IT Capability Framework for Digital Transformation in South African Financial Service Providers

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***Abstract* —** *This paper addresses IT capability within South African Financial Service Providers (FSP) with the focus on two contexts, namely FSP context and South African context. The paper uses IT capability model and the Technological, organizational and environmental theory as lenses to deeply understand what and how South African Financial Service Providers experience the digital transformation. The problem is that IT capability is normally discussed in general not specific to context. Following an interpretative philosophy and inductive approach this paper shows that digital transformation within FSP in South Africa is either enabled or inhibited by existing IT capabilities. The paper argues that IT capabilities ought to manifest cognizant of the FSP's technological, organizational and environmental contexts. The IT capability digital transformation framework conceptualised unpacks the theoretical, practical, and contextual contributions of this paper.*

Keywords *— Digital Business, Digital Transformation, Financial Service Providers, IT Capability, South Africa, TOE Context.*

I. INTRODUCTION

South African Financial Service Providers (FSPs) are characterised by turbulences and uncertainties that continuously affect business operations. Many writers summarize the current era of business as "adapt or die" era for many businesses, notably financial service providers. The way FSP business operate has changed dramatically, there is now a new economy on the rise known as digital economy which requires Financial Service Providers to re-look at how they operate as a business. Financial Service Providers must leverage new technologies in order to remain relevant in the current times of banking. This paper address IT capability within South African Financial Service Provider. Digital transformation phenomenon is not well understood, especially in the context of South Africa and Financial Service Providers. The problem is that IT capability talks of digital transformation in general not sensitive to context. The South African context and Financial Service Provider context will make a difference on how digital transformation should be implemented due to uniqueness.

Ones and zeros are eating up new and existing businesses through digitisation. Various enterprises around the world, including financial service providers, are striving for digital transformation - turning digitisation into activities, processes and transactions. Digitisation concept has been popular for both corporate, governments as well as academic press (Holland and Naude, 2004). Digitalisation has become a life style which impacts on business and individuals; this has changed the way individuals' shop, bank, study, travel and other aspects of individual's life. The digital disruption is due to the creation of new emerging technologies like social platforms, mobile internet, machine learning, to name just a few (Fitzgerald et al., 2014).

A. South African Context:

This paper acknowledges that South Africa is unique and globally categorized as a developing country. To this point, what works in other countries, notably i.e. developed countries, does not necessarily work as expected in South Africa. For example, a number of South African communities live in rural areas, with limited technological accessibility. Notwithstanding access to FSP services is enhanced via digital technology. There have been many developments in establishing digital transformation over past two decades in the "Western World". Within developing countries particularity South Africa, this has been even more of a challenge as these countries have had compounding issues in establishing digital transformation as a result of steady economic growth, technology, infrastructure, language, cultural diversity and political backdrops, these additional complexities have stifled digital transformation in broader and more complex manner. Therefore, these unique challenges that South African FSP's have require tailor made solutions due to context not one size fit all kind of approach.

B. Financial Service Providers:

South African Investor's Handbook (2014/15) outlines business industry sectors in the country. The following is a description of the financial services industry.

The South African banking industry is primarily governed by The Banks Act 94 of 1990, which seeks; "To provide for the regulation and supervision of the business of public companies taking deposits from the public; and to provide for matters connected therewith."

Banking systems play a pivotal role in modern economies around the world, and this is the same for South Africa (SA). The SA banking industry is made up of 17 registered banks, 15 local branches of foreign banks, 3 mutual banks, 2 cooperative banks and 36 representative offices. The industry controls R4 877 billion (ZAR) in total assets. Of which, the five dominant banks accounts for the 90.7% (which has seen an increase from 2015 to 2016) of the total assets in the industry, international banks 5.8% and 3.5% is spread across the remaining players. In 2016 the South African Reserve Banks (SARB) has issued three new entrants authorisation to trade, namely, Tyme Capital (Pty) Limited, Discovery Limited and Postbank Limited (SARB, 2016).

The financial services industry in South Africa boasts dozens of national and foreign organizations offering a complete variety of services including commercial, retail and merchant banking, mortgage loans, insurance and investment. South Africa's banking system, comprising a Reserve Bank, some big financially powerful banks or investing organizations, and a number of smaller banks, is well developed and efficiently controlled. Competition is in investment and commercial banking. The banking sector of the country compares favorably with that of the industrialized countries. Throughout the previous decade, South Africa's financial service industry has been operated by numerous international banks and investment organizations.

Financial services are those economic services offered by the financial services providers are depicted in table 1 as follows:

Table 1: Economic services offered by the financial service providers

Economic Services	• Credit unions • Banks • Credit-card firms • Insurance companies • Accounting companies • Consumer lending companies • Securities brokerages • Investment funds" • Corporate managers • Government funded enterprises

Additionally, the financial services sector includes a wide variety of financial management companies such as banks, investment companies, insurance companies, and real estate firms.

C. What is Digital Transformation:

Digital transformation involves, but not limited to, conversion of business operations, products, processes. Organizational structures need to be developed by companies in order to manage their complex transformations (Matt et al., 2015). Additionally, individuals are impacted by digital transformation due to fast and radical change of digital technologies, which impacts on their lives as well as markets (Ebert and Duarte, 2016). The speed at which technologies are developed puts various enterprises as well as government agencies under pressure to go digital before it is too late, as they seek to survive and maintain their competitive advantage (Westerman et al., 2011).

D. Digitisation, Digitalisation and Digital Transformation:

Before we delve into the subject of digital transformation, it is necessary to first clarify the difference between digitisation and digitalisation. These two terms are often wrongfully used interchangeably but their difference is crucial to the understanding of Industry 4.0 (McMorrow 2018) and of course digital transformation.

1. Digitisation:

Osman (2018) defines digitisation as the process of taking analogue information and encoding it so that it can be stored and transmitted via a computer.

