. (2015). Digitization: A Strategic Key to Business. *Journal of Advances in Business Management*, *1*(2), 60-67.

Günther, W. A., Mehrizi, M. H. R., Huysman, M., & Feldberg, F. (2017). Debating big data: A literature review on realizing value from big data. *The Journal of Strategic Information Systems 26*(3), 191-209. DOI: 10.1016/j.jsis.2017.07.003

Hassan, N.R., & Lowry, P.B. 2015. *Seeking middle-range theories in information systems research.* Paper presented at the Thirty Sixth International Conference on Information Systems (2015), Fort Worth, Texas, USA.

Henfridsson, O., & Lind, M. (2014). Information Systems Strategizing, Organizational sub-communities, and the Emergence of a Sustainability Strategy. *The Journal of Strategic Information Systems*, *23*(1), 11–28. DOI: 10.1016/j.jsis.2013.11.001

Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for Formulating a Digital Transformation Strategy. *MIS Quarterly Executive, 15*(2), 123-139.

Hoerr, R.A. (2011). Regulatory uncertainty and the associated business risk for emerging technologies. *Springer Science & Business Media 13*,1513–1520. DOI 10.1007/s11051-011-0260-z

Horlacher, A., & Hess, T. (2016). *What does a chief digital officer do? Managerial tasks and roles of a new C-level position in the context of digital transformation.* Paper presented at the Annual Hawaii International Conference on System Sciences (2016), Hawaii, 5126 –5135. DOI: 10.1109/HICSS.2016.634

Jain, T., & Hazra J. (2016). *Capacity Investments and Technology Decisions Under Regulatory Uncertainty.* Paper presented at the 2016 IEEE IEEM International Conference (2016), Indonesia. DOI: 10.1109/IEEM.2016.7797852

Jick, T. (1979). Mixing Qualitative and Quantitative Methods: Triangulation in Action. *Administrative Science Quarterly, 24*(4), 602-611. DOI: 10.2307/2392366

Kahre, C., Hoffman, D., & Ahlemann, F. (2017). *Beyond Business-IT Alignment – Digital Business Strategies as a Paradigmatic Shift: A Review and Research Agenda*. Paper presented at the 50th Hawaii International Conference on System Sciences. Retrieved from http://www.hicss.hawaii.edu

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, Not Technology, Drives Digital Transformation. *MIT Sloan Management Review and Deloitte University Press Research Report, July 2015.*

Kane, G.C., Palmer, D., Phillips, A.N., Kiron, D., & Buckley, N. (2016). Aligning the organization for its digital future. *MIT Sloan Management Review 57*(4).

Kane, G.C., Palmer, D., Phillips, A.N., Kiron, D., & Buckley, N. (2017). Achieving Digital Maturity. *MIT Sloan Management Review and Deloitte University Press Research Report, Summer 2017.*

Karpovsky, A., & Galliers, R. D. (2015). Aligning in Practice: From Current Cases to a New Agenda. *Journal of Information Technology, 30*(2), 136-160. DOI: 10.1057/jit.2014.34

Keen, P., & Williams, R. (2013). Value Architectures for Digital Business: Beyond the Business Model. *MIS Quarterly, 37*(2), 643–647.

Keutel, M., Michalik, B., & Richter, J. (2014). Towards mindful case study research in IS: a critical analysis of the past ten years. *European Journal of Information Systems, 23*(3), 256–272. DOI: 10.1057/ejis.2013.26

Klein, H. K., & Myers, M. D. (1999). A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems. *MIS Quarterly, 23*(1), 67-93.

Kubrick, K. (2013). Introducing the dStrategy Digital Maturity Model. Retrieved from DOI: http://www.digitalstrategyconference.com/blog/digital-strategy/introducing-dstrategy-digital-maturity-model/

Lerner, S. (2015). Digital Business Strategy. *Touro Accounting & Business Journal,* 48-52, *Spring* 2015.

