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The effectiveness of technological advancements on project execution in the South African financial services sector

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WITS Business School

Applied Research Project: Business Venture Proposal

A research report presented to the Faculty of Commerce, Law, and Management, University of the Witwatersrand, in partial fulfilment for the degree of Master of Business Administration

30 July 2021

DECLARATION

I Samuel Rantao declare that this research report entitled 'The effectiveness of technological advancements on project execution in the South African financial services sector' is my own unaided work. I have acknowledged, attributed, and referenced all ideas sourced elsewhere. It is submitted in partial fulfilment of the requirements of the degree of Master of Business Administration at the University of the Witwatersrand, Johannesburg. This report has not been submitted before for any other degree or examination to any other university.



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Signed at Johannesburg on 30th July 2021

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KEYWORDS

Chief Digital Officer
Digital transformation
Digital innovation
Digital strategy
Digitisation
Fourth Industrial Revolution

ABSTRACT

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Thesis title: The effectiveness of technological advancements on project execution in the South African financial services sector.

Background: The digital age is filled with emerging digital technologies that are evolving at a rapid pace. The wide scope of digital technologies streams such as ‘artificial intelligence’ (AI), ‘automation’, ‘big data’, ‘cloud computing' and the ‘Internet of Things’ (IoT) have created opportunities and challenges to all involved in banking to embrace digital transformation.

Objectives: The purpose of this study is to explore the effectiveness of technological advancements on project execution in the South African financial services sector. The main emphasis for banks to remain relevant and gain a competitive advantage in this digital age, they would need to transform digitally by adopting appropriate emerging technologies and transition their backend processes and operations. The study further explores the mitigation of the problem statements through a management consulting start-up as a possible solution.

Method: The research method was in the form of a quantitative research design, which involved 267 online surveys with banking professionals working within IT such as Chief Digital Officers, Head of Departments, and Project teams. The literature review indicated that digital transformation was reshaping the structure of the banking sector, and the role of IT project execution in the digital age. This has emphasised the need for banking professionals to stay abreast with the fourth industrial revolution developments and trends, and to prepare for imminent changes as the digital age requires new skills and competencies.

Results: The findings from this study indicated that the issues pertaining to digital transformation are multifaceted and go beyond the incumbents in the financial services banking sector as they affect companies operating in other industries across SA.
The findings from this study are expected to contribute to the extant literature in the field of digital transformation and competencies required by banking professionals.

Conclusion: The fourth industrial revolution has introduced significant new technologies in all areas of business, and the banking sector is no different. The emergence of technologies has impacted the way projects need to be executed, in terms of speed, efficiencies and processes. All of this requires new mindsets with advanced skills which need to be quickly attained and practiced at the highest levels to make the most of the technologies.

Johannesburg, July 2021

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LIST OF ACRONYMS

3D	:	Three dimensional
4IR	:	Fourth industrial revolution
ANOVA	:	Analysis of variance
API	:	Application programming interface
CDO	:	Chief digital officer
CIO	:	Chief information officer
COVID	:	Coronavirus
e-banking	:	Electronic banking
FDD	:	Feature driven development
Fintech	:	Financial technology companies
GDP	:	Gross Domestic Product
GS	:	Google Scholar
IS	:	Information System
IT	:	Information technology
MBB	:	McKinsey and Company, Bain, and Company, and Boston Consulting Group
P2P	:	Peer to peer
PESTEL	:	Political, Economic, Social, Technological, Environmental, and Legal factors
SA	:	South Africa
SaaS	:	Software as a service
SaFe	:	Scaled Agile Framework
SAcsi	:	South African Customer Satisfaction Index
SDLC	:	System design life cycle
SPSS	:	Statistical Package for the Social Sciences
VUCA	:	Volatile, uncertain, complex, and ambiguous
WoS	:	Web of Science

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1 INTRODUCTION TO THE RESEARCH

1.1 Background and context

This study evaluates the effectiveness of technological advancements on project execution in the South African financial services sector. Figure 1-1 indicate the largest traditional banks by total assets, which are the Standard Bank of South Africa Limited, First Rand Limited, Absa bank Limited, Nedbank Limited, and Investec Bank Limited respectively Statista (2020). These banks are categorised as the "top 5 banks" in SA.