2. Digitalisation:

According to Rachinger (2019), digitization in the process of converting analogue into digital data sets which forms a framework for digitalization. Gartner (2020) defines digitalization as, "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business". Also, Ryynanen and Hyyrylainen (2018) asserted that digitalisation is the steadily increasing utilisation of digital technologies in the everyday lives of the people. In light of this, digitisation refers to the conversion of items whilst digitalisation is related to how things are delivered and processed (Osman 2018).

3. Digital Transformation:

Consequently, digital transformation is the use of new digital technologies such as big data analytics, machine learning, social and so on, in order to enable major business improvements

like enhancing customer experience, streamlining operations or creating new business models (Fitzgerald et al., 2014). In light of this, digital transformation goes beyond digitalisation and results in value and revenues being created from digital assets (McDonald and Roswell-Jones 2012).

Reis et al., (2018) in their study show that digital transformation definitions can be categorised into three separate groups; namely, technological (relates to new digital technologies such as social media, mobile, analytics or embedded devices), organisational (relates to changes of organisational processes or creation of new business models) and social (phenomenon that influences all aspects of human life). In this regard, Ibid et al., (2018) defined digital transformation as "the use of new digital technologies that enables major business improvements and influences all aspects of customers' life". The success of the digital transformation within an organisation depends on the process and operations management changes (Dremel et al., 2017); it is not a one-day-event but a journey that takes collaboration of different business units and resources.

The next section will look into a review and discussion of existing digital transformation frameworks that are relevant to this paper.

II. SURVEY OF SCHOLARSHIP

This section reviews the various existing digital business and digital transformation frameworks.

A. Digital Orchestra Framework:

As a substitute for the Digital Piano Concept, the digital orchestra concept was proposed. This is the new structure replacing the original Digital Piano proposal to assess the integration of a digital business within the group. The framework has been published in the report by IMD and Cisco Corporation's Global Centre for Digital Business Transformation (GCDBM). The foundation of the framework is that the leadership of a company must decide what kind of value it wants to create and evaluate the strategic options to achieve it. Through digital transformation, the structure includes ten areas which an organization should consider (Wade et al., 2017).

The area includes: services, networks (go-to market); clients, partners, workers (engagement); IT systems (operations); and frameworks, rewards (organization). The framework covers the organizational structure and priorities in a significant way that provides a valuable tool for the management of the reinvention of the organization through digitalisation. The four classes of operating models covering the ten things work in a way that makes it mandatory that they unite together seamlessly on the digital business transformation path of any company that wants to follow the system as its guide.

Figure 1: Digital Orchestra Framework (GCDBM, 2015-2017)

B. Digital Transformation Framework:

The Digital Transformation Framework is another framework that aims at understanding digital transformation processes in an organization, the framework is developed by Matt et al., (2015). The framework has been premised on the idea that the organization's digital transformation would serve as a central concept incorporating all the organizational planning, priority and digitalisation implementation.

According to Ibid et al., (2015), "digital transformation strategies should include four key areas: technology use, changes in value creation, structured modifications and financial considerations". At the very heart of this paradigm is the financial aspect, which is the primary driver and motivator, a novel method for providing a framework for understanding the complexities of a business enterprise's digital transformation, in that the focus of a company is on sustainable growth and benefit over the long term.

The framework provides a fundamental academic basis for understanding digitization, through the description of four important building blocks for digital transformation. Ibid et al., 2015 suggest future research to define and concretize common elements that can be connected to four dimensions that form the foundation of the framework. It should be noted that, while this structure has been formulated and developed within the universities, it must still be checked or validated as a robust framework that can be applied to digitisation understanding. Therefore, the conceptual stage of development remains.

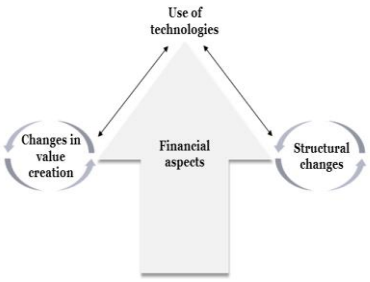

Figure 2: Digital Transformation Framework (Matt et al., (2015).

C. Digital Reinvention Framework:

The concept suggested by Berman et al., (2016) is based on the argument that "organizations must pursue a new approach, build up new skills and develop new ways of working for a productive digital reinvention". Traditional companies must follow a fundamental bottom-up reinvention of strategy, service and technology for an effective digital reinvention (Ibid et al., 2016). They should, therefore, keep overall focus on experience and not productivity.

The framework offers a way to achieve a digitally transformed organization, through an "experience-first" approach based on digital drivers (digital innovations such as cloud technology, cognitive technology and research, internet, blockchains, Internet of Things, and more) (Ibid et al., 2016). The framework is built on a foundation of three core organizational priorities: the creation of a new focus, the development of new skills and new working methods. The primary drawback of the theory is that there is purely theoretical evidence to prove the argument without any empirical evidence.

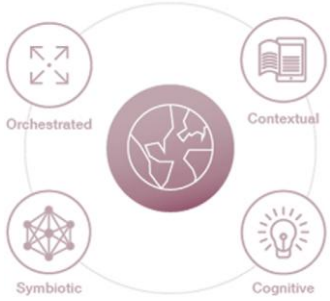

Figure 3: Digital Reinvention Framework (Berman, S. J., et al., 2016).

D. Significance of digital transformation for organisation:

Digital transformation allows firms to expand, gain competitive advantage and venture into new markets by adapting to changes in market conditions which is critical to the survival of businesses (Lucas Jr and Goh, 2009). According to Karimi and Walter (2015), firms with dynamic digital transformation capabilities are well-positioned to outperform those firms without. These digital transformations can be driven by several factors which include but are not limited to societal, consumerist and managerial changes in globally interconnected and symbiotic economy (Kenneyet al., 2015). Digital transformation is emphasised further with the ever-increasing popularity of Big Data and machine learning, as an important strategic tool that can be leveraged to automate and improve business processes (Huang et al., 2017). In this regard, many firms are pouring monies into activities that are related to digital transformation processes in a bid to stay relevant in this fast-growing digital era (Ross et al., 2016).