Li, D., & Liu, J. (2014). Dynamic capabilities, environmental dynamism and competitive advantage: Evidence from China. *Journal of Business Research, 67*(1), 2793-2799. DOI: 10.1016/j.jbusres.2012.08.007

Li, L., Su, F., Zhang, W., & Ye Mao, J. (2017). Digital transformation by SME entrepreneurs: A capability perspective. *Information System Journal, 28*(6), 1129-1157. DOI: 10.1111/isj.12153

Lusch, R. F., & Nambisan, S. (2015). Service innovation: A service-dominant perspective. *MIS Quarterly, 39*(1), 155–175.

Mack, L. (2010). The Philosophical Underpinnings of Educational Research. *Polyglossia,* 19, October 2010.

Malar, D.A., Arvidsson, V., & Holmstrom, J. (2019). Digital Transformation in Banking: Exploring Value Co-Creation in Online Banking Services in India. *Journal of Global Information Technology Management 22*(1), 7-24. DOI: 10.1080/1097198X.2019.1567216

Marabelli, M., & Galliers, R. D. (2017). A reflection on information systems strategizing: the role of power and everyday practices. *Information Systems Journal*, *27*(3), 347-366. DOI: 10.1111/isj.12110

Markus, M.L., & Loebbecke, C. (2013). Commoditised Digital processes and business community platforms: New opportunities and challenges for digital business strategies. *MIS Quarterly, 37*(2), 649-653.

Mason, J. (2002). *Qualitative researching.* London: Sage Publication.

Matt, C., Hess, T., & Benlian, A. (2015). Digital Transformation Strategies. *Business & Information Systems Engineering, 57*(5), 339–343. DOI: 10.1007/s12599-015-0401-5

Miles, M.B., Huberman, A.M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, California: SAGE Publications, Inc.

Mithas, S., Tafti, A., & Mitchell, W. (2013). How a Firm's Competitive Environment and Digital Strategic Posture Influence Digital Business Strategy. *MIS Quarterly, 37*(2), 511-536.

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2015). Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. *MIS Quarterly, 41*(1), 223–238.

National Credit Regulations including Affordability Assessment Regulations published in Regulation Gazette No 10382 in GG No 38557 of 2015-03-13.

Neuland (2015). Digital Transformation Report 2015. Retrieved from http://www.neuland.digital/neuland/wp-content/uploads/2016/01/DTA_Report_2015.pdf.

New, S. (2010). The Transparent Supply Chain. *Harvard Business Review, 88*(10), 76-82. https://web-a-ebscohost-com.ezproxy.uct.ac.za

Peppard, J., Galliers, R.D., & Thorogood, A. (2014). Information Systems Strategy as Practice: Micro strategy and Strategizing for IS. *The Journal of Strategic Information Systems, 23*(1), 1–10. DOI:10.1016/j.jsis.2014.01.002

Pondeville, S., Swaen, V., & de Ronge, Y. (2013). Environmental management control systems: The role of contextual and strategic factors. *Management Accounting Research, 24*(4), 317-332. DOI: 10.1016/j.mar.2013.06.007

Porter, M.E., & Heppelmann, J.E. (2014). How smart, connected products are transforming competition. *Harvard Business Review, 92*(11), 64-88. https://web-b-ebscohost-com.ezproxy.uct.ac.za

Ray, G., Wu D., & Konana, P. (2009). Competitive environment and the relationship between IT and vertical integration. *Information Systems Research 20*(4), 585–603. DOI: 10.1287/isre.1080.0202

Ross, J.W., Sebastian, I.M., & Beath, C.M. (2017). How to Develop a Great Digital Strategy. *MIT Sloan Management Review, 58*(2), Winter 2017. Reprint #58204 http://mitsmr.com/2fAqNTk

Sabherwal, R., & King, W. (1992). Decision processes for developing strategic applications of information systems: A contingency approach. *Decision Sciences 23(4), 917-943*. DOI: 10.1111/j.1540-5915.1992.tb00426.x

Salmela, H., Lederer, A., & Reponen, T. (2000). Information systems planning in a turbulent environment. *European Journal of Information Systems, 9*(1), 3-15. DOI: 10.1057/palgrave.ejis.3000339

Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003). Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms, *MIS Quarterly, 27*(2), 237-263.