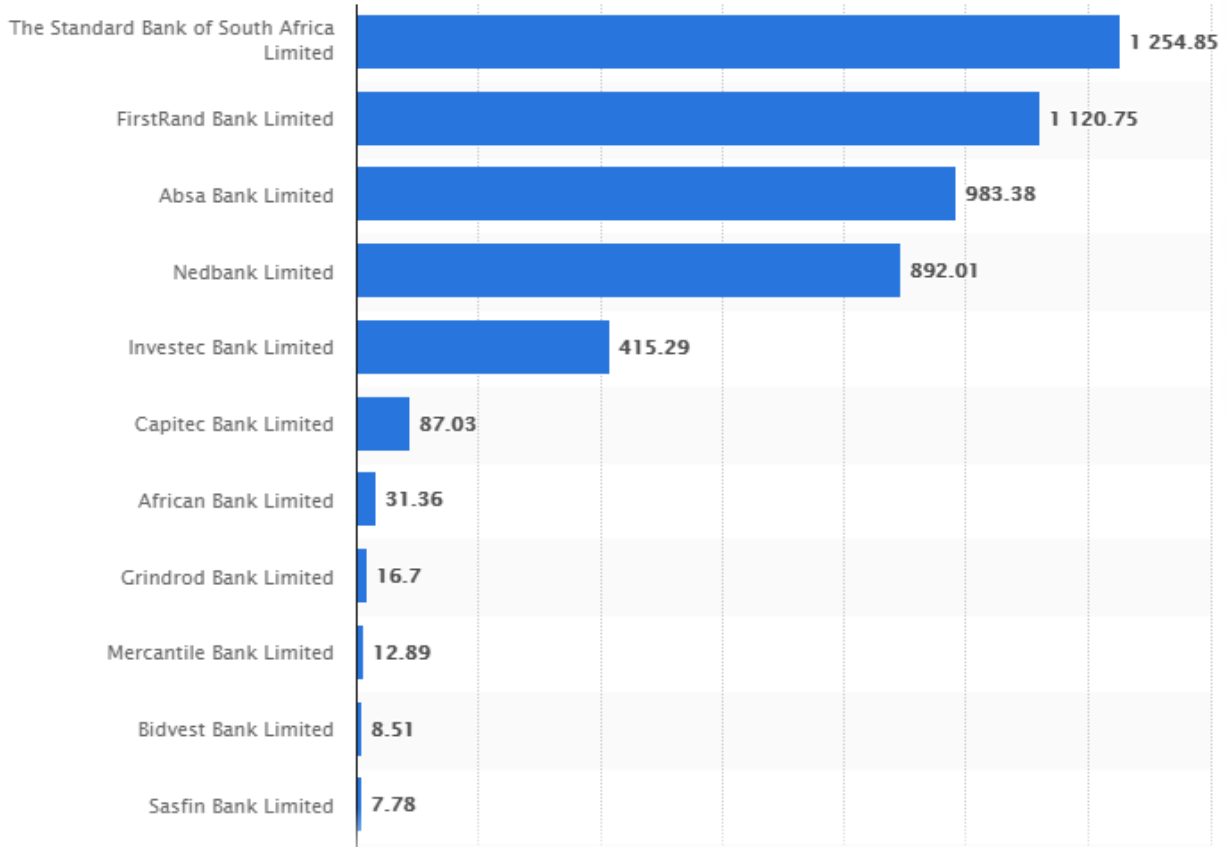


Figure 1-1: Leading SA banks in 2017, by assets *(in billion South African Rand)*
Source: Statista (2019)

These traditional banks are faced with competition from smaller players, including African Bank Limited, Capitec Bank Limited, and more recently the continued entrant of new digital-only banks, such as Tyme Bank, BankZero and Discovery Bank. This rivalry will lead to an increasingly complex and competitive banking industry landscape in future. Camarate and Brinckmann (2017) added that the level of competition for traditional banks is further increased by new entrants into the financial services market from other industries such as the commercial and retail industry. Rivals from the

commercial industry are predominately automotive, agriculture and property with capabilities to potentially offer financial services solutions such as vehicle and asset finance, specialised agri-business banking and property finance, among others. Whereas new rivals from the retail industry are mainly retail companies and large employers with capabilities to potentially offer financial services solutions such as transactional banking, personal loans, and credit card, among others. Competitiveness is further enhanced by financial technology companies (Fintech) using innovative modern technologies to offer automated and improved financial services such as mobile payments.

McWaters, Bruno, Lee, and Blake (2015) in their study demonstrated that the financial services sector is broadly made up of six core functions namely capital raising, deposits, lending, insurance, investment management, market provisioning and payments which are heavily impacted by disruptive trends:

- Capital raising function is impacted by the increase of crowdfunding platforms which are increasing the access to capital raising activities.
- Deposits and lending function is impacted by:
    - New lending platforms which are transforming credit evaluation and loan origination for instance P2P (Peer to Peer), lean automated processes and alternative adjunctions, and
    - New entrants such as virtual banking 2.0, banking as a platform API (Application Programming Interface) and evolution of mobile banking.
- Insurance function is impacted by:
    - Emerging online insurance marketplaces such as disaggregated distribution, sharing economy, self-driving cars, 3rd party capital, etc., and
    - The usage of connected devices such as wearables, IOT, and standardised platforms.
- Investment management function is impacted by robo-advisors improving accessibility to financial management for instance social trading, automated advice and wealth management and retail algorithmic trading.
- Market provisioning function is impacted machine accessible data, and machine learning, and big data.
- Payment’s function is impacted by:

- New consumer functionalities and add-ons that are that are embedded on existing payment systems such as mobile and streamlined payments, integrated billing, next generation security, etc., and
- The potential for cryptocurrency streamlines the transfer of value for instance cryptographic protocols, P2P transfers, and mobile money, etc.

Ajibade and Mutula (2020) pointed out that embracing digital technologies has the potential of driving the productivity, competitiveness, and growth of traditional banks. These digital technologies are generally characterised by data technology, IoT, and cloud computing, and the integrated IT (Information Technology). Further Asadi, Nilashi and Yadegaridehkordi (2017) added that these changes have the potential of creating opportunities for banks to enlarge profitability and revenues through new ways.

Before getting to the research conceptualisation (Section 1.2), the terms and concepts are introduced in conceptualising this research in Section 1.1 generally and broadly. Chapter 2 has a more specific and detailed discussion on the research context. The research conceptualisation section provides for the research problem statement (Section 1.2.1) and consequently the purpose for this research (Section 1.2.2) as well as the research questions (Section 1.2.3). The delimitations and assumptions of the research study are in Section 1.3 with the significance of the research study in Section 1.4 and provide a preface to the research report in Section 1.5.

1.1.1 The structure of financial services banking sector is reshaped by digital transformation

Several authors, for example Kelly (2014) and Cuesta, Ruesta, Tuesta, and Urbiola (2015) have discussed the concept of digital transformation and were of the view that it is imperative for banks to embrace the digital revolution and reinvent their operations to remain relevant and successful in the digital age that is filled with emerging technologies. Cuesta et al. (2015) suggested that the need for banks to confront digitisation head-on, is amplified by evolving consumers habits and preferences demanding newer and innovative ways of banking, and by the increasing number of entrants of large technology and FinTech companies into the financial services sector.

1.1.2 The role of IT project execution in digital transformation

Scholars have discussed the concept of enabling capabilities that are required for banks to embrace digital transformation. Haffke, Kalgovas, and Benlian (2017) and Barthel and Hess (2019) agreed that the banks' demands for more agile IT capabilities and innovative technology is stimulating changes in the approaches, and expectations of the traditional IT function. Livermore (2008) suggested that several agile SDM (Software Development Methodologies) may be adopted to enable banks to meet the increasing demands and challenges of the evolving digital age. The author characterises the SDM by iterative development, continuous code integration, and the ability to handle changing business requirements.

1.1.3 An introduction to formative evaluation

The collection of data and information for the study was conducted using primarily the method through online surveys. "Thus, formative evaluation is a judgment of the strengths and weaknesses of instruction in its developing stages, for the purposes of revising the instruction to improve its effectiveness and appeal" (Tessmer, 1997:11).