Organisations face several challenges in their efforts to implement digital transformation. These challenges emanate from the following factors: digital technology is continuously changing and developing (Nambisan et al., 2017), digital transformation needs a wholistic and integrated approach that affects multiple business units (Kohli and Johnson 2011), scarcity of knowledge on digital technology within the management and digital transformation needs a combination and synergy of different skills and capabilities (Holotiuk and Beimborn 2017).

E. Role of leadership on digital transformation:

The digital business transformation is expected to bring changes to the organisation by transforming the customer experience, operational processes and business models (Westerman et al. 2014). This digitisation process of an organisation will nearly affect all aspects of the business as the digital transformation will create new roles which require new skills and competencies along with new forms of leadership (Kohnke, 2017). In light of this, leaders must be in a position to direct the business toward profitable activities and in order to do so the leaders must understand the implications of the digital transformation. The leadership role has evolved over the years and it is no longer only an individualistic characteristic but according to Larjovuori et al. (2018), “Leadership is viewed as a dyadic, shared, relational, strategic, global and complex social dynamic”. In one way or the other, modern leadership theories emphasise the importance of social interaction and relational leadership practices (Ibid et al., 2018).

F. The digital transformation journeys:

The digital business transformation is not just a walk in the park but a journey that requires a strategic and holistic approach. All relevant stakeholders also need to be involved, to make the transformation as smooth as possible. Wade (2015) asserted that there are seven categories that must be changed for the digital transformation journey to be successful. These seven categories are the business model, organisational structure, people, processes, IT skills, products &

services offered and engagement model. All title and author details must be in single-column format and must be centered.

G. Impediment for going digital:

Khanchel (2019) asserts that organisations going through the process of digital transformation face four challenges which are the extent of digitization, the constant evolution of the digital world, the new aspect and strong demand for collaboration and coordination. Firstly, the extent of digitization challenge emanates from the fact that the digital function covers the whole organisation and the complexity of managing and regulating involves all the department of the organisation. Secondly, the constant evolution of the digital world means the technologies are evolving at much faster rates and therefore, the needs for continuous learning and updating the technologies is essential. Thirdly, the new aspect refers to new functions within the organisation that are created as a result of innovative efforts and managers are usually not sure how to locate them and hence, a lot of collaboration is required to know what is needed and how to do it well. Lastly, strong demand for collaboration and coordination is essential for digital transformation which strains the traditional hierarchical coordination and collaboration practices (Ibid., 2019). This calls for new methods of communication and collaboration which can handle the digital function of the organisation which consists of many elements that must be connected and synchronised to avoid falling into digital anarchy.

H. Digital disruption:

Kane (2019) states that, "Digital disruption refers to the way digital technologies are upending entire industries, changing the rules of the game. Digital transformation is about how companies are adapting to the new reality created by digital disruption." This digital transformation does not only reinvent the organisation's vision and strategy, organisational structure, processes, capabilities and cultures but also markets and entire industries (Gurbaxani and Dunkle 2019).

Digital transformation of an organisation rides on the people; without people there is no digital transformation and therefore, for the digital transformation to be successful it depends on the people who are part of the transformation (Kane 2019).

For digital transformation to be a success, the organisation must actively increase agility, encourage experiments and continual learning, recognise and reward collaboration, accept an appropriate level of risk of failure and increasingly organising around cross-functional teams (Kane 2019).

III. THEORETICAL FRAMEWORKS UNDERPINNING THE PRESENT STUDY

A. IT Capability Model:

The capabilities framework for information technology (IT) refers to companies' potential to recognise IT needs (Karimiet al., 2007). The framework also provides information technology for improved business processes to offer additional IT-based systems with economically efficient lengthy-term operations and maintenance.

The framework emphasises the need for enterprises to leverage on different information technology resources with the aim of achieving intangible benefits (Henderson et al., 2013). Kaplan and Norton (2000) stressed that this framework basically projects enterprises ability by its information technology assets but also how market valuation could be created for the enterprise. The framework for the capacity of information technology consists of the following variables:

- "IT strategy".
- "Processes and metrics of information technology".
- "IT": Competences, Structure and Knowledge Organisation.
- Assets: hardware, software, apps, networking and databases as well as tools.

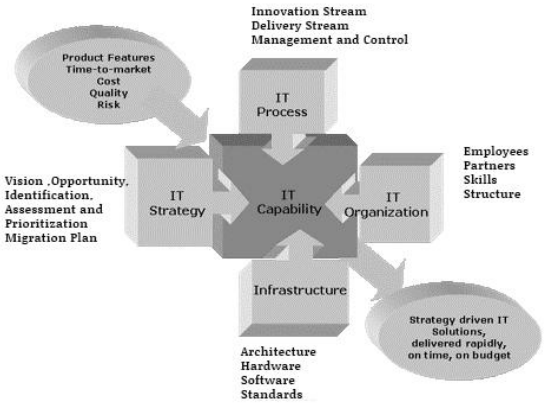

Figure 4: Capabilities Framework for Information Technology (Karimi, Somers et al., 2007)

a) Technology Organizational and Environmental Framework (TOE):

TOE is the widely applied framework within information systems qualitative research area. Depietro et al., (1990) state that three pillars, the "technological, organizational and environmental context, guide the procedure adopted by a company and applying technological innovations". The three pillars affect how a company sees the necessity of new technologies, searches and adopts them. In addition, the authors indicate that technology is

typically composed of internally and externally relevant technologies.

Arpaci et al., (2012) asserts that the TOE framework for organisational adoption was developed by Tornatzky and Fleischer (1990) based on the Contingency Theory of Organisations. The TOE theory emphasises that an effective organisation should have a structure that is consistent with its environmental needs which influences the firm's adoption decision. The TOE framework as outlined by Oliveira and Martins (2010) is described as follows;

- The technological context relates to technologies that are currently being used within the organisation as well as new ones that are relevant to the organisation.
- The organisational context relates to the characteristics and resources of the organisation that either constrain or promote the adoption process.
- The environmental context relates to the environment in which the organisation conducts its business which includes but not limited to competitors, industry and government which can motivate or create barriers to the adoption process.