Sandberg, J. (2014). Digital Capability - Investigating Coevolution of IT and Business Strategies. Ph.D. Dissertation. Umea University, Umea, Sweden. https://www.researchgate.net/publication/264415722

Schumacher, A., Erol, S., & Sihn, W. (2016). A maturity model for assessing Industry 4.0 readiness and maturity of manufacturing enterprises. *Procedia CIRP 52*, 161–166.

Sebastian, I.M., Ross, J.W., Beath, C., Mocker, M., Moloney, K.G., & Fonstad, N.O. (2017). How big old companies navigate digital transformation. *MIS Quarterly Executive 16*(3),197–213.

Segars, A., Grover, V., & Teng, J. (1998). Strategic information systems planning: Planning system components, internal co-alignment, and implications for planning effectiveness. *Decision Sciences, 29*(2), 303-341. DOI: 10.1111/j.1540-5915.1998.tb01579.x

Sia, S.K., Soh, C., & Weill, P. (2016). How DBS Bank Pursued a Digital Business Strategy. *MIS Quarterly Executive, 15*(2), 105 – 121.

Singh, A., & Hess, T. (2017). How Chief Digital Officers Promote the Digital Transformation of their Companies. *MIS Quarterly Executive, 16*(1), 1-17.

South Africa. Protection of Personal Information Act No. 4 of 2013.

Stake, R.E. (1995). *The art of case study research*. Thousand Oaks, California: Sage Publications.

Stake, R.E. (2005). Qualitative case studies. In N.K. Denzin, & Y.S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (pp. 443–466). Thousand Oaks, California: Sage Publications.

Vecchiato, R. (2012). Environmental uncertainty, foresight and strategic decision making: an integrated study. *Technological Forecasting and Social Change, 79*(3), 436-447. DOI: 10.1016/j.techfore.2011.07.010

Verhoef, P.C., Kannan, P.K., & Inman, J.J. (2015). From Multi-Channel Retailing to Omni-Channel Retailing Introduction to the Special Issue on Multi-Channel Retailing. *Journal of Retailing 91*(2), 174-181. DOI: 10.1016/j.jretai.2015.02.005

Ward, J. M. (2012). Information Systems Strategy: Quo Vadis? *Journal of Strategic Information Systems, 21*(2), 167 -171. DOI: 10.1016/j.jsis.2012.05.002

Watson, R.T. 2015. Beyond being systematic in literature reviews in IS. *Journal of Information Technology, 30*(2), 185-187.

Weber, R.H. (2015). Internet of Things: Privacy issues revisited. *Computer Law and Security Review, 31*(5), 618-627. DOI: 10.1016/j.clsr.2015.07.002

Weinrich, T. (2017). *Reviewing Organizational Design Components for Digital Business Strategy*. Paper presented at BLED 2017 Proceedings. DOI: http://aisel.aisnet.org/bled2017/5

Westerman, G., Bonnet, D., & McAfee, A. 2015. *Leading digital: Turning technology into business transformation.* Boston, Massachusetts: Harvard Business Review Press.

Westerman, G. (2018). Your Company Doesn't Need a Digital Strategy. *MIT Sloan Management Review 59*(3), 14.

Wilden R., & Gudergan, S.P. (2015). The impact of dynamic capabilities on operational marketing and technological capabilities: investigating the role of environmental turbulence. *Journal of the Academy of Marketing Science, 43*(1), 181–199. DOI 10.1007/s11747-014-0380-y

Woodard, C.J., Ramasubbu, N., Tschang, F.T., & Sambamurthy, V. (2013). Design Capital and Design Moves: The Logic of Digital Business Strategy. *MIS Quarterly, 37*(2), 537–564.