1.2 Conceptualisation of the research study

1.2.1 The problem statement of the research study

Ndung'u and Signé (2020) suggested that the main problem of 4IR seem to be characterised by widespread "buzzwords" with unclear socio-economic consequences and uncertain impact on the banking sector in SA. The authors further highlighted that 4IR is characterised by the shift towards digital transformation of emerging technologies.

The first sub-problem was that the structure of financial services banking sector in SA is being reshaped by the shift towards digital transformation seen in the sector. This reshaping appears to be triggered by the wave of the 4IR as highlighted by several authors, for example Kelly (2014) and Cuesta et al. (2015) in their discussions on the concept of digital transformation. The authors further postulated that digital transformation in the banking sector presents significant growth and sustainability

opportunities. However, Ndung'u and Signé (2020) argued that there are challenges that will need to be overcome, for instance, uncertain regulatory changes relating to cyber-security and digital infrastructure among others, by adopting various strategies.

The second sub-problem was the lack of clarity on the role IT plays in digital transformation as well as the uncertainly on how digital transformation is changing the way IT projects are executed in banking. Several authors, for example Livermore (2008), Haffke et al. (2017) and Barthel and Hess (2019) in their discussion on the enabling capabilities for digital transformation were of the view that agile IT capabilities are an effective approach to meet the evolving business demands and customer preferences. However, Handscomb, Jaenicke, Kaur, Vasquez-McCall, and Zaidi (2018) contended that the journey to become agile is not without missteps that will need to be overcome, for instance, agile not being treated as a strategic priority in the organisation; ignoring the importance of organisational culture on agile; lack of supporting structures, among others. There are multiple other types of IT project methodologies and capabilities that can be adopted by an organisation over and above the traditional SDLC (System Design Life Cycle) waterfall methodologies. Agile scrum methodology, lean software development, Kanban, DevOPS, SaFe (Scaled Agile Framework), FDD (Feature Driven Development) as such are IT project methodologies and capabilities that can be adopted to fast tract the implementation of digital transformation thus enabling the organisation to gain a sustainable competitive advantage by being first to market.

1.2.2 The purpose (aim and objectives) statement of the research study

The purpose of this study was to assess the effectiveness of technological advancements on project execution in the South African financial services sector. Literature was reviewed to understand the foundation of knowledge in the areas of 4IR, embracing digital transformation, and IT project execution in the banking sector as well as the factors affecting digital transformation and to identify any gaps in literature. Thereafter the process which followed was the construction and presentation of robust results chain showing the link between inputs, activities, outputs, outcomes, and impacts. This was followed by the proposed research strategy, a research design, research procedure and methods appropriate to evaluate the effectiveness of

technological advancements on project execution in the South African financial services sector. The data was then collected and analysed to determine if the implementation of digital transformation emerging technologies in the banking sector was in line with the results that were used to yield the intended and outcomes. Lastly on the outcomes, the concepts of digital transformation yielded the desired impact on project execution in SA banking sector.

The suitable research design and tools used was the quantitative method to establish the concepts and views of the impact of digital transformation and the role of IT project execution in banking, with the collection of data and information for the study conducted using primary method through applying research tools such as online surveys and through anonymised secondary data sources. Sukamolson (2007) suggested that survey research as a type of quantitative research method is effective for measuring characteristics of the population with statistical precision through scientific sampling and questionnaire design to enable management to make comparisons between selected sample groups.

1.2.3 The research questions

1.2.3.1 Question 1: What is the impact of digital transformation on traditional banking institutions?

Null hypothesis:

- There is no impact of digital transformation on traditional banking institutions in SA.

Research hypothesis:

- Digital transformation is impacting on traditional banking institutions in SA in the form of emerging technologies that are driven by shifting customer needs.

Proposition:

- What factors relating to digital transformation have an impact on traditional banking institutions in SA?
- Shifting customer needs and preferences are driving the adoption of emerging technologies in traditional banking institutions in SA.

1.2.3.2 Question 2: How can traditional banks embrace digital transformation?

Null hypothesis:

- There is no need for traditional banks to embrace digital transformation.

Research hypothesis:

- Traditional banks can embrace digital transformation through the adoption of emerging technologies.

Proposition:

- What factors influence the success of digital transformation in traditional banks?
- If traditional banks had the flexibility of investing in digital leadership and learning agility, they could be successful in embracing digital transformation.

1.2.3.3 Question 3: What is the role of IT project execution in digital transformation in banking in the digital age?

Null hypothesis:

- IT project execution plays no role in digital transformation in banking in the digital age.

Research hypothesis:

- The role of IT project execution has evolved into more agile approaches to deliver speedy response to digital transformation in banking in the digital age.

Proposition:

- What factors hinder IT project execution to be effective in digital transformation in banking in the digital age?
- If organisations had the flexibility of outsourcing skilled IT project execution, would they be more effective in responding to digital transformation in banking in the digital age.

1.3 The limitations and assumptions of the research study

Limitations:

The key limitation to this study was that it is focused on the big four traditional banks in SA and did not contain the impacts of digital transformation in smaller banks or the new entrants in the financial service sector.

Root Causes:

Osmundsen, Iden, and Bygstad (2018) suggested that digital transformation is driven by four main causes namely customer behaviour and expectations, industry wide digital shifts, dynamic competitive landscape, and regulatory changes. Goker and Dursun (2019) agreed and lists cost reduction, corporate growth, efficiency, competitive threat, innovation goals, capturing more customers, retaining existing customers, and customer satisfaction as additional root causes. Osmundsen et al. (2018) further asserted that banks need to enhance their customer facing processes, innovative products, and digital channels to stay abreast of shifting customer behaviours and expectations to improve customer experience and satisfaction. Alt and Puschmann (2012) argued that the shifting customer behaviour among others is a strong driver that is leading banks to focus more on customer orientation.

Assumptions:

- The respondents will complete the surveys timeously and truthfully.
- The respondents will respond with normal perspectives and experiences.
- That the necessary permission to source the data would be attained for the study.