Ven and Verelst (2011) contend that TOE framework is taxonomy for the classifying factors and, therefore, it does not describe all factors that influence the adoption process; and consequently, TOE framework in used in conjunction with other adoption models as it only encourages the researcher to take a broad view on the subject matter.

Moreover, things like enterprise equipment as well as processes are also taken into consideration within the technological context. On the other hand, scholars stress that "the organizational context" talks about the business features and facilities including size, centralisation, and level of formalization, management structure, human resources, slacks and connections between staff. Finally, the environmental context described by scholars considers the dimension and layout of the industry, competitiveness side of a company, macroeconomic background and regulatory settings.

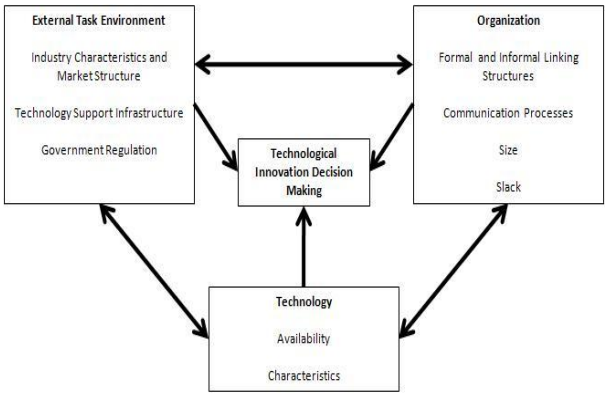

Figure 5: Technology Organizational and Environmental Framework (Depietro, Wiarda et al., 1990)

IV. CONCEPTUAL RESEARCH FRAMEWORK

Conceptual Research Framework (CRF) basically gives a research work conducted a solid ground to base the study on existing and tested theories which are deemed fit to explore the study. Theories or models discussed in the previous section are key to formulating the conceptual research framework that support the present study by harvesting from certain aspects of these theories.

Bickman and Rog (2008) state that conceptual framework statements are used to provide a preliminary philosophy of what the study is about and why this phenomenon takes place. Conceptual model is defined in a form of graphic or worded business model which "explains the main things to be explored key factors, ideas or variables and the presumption of relationships between them, either graphically or in narrative form" (Miles et al., 1994). Two theories were discussed, and the conceptual research framework is the interpretations extracted mainly from the Technology, Organization, and Environmental Framework (TOE), the IT Compatibility Model.

Figure 6, the Conceptual Research Framework for Digital Transformation for South African Financial Service Provider Context, in the next page, highlights extracted elements of the frameworks. Elements from these frameworks which suites this present study are described in table 2, theoretical frameworks are used as lenses, aid in the collecting of information.

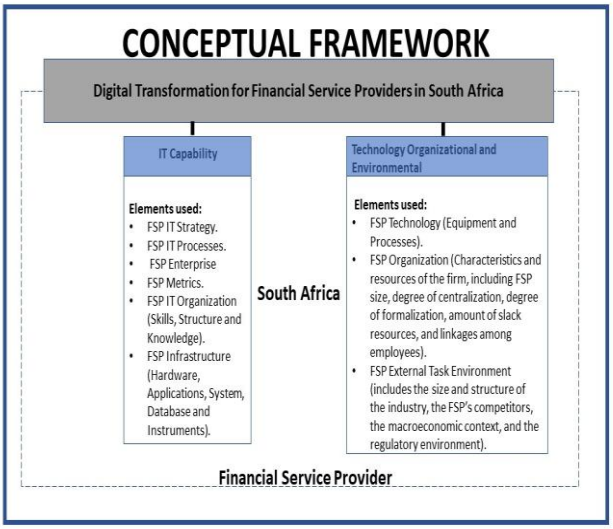

Figure 6: Conceptual Research Framework for Digital Transformation for South African Financial Service Provider Context

The table 2 contextualizes the CRF elements, these elements inform the study objectives and questions.

Table 2: Elements of the CRF contextualized

Framework /Theory/Model	Descriptors
IT Capability	• Information technology strategy of South African financial service providers will be analysed. • Information technology processes and metrics utilized by South African financial service providers will be studied to understand their businesses. • South African financial service providers information technology organization (Skills, Structure and Knowledge) will be analysed. • The study will look at the assets / infrastructure used by South African financial service providers (things such as hardware, applications, system, database and instruments).
Technology Organizational and Environmental Theory (TOE)	• Identify the features of technology with regards to South African financial service providers; the company's readiness (equipment and internal processes) and the environment are the key technological drivers. • External task environment such as regulatory that has impact on South African financial service providers.

The next section describes the methodology followed in this paper.

V. METHODOLOGY

A. Interpretivist Paradigm:

Research approaches are designed to understand the world and experiences, according to Cohen and Manion (1994), "this refers to the world of human experience" and actuality of the world is built according to social principles (Mertens 2014). According to Creswell and Creswell (2017), an interpretative or constructivist scientist uses the "participants' views of the situation being studied" and acknowledges influence of their very own viewpoint and perspectives on the research.

The present study followed an interpretivist paradigm to study digital transformation in South African financial service providers. The reason interpretivist paradigm was followed is because the study sought to understand current status quo regarding how financial service providers in South Africa conduct digital business from their subjective experiences. This paradigm employs methodologies focused on attaching meanings from interviews and observations of study participants based on their subjective experiences. Additionally, this paradigm allowed for both deductive and inductive research approaches; that is, catering for both qualitative and quantitative research approaches.

B. Inductive Reasoning:

This is described as a concept that allows researchers to use what is already known to reduce the uncertainty about the way the world is (Creswell and Creswell 2017). This approach heavily relies on meanings derived from the mostly qualitative data collected. Although the study is underpinned by existing theories, it is still inductive rather than deductive. The elements from the theories were used as lenses to what themes should be studied and analyzed as opposed to testing and proving/disproving the theory constructs, deductively. With the inductive approach, the idea is to attach meanings to the elements as brought out during the collection of data, interviews and observations.