Wunderlich, N., & Beck R. (2018). *You'll Be Surprised - Digital Business Strategy as Driver of Organizational Innovativeness.* Paper presented at the Proceedings of the 51st Hawaii International Conference on System Sciences (2018). DOI: http://hdl.handle.net/10125/50397

Yeow, A., Soh, C., & Hansen, R. (2018). Aligning with new digital strategy: A dynamic capabilities approach. *The Journal of Strategic Information Systems*, *27*(1), 43-58. DOI: 10.1016/j.jsis.2017.09.001

Yin, R. K. (1994). *Case study research, design and methods* (2nd ed.). Beverly Hills, CA: Sage Publications.

Yin, R. K. (2013). *Case study research: Design and methods*. London: Sage Publications.

Yoo, Y., Boland, R. J., Lyytinen, K., & Majchrzak, A. (2012). Organizing for Innovation in the Digitized World. *Organization Science, 23*(5), 1398–1408. DOI: 10.1287/orsc.1120.0771

Yoo, Y., Henfridsson, O., & Lyytinen, K. (2010). The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research. *Information Systems Research, 21*(4), 724-735. DOI: 10.1287/isre.1100.0322

Zittrain, J. L. 2006. The generative Internet. *Harvard Law Review 119*(7), 1974– 2040. DOI:10.1145/1435417.1435426

8. Appendices

Appendix 1: Research Instrument

Environment	Tenet	Question
External Regulatory Uncertainty	Heterogeneity	What types of regulatory changes in the past 3-4 years have affected the financial services industry
		How many of these regulatory changes have occurred in the past 3-4 years
		How do these regulatory changes affect your organisation
		What approach does your organisation take in addressing these regulatory changes
	Dynamism	Are there many regulatory impacts taking place over a short time period or fewer regulatory impacts over a longer period of time
		How does the organisation anticipate and monitor the external environment for potential regulatory impacts
		Are the impacts of these regulatory changes as far as you are aware, predictable/expected or unpredictable/unexpected
		How does the organisation prepare for these potential regulatory impacts
		How does the organisation go about addressing and implementing these regulatory changes as they occur
	Hostility	Are the regulations clearly articulated from the outset
		What (if any) type of uncertainties /ambiguities arise around the regulations
		How (if any) do these uncertainties /ambiguities affect the organisation's ability to implement the regulations
		What (if applicable) actions are taken to clarify these uncertainties/ ambiguities
	Competitors	Are your competitors affected by these regulatory changes
		Do these regulatory changes affect the organisation's ability to compete effectively in the market
		How (if applicable) do these regulatory changes affect the organisation's ability to compete in the market
		How does the organisation address this situation and mitigate against negative impact

Environment	Tenet	Question
Internal Organisational	Compliance with Regulations	Are there penalties for not being compliant with regulatory changes
		What approach/stance does the organisation take in terms of complying with regulatory changes
		What are the impacts to the organisation due to the focus on compliance
		How (if applicable) are these impacts mitigated
	Coping with Regulatory Uncertainty	Is the organisation affected by a lack of clarity or any uncertainty/ ambiguity around the regulations
		How (if applicable) does the organisation go about implementing regulations within the context of uncertainty/ambiguity
		Are there any negative impacts to business performance due to the uncertainty/ambiguity around regulations
		How (if applicable) are these impacts mitigated
	Digital Business Strategising	What approach is used in strategising for digital business (e.g. comprehensive/incremental; formal/informal, top-down/bottom-up, control focus or innovation; participative, ongoing versus periodic Emergent vs pre-planned
		How does the regulatory environment affect this approach?
		How (if applicable) are the organisation's digital business strategies and processes affected by regulatory uncertainty/ambiguity
		What is the impact of regulatory uncertainty on progressing the digital business strategy of the organisation
		Are digital technology initiatives delayed or expedited due to regulatory impacts
		What are the key factors to take into account when considering the impact of regulatory uncertainty on the organisation's digital business strategy
		How (if applicable) are these impacts mitigated