1.4 Significance of the research study

Kelly (2014) emphasised that the banking industry currently operates in a digital world whereby there is an increase in the amount of human activity being mobile based whereby customers' expectations are becoming increasingly demanding for more convenient and cost-effective digital banking products and services. Oracle (2016) suggested that data is a critical element relating to digital capabilities and the digital experience on the use of information as basic commodity that can be leveraged to

reach customers. As more competitors embrace data as a currency, traditional banks could risk being adversely affected by competition and lose a lot of their business and/or customers if they ignore such trends. In addition, Broeders and Khanna (2015) argued that digital innovation trends are forcing traditional banks to rapidly embrace digital transformation which is amplified by emerging technologies and have a period of approximately three to five years to become digitally proficient. The authors further caution that if traditional banks do not take the necessary actions to embrace these digital transformations, they could face the risk of entering a spiral of decline.

There appears to be little research done based on the literature reviewed around project execution enabling 4IR in the banking sector which this study undertakes to explore.

1.5 Definition of terms

Banking: Financial institution that provides deposit and lending products and services to its customers (McWaters et al., 2015).

Chief Digital Officer: Senior management role responsible for driving company growth by transforming traditional businesses to digital ones through modern online technologies (Osmundsen et al., 2018).

Digital Disruption: An innovation that creates new market by disrupting existing ones (Barthel & Hess, 2019)

Digital Transformation: The adoption of digital technology to transform businesses or services with newer digital technology (Kelly, 2014).

Emerging Technology: Newer technologies with capable of changing the status quo (Ndung'u & Signé, 2020).

Financial Services: Economic services provided by the finance industry such as banks, insurance, etc. (McWaters et al., 2015).

FinTech: Financial technology - technology and innovation that aims to compete with traditional financial methods in the delivery of financial service (Camarate & Brinckmann, 2017).

Fourth Industrial Revolution (4IR): Technological revolution - period in which technologies are replaced by other novel technology in a short amount of time (Prisecaru, 2016).

1.6 Preface to the research report

This research report is made up of six chapters. After this introductory chapter, a literature review which covers the problem statements, past studies, explanatory framework, and the conceptual framework are covered in Chapter 2. The research strategy and design, the procedures and methods, the reliability and validity measures, as well as limitations are discussed in Chapter 3. Chapter 4 covers the findings, while the business venture proposal is presented in Chapter 5. The research reports close with the summarises and concludes in Chapter 6.

2 LITERATURE REVIEW

The objectives of this chapter are to understand the research problem statement, to identify the knowledge gap, and to develop a framework for interpreting the research findings. The research problem is detailed in Section 2.1. Section 2.2 details the literature review on studies that have attempted a similar research. This information then identifies and details the quantitative variables that are key to this research in Section 2.3. This chapter ends with the framework used to interpret the research findings in Section 2.4.

2.1 Research problem analysis

This section explores a detailed interrogation of the main research problem and related sub-problems analysis with support of literature highlighting key factors categorised into (i) symptoms, (ii) the root-cause, and (iii) consequences.

Ndung'u and Signé (2020) postulated that the main problem of 4IR seem to be characterised by widespread "buzzwords" with unclear socio-economic consequences and uncertain impact on the banking sector in SA. The authors further highlighted that 4IR is characterised by the shift towards digital transformation of emerging technologies. Osmundsen et al. (2018) agreed that there is no clear definition on the concept of digital transformation, even though it is often used in the context of driving organisational change enabled by emerging digital technologies such mentioned by Ajibade and Mutula (2020) as big data technology, IoT, cloud computing, and the integrated IT. The authors further suggested the definition of digital transformation as "when digitalisation or digital innovation over time is applied to enable major changes to how business is conducted, leading to a significant transformation of an organisation or an entire industry" because of the characteristics of digital transformation and links from digitalisation and digital innovation (Osmundsen et al., 2018).

- Big data technology: Srivastava and Gopalkrishnan (2015) defined big data as an enabling tool which allows the financial institutions to create, manipulate, and manage exceptionally large data sets in each timeframe and the storage required to support the volume of data, characterised by variety, volume and velocity thereby enhancing enterprise transparency, auditability, and executive

oversight of risk on the overall enterprise risk management frameworks. The authors further emphasised the implementation of big data analytics beneficial for the banks to deliver better services to their customers, both internal and external, along with which is also helping them improve on their active and passive security systems. Lipton, Shrier and Pentland (2016) agreed that advanced analytics enables the digital bank to transform its data into more personalised client service aimed at data monetization.

- The Internet of Things: Khanboubi, Boulmakoul and Tabaa (2019) postulated IoT as one of the critical enablers for banks to implement its digital transformation with several digital trends such as mobile banking, M-banking, crowd-based financing, virtual money, high frequency trading firm, cyber criminality, big data, and IT analytics having a direct impact on financial services.

- Cloud computing: Asadi et al. (2017) pointed out that cloud technology offers new secure deployment options that can enable the banks to increase efficiency, improve new customer experiences and develop rapidity to market. Cloud based applications enable the banks to create an agile banking environment that can quickly respond to new business needs while enhancing customers interactions with the banks and enabling customers to seamlessly fulfil their daily financial transactions without incurring additional costs. Software as a service (SaaS) provides time and costs savings enabling consumers to pay only for functional consumption and the services they use. The authors further stated that the adoption of cloud computing comes with security, privacy, and regulatory challenges which create mistrust among the consumers of banking services, which the banks will need overcome possibly through incorporating controls, such as firewalls, intrusion detection/prevention systems, anti-virus, authentication, authorisation, and encryption, etc. to authenticate business information in different settings.

- The integrated IT: Ajibade and Mutula (2020) highlighted the importance of banking services to configure their integrated business environment with advances in the IT infrastructure, to respond and adapt to an integrated, and networked technology to provide virtual banking services. Lipton et al. (2016) highlighted that the challenge of legacy systems and legacy culture severely

inhibits financial institutions from embracing innovation to its full extent for thriving and surviving in the digital age. The continuous maintenance spending on legacy IT systems holds the banks back from realising higher profits unlike their digital competitors who generate higher value for instance through digital payments, digital wallets, multichannel, smart bug data among others.