The study goal in qualitative research is exploratory and descriptive instead of explanatory (Ferreira et al., 1988). The descriptive aspect of qualitative research helps the author to describe the study participants' ' experiences, which either helps or contradicts the conceptual premises on which the analysis is focused (Wodak and Meyer. 2009) The descriptive aspect of qualitative research helps readers to understand what the experience means, what the issue is and how it works (ibid., 2009).

Qualitative research approach was appropriate for this study as the purpose was to explore and describe digital transformation process in its infancy stage with no known best practices for it, especially with regards to South African financial service providers. To this point, this study sought to formulate a framework that supports and informs digital transformation for South African financial service providers

C. Research Strategy:

Yin (1991) describes case study research strategy as an "empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used". Research case study strategy provides a comprehensive version of what happened, interactions, insights and methods in this specific case. In this study, a descriptive case study was considered.

Case study might be classified as either an extensive study of a human being, a group of people or an organization (Financial service providers, in this study). This is a case study of an organization that consist of multiple business units, which were treated as case units, falling under the financial sector industry. Gustafsson (2017) classifies a case study as a systematic and intensive study of an individual, organization, society, or any other unit examining the depth of data. Case studies are the preferred strategy to examine a contemporary trend in its actual life and when working on a phenomenon that is in the early stages. This study applied a case study, a financial service provider, with multiple case units, 8 case units were studied.

Pseudo named used for the FSP in this paper is Modiba Bank, Modiba Bank is a Financial Service Provider doing business in South Africa and within the African continent with some presence outside the African continent. This was a case study of Modiba Bank, Modiba Bank has a rich history in South Africa, and started building a franchise in sub-Saharan Africa almost 30 years ago. The bank has an on-the-ground presence in 20 countries on the African continent, and solid local knowledge required to operate a successful business in Africa.

Modiba Bank is a diversified business that provides client solutions across the full range of banking and related products and services namely:

- Transactional products.
- Mortgage lending.
- Card products.
- Vehicle and asset finance (VAF).
- Lending products.
- Client coverage.
- Global markets.
- Transactional products and services (TPS). Investment banking.
- Short-term and life insurance products.
- Financial planning and modelling.
- Integrated fiduciary services.
- Specialized banking, wealth management and advisory service solutions.
- Offshore financial services to African clients.
- Investment services, including global asset management.
- South African retail.
- Business development and Asset management.

D. Research Design:

This section describes how the study was conducted. It defines the unit of analysis, population, sampling and the data collection methods used.

a) Unit of Analysis:

Trochim (2006), states that deciding how you will analyse data collected for a study is to first define the analytical unit. Simply put, the analytical unit refers to the "which" or "what" and this may be a single student or a group to be analysed for the study proposed. The study analyzed financial service providers in South Africa. That is, the unit of analysis was the organization, and not the individual.

b) FSP Population:

The population for this case study was the South African financial service providers, which belong to the financial banking industry. A population is described as the "aggregation of elements that actually select a sample" (Mouton and Babbie, 2001). The sampling method is affected by the population (Black et al., 2000). Myers et al., (2002) suggest that a sample is chosen to collect knowledge about the population from which it was taken. It means that the population must be identified and extensively researched before applying sampling techniques.
The population in this study consists of financial service providers in South Africa, namely ABSA bank, Nedbank, Standard bank, African bank, Capitec, and the new Tyme bank, amongst others.

c) Sampling Method:

Several forms of sampling are possible while conducting research, but researchers typically concentrate on relatively small (Lyell 1998). Research subjects are usually selected for their ability to provide detailed explanations of interactions and to convey perceptions, thus providing rich knowledge that will challenge and improve the understanding of the researcher (Crabtree and Miller, 1992; Hutchinson and Wilson, 1991).

One large financial service provider out of the many forming the financial industry sector was purposefully selected. In terms of research, a data set known as sample refers to group of people, objects or items that can be taken for measurement from a larger population. Purposeful sampling was applied for this study, where the chosen financial service provider was chosen on the basis of pre-selected requirements dependent on the research question,

using a purposeful sampling was meant to focus on specific characteristics of a financial service provider.

d) FSP Participants:

Semi-structured interview participants included individuals who have knowledge, experience and views about the business and its operations e.g. CIO, business owners, IT users and managers. The exact number of participants cannot be determined in qualitative research before the study is carried out. The researcher has specially selected participants who can contribute to the research subject and who are willing to share their experiences. The number of participants in qualitative research is guided by the degree to which the study question has been answered (Marshall, 1996; Øvretveit et al., 2002).

e) Data Collection:

The study collected primary data through semi-structured interviews with individuals from the selected South African Financial Service Provider. Additionally, Observation were also be applied as a technique to gather understanding of how FSP's conduct their business. This is the best method to get closer FSP's and understand their world fully prior to formulating a conceptual framework. The semi structured interviews were carried out at the organizations location or a place agreed with participants, the interviews was conducted with decision makers and individuals that are involved in the day to day running operational running of the business.

Denzin and Lincoln (2005) state that qualitative research stresses the importance of context in data analysis. The participants were able to decide on the venue for their interviews during the research process and particularly during the data collection phase. It resulted in each participant's being interviewed in a position that was convenient to them and selected by them. South Africa is unique with various languages, but English was the language used to conduct interviews and interviews were recorded then transcribed. Each interview lasted for about 30-45mins.

f) Data Analysis:

Mouton and Marais (1991) describe an analysis of the data as the mechanism by which a phenomenon is split into its components to better understand it. Data analysis was intended to describe or illustrate data evaluation.

Through this research, versions of digital transformation understanding, knowledge were identified from the perspective of the participants rather than an absolute answer to the problem. Inductive studies allow for subjective approach when interreacting with participants. Ibid et al., (2002) claim that content analysis and thematic analysis have become South African content researchers' favourite approach. Although, the ibid., (2002) do not explain the popularity of content analysis and thematic methodologies in South Africa, it can be assumed that the support of postmodern research for multifaceted perspectives and multiple constructed identity fits comfortably with the diverse society of South Africa.