Environment	Tenet	Question
	Digital Transformation Strategising	How are the organisation's digital transformation plans impacted, due to focus shifting to implementing compliant systems and processes
		How (if applicable) are these impacts mitigated
	Digital Transformation	How is the organisation's progress towards digital transformation hampered by focus shifts to implementing compliant systems and processes
		How is the digital leadership function affected by regulatory uncertainty
		What approach is taken by business and IT leadership to address the impact on digital business strategising in the light of regulatory uncertainty
		How is Digital Innovation within the organisation impeded or expedited due to regulatory uncertainty
		How are Business Models within the organisation affected by regulatory uncertainty
		How is digital data transparency affected by regulatory uncertainty
		What is the impact of regulatory uncertainty on progressing the digital transformation of the organization
		How (if applicable) are these impacts mitigated
	Digital Maturity	At what level is the organisation at present in terms of digital maturity
		How is the organisation's path to digital maturity hampered by focus shifts to implementing compliant systems and processes
		What is the impact of regulatory uncertainty on progressing the digital maturity of the organization
		How (if applicable) are these impacts mitigated

Appendix 2: Ethics Approval / Consent for Research to proceed

Faculty of Commerce

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: com-faculty@uct.ac.za
Internet: www.uct.ac.za

@Commerce UCT **UCT Commerce Faculty Office**

12 November 2018

Ms Nancy Brown
Department of Information Systems
University of Cape Town

REF: REC 2018/011/136

Dear Nancy Brown,

Digital Business Strategising in the context of Regulatory Uncertainty - the case of the Financial Services Industry in South Africa.

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 4375
Office Fax: +27 (0)21 650 4369
E-mail: modie.sempu@uct.ac.za
Website: www.commerce.uct.ac.za<http://www.commerce.uct.ac.za/

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Appendix 3: Organisation Approval / Consent Request for Research to proceed

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/informationsystems/

10th August 2018

Request for consent to conduct research for academic purposes

Dear Sir/Madam

In terms of the requirements for completing the Masters in Commerce degree in Information Systems at the University of Cape Town, a research dissertation is required. The researcher, Nancy Brown, has selected to conduct a case study entitled **"Digital business strategising in the context of regulatory uncertainty within the Financial Services Industry in South Africa".** With the rise of digital technologies that have disrupted standard business models and created a new level of competition in the market, the need for digital business strategy to shape the future of firms and achieve digital transformation is high on the agenda of most organisations. The added complexity of uncertainty in the regulatory environment with continuous financial regulatory changes, makes for a complex external environment within which businesses need to effectively compete and improve business performance. The objective of this research is to gain in-depth insights into how an organisation situated within this context navigates for continuously achieving business targets as well as preparing for a digital future. We would like to inform you that the ethical aspect of the research ensures the protection of the identity of all participants and the organisation. The data collected will be used only for academic purposes and be treated with complete confidentiality. Participation in this research is voluntary and participants can opt out of the study at any point. The data collection will take the form of one-on-one interviews at the organisation's offices and will be recorded for the purpose of data analysis and coding. Kindly sign below to indicate your approval for the research detailed above to be conducted. The outcome of this research study will be made available to the organisation.

Should you have any questions regarding this research, please contact me on +27 83 462 0488 or email nrbrown6209@gmail.com

Your organisation's participation in this study is highly valued.