The first sub-problem, as indicated in section 1.2.1, is that the structure of financial services banking sector in SA is being reshaped by the shift towards digital transformation. This reshaping appears to be triggered by the wave of the 4IR as highlighted by several authors, for example Kelly (2014) and Cuesta et al. (2015) in their discussions on the concept of digital transformation. The authors further postulated that digital transformation in the banking sector presents significant growth and sustainability opportunities. However, Ndung'u and Signé (2020) argued that there are challenges that will need to be overcome, for instance, uncertain regulatory changes relating to cyber-security and digital infrastructure among others, by adopting various strategies.

(i) Symptoms of the first sub-problem:

Kelly (2014) highlighted that the increasing shifts in data collection, mobility and storage are among the factors that have led to what she terms "the rise of social technology" resulting in customer expectations of being able undertake any social or commercial activity from anywhere at any time, and this includes access to banking products and services, thereby putting banks under pressure to prioritise digital transformation in line with these shifting customers' needs. In addition, Cuesta et al. (2015) suggested that there is already evidence of changes in the digital transformation seen in the way banking intuitions and customers behave, and in the availability of a greater number of services via new channels and in the branch network.

(ii) The root-cause of the first sub-problem:

Osmundsen et al. (2018) suggested that digital transformation is driven by four main causes namely customer behaviour and expectations, digital shifts in the industry, changing competitive landscape, and regulatory changes. Goker and Dursun (2019) agreed and lists cost reduction, corporate growth, efficiency, competitive threat, innovation goals, capturing more customers, retaining existing customers, and customer satisfaction as additional root causes. Osmundsen et al. (2018) further

argued that banks need to enhance their customer facing processes, innovative products, and digital channels to stay abreast of shifting customer behaviours and expectations to improve customer experience and satisfaction. The authors found that shifts in digital trends in the organisation's industry and shifts in the competitive landscape are other contributing drivers. Alt and Puschmann (2012) asserted that the shifting customer behaviour among others is a strong driver leading banks to focus more on customer orientation.

(iii) Consequences of the first sub-problem:

Osmundsen et al. (2018) argued that digital transformation requires more than adoption of digital technologies; it requires an overhaul of the entire business rules of the organisation as it is an organisation wide transformation and not just a technological transformation. The authors highlight another consequence as the implementation of a new executive level role of a Chief Digital Officer (CDO) to manage activities of digital transformation and related capabilities. The building and achieving sufficient influence in the organisation in important for establishing the CDO role to pursue the intended transformation activities and achieve responses. One organisational issue addressed a new executive role for managing digital activities; digital transformation has led many firms to implement a CDO role to oversee the establishment of digital capabilities in the organisation. The authors further postulated the criticality for the roles between the CDO (business side) and the chief information officer (CIO) to be closely aligned and ensure a mutual understanding of each other's roles and responsibilities, with the CDO being an ambassador for the IS function, with close relations to the business, and thus, enhancing the CIO's role and activities within the rest of the organisation. The introduction of the CDO role may cause tension as the CDO takes over some of the CIO's former responsibilities, and indirectly relieving the CIO's perspective to focus on delivering on a more confined area.

(iv) The intervention of the first sub-problem:

Osmundsen et al. (2018) recommended an agile and supportive organisational culture aligning business and IT initiatives as an imperative intervention to accomplish a successful digital transformation supported by organisational values of customer centricity and openness to change. The authors further pointed out the need for the organisation to develop a digital business strategy aligning business and IT to accomplish a digital transformation thereby aligning the changes with its strategies.

Ndung'u and Signé (2020) recommended numerous strategies that can be adopted for overcoming the 4IR challenges facing the African continent. The strategy of resolving the labour-skills mismatches by investing in reskilling and education programs to ensure that technology supplements, instead of replacing low-skilled workers with higher-skilled workers. The strategy of enhancing agile governance for secure (cyber-security), effective management of the 4IR and integration into global value chains (e.g., The African Continental Free Trade Agreement) are essential for success in driving and supporting innovation. Lastly through developing physical and digital infrastructure - constrained by infrastructure parameters i.e., low teledensity and lack of electricity - will drive and sustain economic transformation.

The second sub-problem, as indicated in section 1.2.1, is the lack of clarity on the role IT plays in digital transformation as well as the uncertainly on how digital transformation is changing the way IT projects are executed in banking. Several authors, for example Livermore (2008), Haffke et al. (2017) and Barthel and Hess (2019) in their discussion on the enabling capabilities for digital transformation were of the view that agile IT capabilities are an effective approach to meet the evolving business demands and customer preferences. However, Handscomb et al. (2018) contended that the journey to become agile is not without missteps that will need to be overcome, for instance, agile not being treated as a strategic priority in the organisation; ignoring the importance of organisational culture on agile; lack of supporting structures, among others. There are multiple other types of IT project methodologies and capabilities that can be adopted by an organisation over and above the traditional SDLC (System Design Life Cycle) waterfall methodologies. Agile scrum methodology, lean software development, Kanban, DevOPS, SaFe (Scaled Agile Framework), FDD (Feature Driven Development) as such are IT project methodologies and capabilities that can be adopted to fast tract the implementation of digital transformation thus enabling the organisation to gain a sustainable competitive advantage by being first to market.

(i) Symptoms of the second sub-problem:

Haffke et al. (2017) emphasised that digital transformation goes beyond affecting the products, services, and business models of organisations, as it affects the entire internal organisational landscape especially the leadership roles and responsibilities. Haffke et al. (2017) further stated that the journey of digital transformation urges organisations to restructure their operations and create new executive roles, such as

the Chief Digital Officer (CDO) to drive the IT function to increase its agility and become a driver of digital innovation.

(ii) The root-cause of the second sub-problem:

Haffke et al. (2017) argued that one of the challenges facing established organisations is the culture within the traditional IT function that is mainly focusing on the business-as-usual activities instead of conducting innovative exploratory activities that can aid digital transformation. This is compounded by the new entrants in the market who are offering more digitised solution to changing customer needs which are forcing the established organisation such as traditional banks to prioritise their focus on IT agility and exploration with the goal of enabling digital transformation.