1) Thematic Analysis:

Based on what has already been discussed, thematic analysis in this study was deemed necessary. Theme analysis can be described as a way to identify, analyse and document interview data. This details the aggregation and interpretation of a data set (Braun and Clarke, 2006). Data themes can be identified in an inductive manner ' bottom up ' or in a deductive, theoretical way ' top down ' (Boyatis, 1998). Theoretical thematic analysis allows the researcher to code the data based on research questions, where such research questions are influenced by the theoretical lens. Theoretical thematic analysis was thus appropriate for this study and was, therefore, used to analyse the data collected through interviews. The thematic analysis consists of a method of gathering knowledge in order to produce thematic meanings and performance.

2) Content Analysis:

Data can also be analysed using content analysis. The cycle requires documentation of emerging topics (Hsieh and Shannon, 2005). The content analysis, which uses a document review methodology, was in the present study, followed to make sense of the financial service provider's documents and manuals. According to Bernard (2017), in order to answer a question or to solve a problem, a content review is carefully considered for collecting and understanding information or facts. Of great importance is the assessment of the credibility, trust and order of events. Content analysis was used to categorize objects that are fairly reliable and augmented data analysed through thematic analysis. The most important thing is orderly, logical statements based on the model and the analysis, collection and interpretation of the material to complete the results (Schreier, 2012).

VI. DISCUSSION OF FINDINGS

A. IT capability Findings from Analysis of Financial Service Provider Interviews:

IT capability finding from FSP interviews are articulated below as per below subsections with regards to the three contexts of the Technological, organizational and environmental theory per subsection below:

a) Organizational Context:

1) What the FSP would do different or change:

Finding emphasis that the first thing to change is for individuals and leaders to understand that work is not where FSP employees are, work is what FSP employees do. There is a culture of micro managing where people are and what time they come into the office. Today's technologies allow individuals to work from anyway, they should be doing what they are hired to do without being followed around. Literature highlights that micromanagement is generally deemed negative, mostly because it shows a lack of workplace equality (Chambers, 2004). The finding and literature are aligned as they tend to agree that micro management is not feasible approach in FSP's.

Moreover, finding stress that FSP should focus on capabilities that they are good at versus what they are not good at. Companies like AWS, Microsoft so forth that owns certain capabilities, these capabilities should be given to them to run and internally case units focus on what they are good at. The focus of internal divisions within FSP should be integrating, managing, maintaining software and working with vendors to make systems optimal not compete with what vendors are doing. Literature vigorously state benefits with respect to outsourcing are things like labour costs, overhead cost, more flexibility and company is able to focus on other important areas (Malhotra, 2014). However, part of these benefits agrees with finding but some of these benefits are contradiction with some acts that are against job losses in South Africa. This is pure because once most services are outsourced people will lose jobs. Furthermore, the researcher argues that from a change management perspective, financial service providers need to consider people when making a transformation journey. The need to teach people and put more emphasis, not just on the issue of sympathy but empathy also plays a key role to understanding where people are coming from to enable you to lead them better.

b) Technological Context:

1) FSP systems design:

The finding stress that systems will always fail; no system is immune to failure. However, systems should be built in a manner that when they fail there is little impact to customers. One system failure shouldn't impact all other systems, when one system fails, the functionality should be move to the next available system automatically. The FSPs refer to this as resilience practices around engineering. This is basically known as fault tolerance within the technology and innovation space. Literature outlines that in high availability or life-critical systems used by organizations, FPS's for instance, fault tolerance is particularly sought after (González, O., Shrikumar, H., Stankovic, J.A. and Ramamritham, K, 1997). Finding bears a similarity with literature that the ability to maintain functionality when machine parts collapse is called a graceful degradation which talks to fault-tolerance. Fault tolerance is the property that allows FSP's systems to function properly if some of its components malfunction.

Additionally, the finding state that here are several processes during the design identified which are important to the FSP. Things like, monitoring the health of the systems 24/7 to ensure no downtime or recover promptly when that is the case. Literature outlines that system architects have developed various automated tools to manage computer systems operation monitoring (French, R., Tracey, D. and Brandenburg, J, 2003). Ironically, the complexity and challenge for handling such automated tools are increased in some ways. Literature suggest that some of this tool also adds complexity to FSP's environments while finding suggest that the tools are important for monitoring the health of the systems.

Researcher state that a 24/7 operations cannot be achieved without staff with the correct skills and experience when coming to system designs. Things like monitoring tools as outlined by literature also require some skills to operate and manage them. Systems availability is a demand driven by customer expectations. With the ever-changing world of technology, FSP staff need to keep up with these changes, therefore FSP need to invest a significant amount of time and money to keep the skilled up all the time.

2) FSP challenges:

FSP finding maintains that the key challenges within various units in the entire stack is complex, relatively old (legacy systems) and this results in high cost to manage such a stack. Additionally, old stack will mean a lot of thing will need to be maintained or replaced due to end of life reached, as a result such a stack is likely to break easily if not changes are brought in timely to mitigate this. Researcher understands a legacy system as an old, "before" or "previous" computer system, technology, computer system, or application programme, which is still used. A legacy system is a system with many years of maintenance problems. According to Bennett (1995), legacy systems may be defined informally as "large software systems that we don't know how to cope with but that are vital to our organization". Legacy software was written with outdated techniques years ago but still does useful work.

Additionally, the author states that the relocation and upgrading of this baggage from organisation history is difficult for strategies and techniques, from having reasons for expenditures when working with external

contractors to using software comprehension and visualisation techniques. Literature is very explicit with regards to legacy systems that organizations needs to find a way to migrate from such and FSP findings argue that it is costly and not always feasible. However, the FSP needs to move with the times in order to adopt to changing environments by introducing newer technology that doesn't break easily.

This finding further asserts that skills are a challenge within the financial service provider however, they are reliant on things such as graduate programs and experienced resources training newer staff to share skills. Skills are a key challenge within this industry, as a lot of experienced people are retiring, immigrating and this means they will result in shortage of capabilities required within the industry. FSP will always experience such challenges with respective to resources and such requires a change in how they recruit and operate. These changes brought new challenges not only to business but also to the education of businesses (Mohamed and Lashine, 2003). Furthermore, the author argues that business schools training potential managers in various disciplines are responsible for closing the gap between their graduates' skills and the skills required on the global markets. Literature aligns with findings that challenges of resources and how organizations operate will always be there with regards to skills, but literature extends this challenge to business schools and college to ensure they skill up future employees with current skills required.