Sincerely

Nancy Brown

Researcher\M.Com student (UCT)
Department of Information Systems
University of Cape Town
Email: nrbrown6209@gmail.com

Prof. Irwin Brown

Research Supervisor
Department of Information Systems
University of Cape Town
Email: Irwin.brown@uct.ac.za

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Management consent

I, _____ give the researcher of this study consent to conduct research at (Org-FS). I am aware that participation is voluntary.

_____ _____

Signature Date

Appendix 4: Individual Participants Consent 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/informationsystems/

12th October 2018

Request for consent to participate in research for academic purposes

Dear Sir/Madam

In terms of the requirements for completing the Masters in Commerce degree in Information Systems at the University of Cape Town, a research dissertation is required. The researcher, Nancy Brown, has selected to conduct a case study entitled **"Digital business strategising in the context of regulatory uncertainty within the Financial Services Industry in South Africa".** With the rise of digital technologies that have disrupted standard business models and created a new level of competition in the market, the need for digital business strategy to shape the future of firms and achieve digital transformation is high on the agenda of most organisations. The added complexity of uncertainty in the regulatory environment with continuous financial regulatory changes, makes for a complex external environment within which businesses need to effectively compete and improve business performance. The objective of this research is to gain in-depth insights into how an organisation situated within this context navigates for continuously achieving business targets as well as preparing for a digital future. This research has been approved by the UCT Commerce Faculty Ethics in Research Committee. The data collected will be used for academic purposes only, and be treated with complete confidentiality. You will not be requested to supply any identifiable information, ensuring anonymity of your responses. Participation in this research is voluntary and participants can opt out of the study at any point. The data collection will take the form of one-on-one interviews at the organisation's offices and will be recorded for the purpose of data analysis and coding. The interview will take approximately 60 minutes.

Kindly sign below to indicate your consent to participate in the research detailed above. The outcome of this research study will be made available to the organisation.

Should you have any questions regarding this research, please contact me on +27 83 462 0488 or email nrbrown6209@gmail.com

Your participation in this study is highly valued.

Sincerely

Nancy Brown

Researcher\M.Com student (UCT)
Department of Information Systems
University of Cape Town
Email: nrbrown6209@gmail.com

Prof. Irwin Brown

Research Supervisor
Department of Information Systems
University of Cape Town
Email: Irwin.brown@uct.ac.za

"Our Mission is to be an outstanding teaching and research university, educating for life and addressing the challenges facing our society."

I, _____ hereby consent to participate in this research study. I am aware that my participation is voluntary.