(iii) Consequences of the second sub-problem:

Haffke et al. (2017) stated that the increase of the impact of digital transformation on business, demands the IT function to add more value, and enables the IT function to transform. It is imperative for the entire organisation to transform digitally and not just the IT function.

The research further aims to mitigate the problems highlighted whereby the financial services incumbents may consider the option of outsourcing the skills required in the digital age to management consulting firms that are subject matter experts (Consultancy, 2021).

2.2 Research knowledge gap analysis

2.2.1 Context in Africa

In terms of digital transformation in the banking sector in the African continent, Ndung'u and Signé (2020) in their study emphasised that 4IR and the growth in the adoption of emerging technologies bring about uncertain socio-economic consequences for Africa. The authors suggested that continent has previously lagged in the past industrial revolutions as seen in several indicators which are critical for a successful digital revolution as indicated in Table 2-1. The authors explored World Bank estimations and projections on the transformative potential of 4IR in Africa by 2030.

Table 2-1: The four waves of industrial revolution

Period	I. 1760-1900	II. 1900-1960	III. 1960-2000	IV. 2000- ...
Transition period	1860-1900	1940-1960	1980-2000	2000-2010
Energy resource	Coal	Oil, Electricity	Nuclear Energy, Natural Gas	Green Energies
Main technical achievement	Steam engine	Internal combustion engine	Computers, Robots	Internet, 3D Printer, Genetic Engineering
Main developed industries	Textile, Steel	Metallurgy, Auto, Machine Building	Auto, Chemistry	High Tech Industries
Transport means	Train	Train, Car	Car, Plane	Electric Car, Ultra-Fast Train

Source: Created by author based on specific literature, (Prisecaru 2016)

Ndung'u and Signé (2020) highlighted the transformative potential of 4IR and digitisation in Africa being substantial in increasing financial services and investment through financial inclusion. This transformative potential enabled the unbanked to gain access to formal financial services through technological platforms. The authors further emphasised that digitisation enabled innovative business models transforming product designs across market segments seeing entrants of non-traditional financial institutions in the banking sector offering banking products i.e., fintech. The authors Osmundsen et al. (2018) in their study on the drivers, success factors and implication of digital transformation postulated that digitisation is about leveraging digital technology to alter socio-technical structures which are made up of both the social (human interactions, relationships, norms, etc.) and technical (technology, tasks, routines, etc.) aspects of the structure.

The authors based their study on systematic literature review of digitisation, starting by a keyword search to identify relevant publications on the topic. Their screening process resulted in 69 papers, 26 from journals and 43 from conferences. The main keywords that were used in the search criteria are digitalisation, digital transformation, digital innovation, digital strategy, etc. Singh and Hess (2017) in their study conducted at least

one semi-structured interview with open-ended questions at each of the six companies they explored. The interviews were audio taped and subsequently transcribed. Similarly, Haffke et al. (2017) used a field study approach on companies with similar organisational characteristics across industries and conducted telephonic and in person interviews with 19 CIOs.

The authors Ndung'u and Signé (2020) further highlighted opportunities to leverage core enabling technologies such as AI, big data analytics, blockchain, cloud computing, cybersecurity, energy storage, IoT, 3D printing, biotechnology, robotics, among others to drive large-scale transformation and competitiveness on Africa's digital economy, forecasting that by 2030, AI with the potential to add $15.7 trillion to the global GDP (Gross Domestic Product), with $6.6 trillion projected to be from increased productivity and $9.1 trillion from consumption effects.

2.2.2 Context in South Africa

Having looked at the African continent context, in terms of the digital transformation in the banking sector in the SA, Ajibade and Mutula (2020) conducted a study on big data, 4IR and electronic banking systems applications in SA and Nigeria (Banks and banking systems) suggested that SA being the third largest economies in Africa by GDP - with Nigeria and Egypt being first and second respectively - should have robust financial architecture and infrastructure that is aligned or integrated however there appears to be limited literature to support executable strategies aimed at harmonising business and IT banking services to stimulate regional economic integration in SA (Ajibade & Mutula, 2020). There seems to be a significant gap in the literature, especially in terms of the relationship between 4IR and banking services in Africa.

Barthel and Hess (2019) conducted their study on how digital transformation disrupts companies across all industries, forcing them to rethink and adjust their products, services, processes, and business models used a qualitative empirical case study approach which allowed then to capture knowledge from practice using a selection of multiple-case design to achieve cross-case comparison focussed on digital innovation. Liu, Chen, and Chou (2011) in their study, applied the qualitative method of case study. In addition to fostering a culture of innovation in organisational management research, applying methods of rigour can enhance creativity, even though this method is less

appreciated (Donaldson, Qiu & Luo, 2013). The authors Donaldson et al. (2013) highlighted that rigour is in theory the pursuit of thoroughness of the concepts and the logical connections between these concepts that constitute a theory.

The authors Osmundsen et al. (2018) sourced their data from journals (Academic Journal Quality Guide, 2015) with a rating of 3 or 4, and in four reputable conference proceedings. Several authors, for example Barthel and Hess (2019), Singh and Hess (2017) and Haffke et al. (2017) in their study sourced their data using semi-structured interviews and e-mails, and used secondary data, then subsequently recorded, and transcribed all interviews. Haffke et al. (2017) in addition also used follow-up questionnaires to gather complementary quantitative data from the targeted respondents in the IT divisions. Liu et al. (2011) also collected data using a combination of 17 in-depth interviews and secondary data sources. The authors Osmundsen et al. (2018) conducted an analysis of the contributions based on research questions, that could be categorised into three valuable insights namely, drivers, which are attributes that trigger digital transformation; success factors, which are vital elements that are needed by the organisation to achieve digital transformation; and implications, which are the consequences experienced by the organisations because of digital transformation. Liu et al. (2011) found that the research previously conducted on e-banking was either biased towards the strategic fit perspective or resource-based theory, but not on both, and thus aimed to construct a resource fit framework which integrates both theories. De Camargo Fiorini, Seles, Jabbour, Mariano and de Sousa Jabbour (2018) in their study conducted on management theory and big data literature suggested that there are essentially three theoretical frames of reference which are critical in the topic of big data namely knowledge-based views of organizations, resource-based theory, and dynamic capabilities. These theories can enable the organisations in the financial services industry amongst other in framing bigdata processes, relationships, and resources.