Additionally, the finding outline that legal constraints were identified for security and data protection when adopting could computing as a challenge. This is specifically an issue when looking to transfer data to other countries, certain categories of data, by law, are not allowed to cross borders. Legislations that protect the transfer of information is not a South African phenomenon, it is common around the world. Literature outlines that in an attempt to improve information protection and transfers across borders in Asia-Pacific Economic Cooperation (APEC), the voluntary protection framework was adopted by all 21 member countries in 2004 (Greenleaf, 2009). Therefore, the FSP will need to align with such a framework in order to manage the legal constraints around security and data while doing business with other countries. As literature points out that this is a global standard utilized by various economies, FSP's will have to comply with this as literature addresses various economies of the world. Furthermore, in 2011, APEC implemented the APEC cross border privacy rules system with the goal of balancing "the flow of information and data across borders, essential to trust and confidence in the online marketplace" (Marvin and Bowden, 2014).

Researcher argues that the focus is on challenges around culture, the industry has evolved, and people are still used to old way of doing things. Today's systems require new skills, new thinking and new way of doing things. The world has changed, there is thing like software as code that has changed how infrastructure is deployed as opposed to traditional way of doing things.

B. IT Capability Findings from Analysis of Financial Service Provider Documents:

IT capability finding from FSP documents are articulated below as per below subsections with regards to the three contexts of the Technological, organizational and environmental theory per
Sub section below:

a) IT Capability Findings from Analysis of Financial Service Provider Documents:

1) FSP Business activities:

- Lend money to our clients.
- Source funding from client deposits and other funders.
- Provide transactional banking facilities and knowledge-based services to clients.
- Market access and risk mitigation products to businesses.
- Revenue from other sources linked to core businesses, as well as strategic investments.

2) Value creation model:

Our business model enables us to respond to commercial and social realities in a dynamic environment of competing stakeholder expectations, complex competitive forces and regulatory pressures. We strive to manage our resources and relationships responsibly in what we do and how we do it, to deliver the best outcomes for our clients, our people, our shareholders and other stakeholders.

3) Strategy:

FBS strategy is designed to realize the opportunities that Africa presents. Our three key focus areas combine to ensure we offer our clients the solutions they need in the most effective way possible, and our strategic value drivers focus our efforts and measure our progress in delivering value.

4) Partnership:

FSP strategic partnership with ICBC assists us in servicing the needs of clients operating within the Africa-China corridor. FSP IS building capacity of Chinese speaking relationship managers in each of markets in Africa Regions.

5) Change Management:

FSP Change Management is the application of processes and tools to manage the people and technology side of change from a current state to a new future state so that the desired results of the change.

6) People:

FSP People are the vehicles that drive organisational goals and therefore, it is paramount to have leadership and employees that are effective and efficient for optimised organisational outputs.

7) Role of leadership:

The FSP sees effective leadership as that which unites purpose and performance by embedding an ethical and risk-aware culture which recognizes that the trust of our stakeholders is the basis on which we compete and win.

8) Business activities and outputs:

As an integrated financial services organization with a broad offering of products and services, our business units and corporate functions work together to deliver on our client's needs.

9) Global disruption:

Successfully identifying emerging trends is made more difficult given the nature and ever-advancing technologies of the Fourth Industrial Revolution. The World Economic Forum tracks trends shaping future ecosystems that are fundamental to the operations of economies, governments, industries, researchers, scientists, environmentalists, social engineers and financiers. These trends will result in technologies that could impact on all aspects of life, including financial and monetary systems, and the future world of work and skills requirements.

10) Regulations:

Financial supervision, technological innovation and conduct remain key drivers of global regulatory developments as regulators require robust data protection and privacy controls.

11) Financial inclusion:

43% of adults (over the age of 15) in sub-Saharan Africa now have a bank account, up from 34% in 2014. 33% have an account at a formal financial institution, while 21% have a mobile money account, up from just 12% in 2014. While an impressive improvement, more than half the adult population across Africa is still excluded from the formal financial system. The Fin-dex report notes that 'the power of financial technology to expand access to and use of accounts is demonstrated most persuasively in sub-Saharan Africa', where 34% of adults have made or received digital payments in the past year.

12) Infrastructure development:

The African Development Bank estimates that infrastructure investment of USD130 to USD170 billion a year is needed across Africa. To support growth, the continent must make the best use of existing infrastructure while developing new infrastructure. For example, the rapid evolution of transport and the development of autonomous vehicles will require investment in new transport infrastructure.

13) Client focus:

We delight our clients through personalized client journeys:

- Profitable client relationships built on trust, strong strategic partnerships, including our ten-year partnership with ICBC.
- Employees equipped to provide exceptional client experiences.
- Client focused, digitally enabled ways of working.
- Fit-for-purpose branch and ATM network.
- Utilities (direct) and financing activities (indirect).

14) Employee engagement:

FSP has a culture of caring, growing, learning and innovation:

- Strong executive and leadership teams.
- Engaged and capable employees.
- Good relationships with employee representatives.
- Reward structures linked to performance and value drivers.
- High-performance ethical culture.
- Investment in training that supports client focused ways of working.

15) Financial Outcome:

How we do business results in increased shareholder returns:

- Competitive investment proposition.
- Affordable access to capital and a resilient and diverse capital structure.
- Competitively reward employees for the value they deliver.
- Good standing in the investment community.

16) Employee development and training:

- Building and retaining local skills in our countries of operation.
- Development programmes.

17) Impact:

The FSP delivers shared value:

- Supporting socioeconomic development and sustainable markets.
- Working with clients to manage environmental risk, including applying the Equator Principles.
- Viable business and market growth.
- Reputable and ethical brand.