_____ _____

Signature Date

Appendix 5: Systematic Literature Review Research Methodology

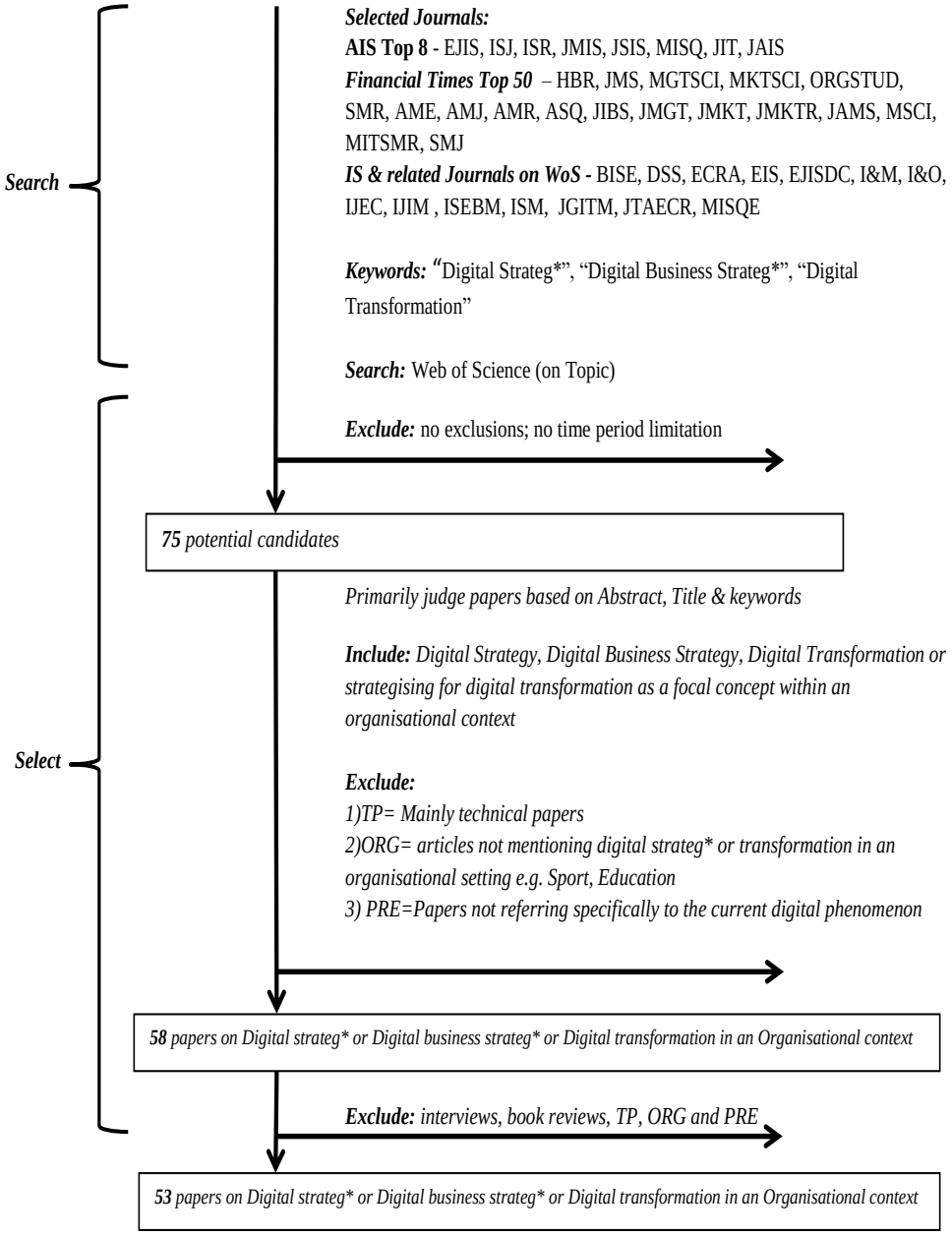

Figure 3: Search and Select Process Diagram (after the fashion of Gunther et al., 2017 – also in Brown & Brown, 2019)

Appendix 6: Systematic Literature Review Selection of Journal Papers

Table 7: Selection of Journals Papers included in Literature Review (also in Brown & Brown, 2019)

Abbrev.	Full Name of Journal	Papers
AIS Top 8		
JMIS	Journal of Management Information Systems	3
JSIS	Journal of Strategic Information Systems	3
EJIS	European Journal of Information Systems	1
MISQ	MIS Quarterly	9
ISR	Information Systems Research	2
ISJ	Information Systems Journal	1
JIT	Journal of Information Technology	0
JAIS	Journal of the Association of Information Systems	0
FT Top 50		
HBR	Harvard Business Review	2
MITSMR	MIT Sloan Management Review	8
JMS	Journal of Management Studies	1
WoS Jrnls		
MISQE	MIS Quarterly Executive	12
IJIM	International Journal of Information Management	1
JGITM	Journal of Global Information Technology Management	1
	Business and Information Systems Engineering	
BISE	Electronic Commerce Research and Applications	3
ECRA	Information and Organisation	1
I&O	International Journal of Electronic Commerce	1
IJEC	Journal of Theoretical and Applied Electronic Commerce Research	1
JTAECR	Information Systems and eBusiness Management	1
	Decision Support Systems	
ISEBM		1
DSS		1
Total		53