Osmundsen et al. (2018) in their study observed that empirical evidence for the role of digital transformation is limited as backgrounds and consequences of digital transformation mostly appear in theoretical frameworks. The authors Osmundsen et al. (2018) found that their study contributes to practice that would benefit managers involved in project execution, due to the criticality of an agile and supportive

organisational culture, engaged managers and employees, well-managed activities, and leveraged external and internal knowledge. Haffke et al. (2017) highlighted that the concept of bimodal IT is a multistage process enabling the function of IT to transform digitally to ultimately support the business in embracing digital transformation. The authors Barthel and Hess (2019) concluded that the core activities of digital transformation projects are initiation, development, implementation, and (partly) exploitation of digital innovations. Further, the factor of know-how, influencing digital technology, is reliant on speed, which, in turn, is reliant on being sustainable and fast to market, to eventually influence digital technology's success. Transparency is a major component, both of chance and concern, in enabling successful intermediary roles in digital technology and innovation (Haffke et al., 2017).

2.3 Quantitative variables key to the research

This study aims to apply the quantitative variables of success factors based on (1) shifting customer behaviours towards digital technologies, (2) objectives of digital strategy, (3) utilisation of digital technologies, and (4) the barriers to embracing digital transformation, relating to sub-problem statement 1. Similarly, in their study relating to sub-problem statement 1, Osmundsen et al. (2018) classified the list of identified variables into four main categories namely, drivers, objectives, success factors, and implications or consequences. The variables of customer behaviour and expectations, digital shifts in the industry, changing competitive landscape, and regulatory changes were classified in the "drivers" category. The variables of digital readiness, digitally enhance products, embrace product innovation, develop new business models, improve digital channels, and increase customer satisfaction and dialogue were classified in the "objectives" category. The variables of supportive organisational culture, well-managed transformation activities, leverage external and internal knowledge, engage managers and employees, grow Information System (IS) capabilities, develop dynamic capabilities, develop a digital business strategy, and align business and IS were classified in the "success factors" category. The authors lastly classified the variables of reformed IS organisation, new business models, and effects on outcome and performance to the "implications" or "consequences" category.

This study further aims to apply the quantitative variables of (1) the role of CDO in digital transformation, and (2) the role of IT Projects in the implementation of digital

transformation relating to sub-problem statement 2. Haffke et al. (2017) in their study relating to sub-problem statement 2 applied the qualitative variables of waterfall driven (sequential), and agile (iterative) project management methodologies to the attributes of digital business model. Lastly the study explored the quantitative variables relating to (1) how the COVID-19 pandemic impacted the adoption of digital technologies, and (2) how the lockdown affected business operations.

2.4 Framework(s) for interpreting research findings

The interpretation of the quantitative data from the online questionnaires were analysed using the Statistical Package for Social Sciences (SPSS version 27.0 for Windows) and where applicable, an in-depth analysis was performed using Microsoft Excel for the graphs and explanation of feedback obtained from rating questions. This study further applied same theoretical framework as Osmundsen et al. (2018) in their study whereby limited empirical evidence for the role of digital transformation in theoretical frameworks, emphasising the broadness of the concept to be examined within the confinements of a single theory or framework.

2.5 Summary and conclusion

2.5.1 Summary of literature reviewed

Kelly (2014) highlighted that is important for the leadership of traditional banks to consider the risks associated with the journey of embracing digital transformation. Cuesta et al. (2015) in their study agreed that leadership needs to keep up with the shifts in consumer's needs demands for new innovative ways of banking and the entrants of non-traditional banking competitors such as FinTech companies which are forcing the banks to prioritize digitalisation or face the risk of being left behind. Haffke et al. (2017) argued that the bimodal IT multistage approach of transforming the IT function alongside the entire organisation effectively supports the business undergoing digital transformation.

Osmundsen et al. (2018) highlighted the need for future research on digital transformation to include comparative case studies from a larger spectrum of organisations and industries. These contributes to help practice and managers better understand the drivers, success factors and implications of digital transformation.

Haffke et al. (2017) agreed that future research will assist in contributing to developing a framework for the effective implementation of a digital IT Function.

2.5.2 Proposed research strategy, design, procedure, and methods arising from the literature reviewed

Based on the literature reviewed, the suitable research design and tools that was used for this study is the quantitative method. This research design was used to establish the factors relating to digital transformation and the role of IT project execution in banking. The data and information for the study was collected using the primary method of online surveys research tools which targeted banking professionals. Sukamolson (2007) suggested the survey as a type of quantitative research method that is effective for measuring characteristics of the population with statistical precision through scientific sampling and questionnaire design to enable management to make comparisons between select sample groups.

For this study, questionnaires were used as the data collection instrument. The use of questionnaires allowed the participants to remain anonymous. Making use of a questionnaire also ensured that a larger sample could be reached quicker whilst ensuring reliability of the data. Some of the benefits associated with questionnaires is that it is inexpensive to administer and can be standardised. "Thus, formative evaluation is a judgment of the strengths and weaknesses of instruction in its developing stages, for the purposes of revising the instruction to improve its effectiveness and appeal" (Tessmer, 1997, p. 11).

3 RESEARCH STRATEGY, DESIGN, PROCEDURE AND METHODS

The three questions that this research report intends to answer were posed in Section 1.2.3, which are, (i) What is the impact of digital transformation on traditional banking institutions? (ii) How can traditional banks embrace digital transformation? and (iii) What is the role of IT project execution in digital transformation in banking in the digital age? The objectives of this chapter are to identify and describe the research strategy in Section 3.1, the research design in Section 3.2, and the procedure and methods in Section 3.3. Section 3.4. describe the reliability and validity measures that were applied to make the research credible, while Section 3.5 highlights the administrative and technical limitations. This chapter also explains the Statistical Package for the Social Sciences (SPSS) version 27.0 for Windows and methods that were used to analyse the data.