18) FSP Performance indicators:

- Net promoter score (NPS), indicates how likely a retail client is to recommend FSP for good service. It is calculated by subtracting detractors from promoters. This value can range from -100 if every client is a detractor to +100 if every client is a promoter. Any score above zero means there are more promoters than detractors.
- Client satisfaction index (CSI), is a measure of the extent to which our corporate and investment clients are satisfied with the service CIB provides. It is calculated using weighted scores for different dimensions, from response times to the effectiveness of client relationship managers.
- Employee turnover: measures the percentage of employees who left our employ during the year.
- Employment equity: measures the representation of black people in management levels in South Africa.

b) Technological Context:

1) Digitisation:

FSP ensures that people have access to user-friendly digital solutions ranging from self-service capabilities to people management solutions enabled through integrated global systems. Initiatives are underway across the group to introduce digital tools that will improve workplace productivity and employee access to connectivity and collaboration mechanisms. Tailored skills development programmes ensure the future readiness of employees for new roles in line with digital capability requirements.

2) Banking platforms:

Technology modernised core banking platforms providing leading- edge digital capabilities. Rapidly changing client expectations and behaviours are driving investment in client-centric technology. Africa, advances in digital and mobile technology has improved financial access, particularly in rural areas.

3) Cloud Computing:

It is expected that cloud computing will grow to a USD191 billion industry by 2020. Given that the related risks are relatively unknown and the increased use of complex algorithms and cognitive engines like chatbots, a balanced approach to digitisation is needed to manage any negative impacts on clients, reduce unintentional bias in systems and improve data security.

4) Artificial intelligence:

The need to effectively manage artificial intelligence (AI) will increase as resources become scarcer and digital strategies are adopted. To achieve the culture shift needed to accommodate AI will require investment in both people with the necessary technical expertise and in new ways of working to support more complex thinking, problem solving, flexibility and creativity.

5) Design thinking:

Design thinking is the application of design principles to everyday interactions. It covers identifying problems, researching potential solutions and forming ideas, followed by prototyping the ideas. Design thinking helps improve client centricity by personalising products and services to each client, making them more intuitive and responsive.

6) Data privacy and security:

Global concerns around data, privacy and consumer rights are being addressed through new regulations which place significant obligations on financial institutions to protect and use data responsibly and respect clients' privacy rights.

7) Digital currencies and block chain technology:

Digital currencies and block chain technology support client privacy and data protection by enabling anonymous transacting. However, the advent of quantum computing has the potential to undermine the security of the digital economy.

8) Technical Skills development:

Responses in the annual employee survey indicate that while most employees are satisfied with their opportunities for career growth and skills development, there is scope for improvement.

9) Cybersecurity:

- Stability, security and speed of IT systems.
- Reputational and operational risk associated with third-parties, counterparties and suppliers.
- Card fraud constant concern.

10) Technology adoption:

Adoption of technology means the recognition, incorporation and use in society of new technology for the FSP. The procedure follows many phases, typically organized by individuals within the technology units.

11) Enterprise technology:

FSP enterprise technology is a critical enabler of integrated financial services solutions. We have built enterprise assets that can be leveraged across business units and functions, with modernised IT platforms enabling multidisciplinary operational teams to create innovative digital platforms, whose functionality is continually improved.

12) System Integration:

The FSP process of integrating the subsystems into a single system (an aggregation of subsystems that cooperate to ensure the system delivers overarching functionality) and ensuring that subsystems function together as a system and in the field of information technology to connect physically or functionally various computing systems and software applications. The benefits of moving from the old to the new platforms are multi-faceted and lie largely in the modular nature of the platform which has clear integration abilities.

VII. FSP IT CAPABILITY DIGITAL TRANSFORMATION FRAMEWORK

This section outlines the conceptual FSP IT capability framework in parts, namely Organizational, Technology and Organizational culture which cuts across all pillars, and they are articulated as per below subsections, then the framework placed together:

A. Interpretation of elements of the FSP IT Capability Digital Transformation Framework:

Figure 7 below, is a bird view of the contextual IT Capability Digital Transformation framework for South African Financial Service Providers:

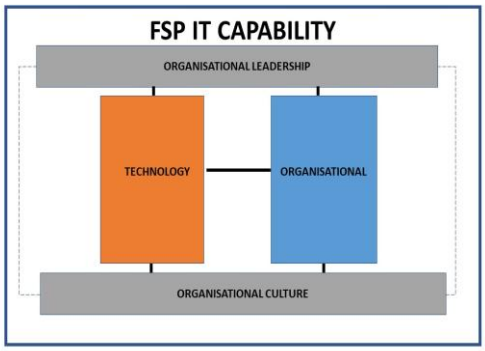

Figure 7: IT Capability Digital Transformation framework for South African Financial Service Providers

This section defines the elements that characterizes the framework:

Table 3: Elements of Digital Transformation Framework

Critical Factors	Elements
Organisation Leadership	Role of leadership Client focus Employee engagement Employee development and training/Coaching
Organisational Culture	Micro managing Changes from leadership perspective Changing mind-set Collaboration opportunity Alignment to objectives Autonomy Information sharing Visibility of vision
Technology	FSP Skills and Competencies FSP Measure performance Digitisation Banking platforms Cloud Computing Artificial intelligence Design thinking Data privacy and security Digital currencies and blockchain technology Technical Skills development Cybersecurity Technology adoption Enterprise technology System Integration
Organisational	FSP People FSP Description FSP Strategy FSP Leadership FSP Structure FSP Digital transformation FSP Digitization Level FSP Business activities Value creation model Partnership Change Management Business activities and outputs Global disruption Regulations Financial inclusion Infrastructure development Financial Outcome Impact FSP Performance indicators (Net promoter score (NPS) and Client satisfaction index (CSI)

VIII. CONCLUSION

Study findings suggest that digital transformation within FSP in South Africa is either enabled or inhibited by existing IT capabilities. The paper argues and concludes that IT capabilities ought to manifest cognizant of the FSP's technological, organizational and environmental contexts. The IT capability digital transformation framework conceptualised unpacks the theoretical, practical, and contextual contributions of this paper.

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