3.1 Research strategy

There are three types of research strategies, namely qualitative, quantitative, and mixed. Benbasat, Goldstein and Mead (1987) commented that for research purposes, there is no specific strategy that is more appropriate than all others and from a case study perspective as a form of qualitative technique, it is used to examine the phenomenon in question i.e., digital transformation for the purposes of this study, in its natural setting, and using data collection methods to gather information from various sources. The authors believe that the case research strategy is one that is well-suited for developing theories captured from the knowledge of practitioners. Liu et al. (2011) agreed that the case-study research is an empirical enquiry that is used to investigate a contemporary phenomenon within its real-life context.

The authors, Liu et al. (2011), further focused on exploring the development processes of digital transformation using a resource fit concept on an electronic banking project which emphasised the value of digital transformation for traditional organisations for them to thrive and survive in the digital age. Chitamba (2018) emphasised the mixed methods research design as a combination or compilation of both quantitative and qualitative research data whereby data is collected simultaneously combining the

stages in the research process for the benefit of ensuring that the inherent bias of one measure is countable by the strength of the other method.

Ajibade and Mutula (2020) in his study on big data, 4IR and electronic banking system applications in SA and Nigeria used a bibliometric analysis as an appropriate quantitative tool for mapping the trend of knowledge production based on the data extracted from multiple sources namely Google Scholar (GS) (n = 662), Web of Science (WoS) (n = 58), and Scopus databases. The research strategy of quantitative research appears to be the most appropriate for this study based on the literature reviewed in section 2.1, 2.2 and especially 2.3 above. This research strategy will enable me to establish the factors relating to digital transformation and the role of IT project execution in banking. In this study a survey research strategy was adopted, which is aligned to quantitative research. Some of the benefits of survey questionnaires are that they can be administered to a significant number of respondents in a short period of time. It can be completed anonymously, and substantial information can be collected and analysed, hence the chosen strategy of the quantitative approach in this study (Chitamba, 2018).

3.2 Research design

As mentioned, (Section 3.1) above a researcher may choose to use a suitable research design most suitable for their respective study namely, namely, qualitative research design, quantitative research design and alternatively a mixed method research design. The researcher, for the purpose of this study, selected the quantitative research design as most suitable, a method described by Teddlie and Tashakkori (2009) as one that require numerically outlined techniques that permit the researcher to approximate the attributes of the total population on a small scale. Creswell (2009) concurred that when using the quantitative research design, the researcher should focus on the quantitative details or data associated with the research objectives and construct statistical expressions that explain the objectives, constraints and hypotheses formulated. Babin and Harris (2013) postulate that quantitative research addresses questions regarding phenomena, using numerical measurement and analysis tools. The measurement instrument (online questionnaire, Annexure B) used to gather data for this research was structured and had a quantitative scale made up of certain pre-coded quantitative anchors in the form of a Likert scale for instance, 1 = Strongly disagree, 2 = Disagree, 3

= Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, and 7 = Strongly agree (Chitamba, 2018). Benbasat et al. (1987) contracted the appropriateness of single-case vs. multiple-case designs in informing the decision to include one or several cases in the study suggesting that single-case studies are most appropriate in instances where the case is unique however it is possible to follow a single case that used for exploration, by multiple-case study. Bryman (2012) mentioned the five generic research designs as cross-sectional, longitudinal, case study, comparative, and experimental. Fundamental is that a research design is a way that a researcher collects data.

The research design of quantitative appears to be the most appropriate for this study based on the literature reviewed in 2.1, 2.2 and especially 2.3 above.

3.3 Research procedure and methods

This section documents the actual procedure and the methods employed in this research to collect, collate, process, and analyse empirical evidence. Broadly, we detail the data and information collection instruments in Section 3.3.1, the target population and sampling of respondents in Section 3.3.2, the ethical considerations during the research process in Section 3.3.3, data and information collection process and storage in Section 3.3.4, data and information processing and analysis in Section 3.3.5 as well as the background description of the respondents who provided empirical evidence for this research study in Section 3.3.6.

3.3.1 Data and information collection instrument(s) of the research study

Wilkinson and Birmingham (2003) described research data collection instruments as devices that are used for finding and sourcing information that is relevant to a research project. The authors further highlight that there are many alternatives to choose from and there is no single research instrument that is superior to others as the nature of research is not a ‘one-size-fits-all’. Wilkinson and Birmingham (2003) asserted that there are two types of research data collection instruments namely observation schedule and interview schedule that can be used conduct data collection. The research data collection instruments that appear to be the most appropriate for this

study based on the literature reviewed in Section 2.1, 2.2 and especially 2.3 above is primarily a close-ended questionnaire (Appendix 1.1) which was conducted online.

Other researchers Wilkinson and Birmingham (2003) and Singh and Hess (2017) in some of the literature reviewed used different research data collection instrument structure for interviews namely the unstructured interview, the semi-structured interview, and the structured interview which are used to inform the type, format and number of questions, however argued that that even though the semi-structured interview has less flexibility, it gives the interviewer the opportunity to direct the interview more closely as more of the questions are predetermined in comparison to the unstructured interview and allows the interviewee to shape and direct the flow of information. Singh and Hess (2017) in their study on the role of the Chief Digital Officer in embracing digital transformation in their organisations investigated six companies and conducted at least one semi-structured interview made up of open-ended questions relating to the role of a Chief Digital Officer in digital transformation in each organisation.

Lastly, the data that was included in the research instruments was conducted using primary method through online surveys; and through anonymised secondary data sources to determine the strengths and weaknesses of the study. Chitamba (2018) in his study pointed out secondary data as data collected from sources that already exist including journals, research articles and textbooks, and is compiled by other scholars and researchers.

3.3.2 Target population and selection of respondents

3.3.2.1 Research target population

A target population refers to the total group of individuals where a sample can be drawn as Draugalis and Plaza (2009) suggested that a census can be used involving the collection of desired information for the study from every member of a population, it is however difficult. The target population of the study is on IT professional that are involved in any aspects of the formulation or implementation of digital transformation and related digital technologies in financial services - banking in SA. Liu et al. (2011) in their study targeted eight banks which participated in the e-Cash Project and a PC manufacturer whereas Chitamba (2018) used the target population mainly comprised of

walk-in customers specifically from Absa Bank, Durban Central branch for the purposes of his study. The benefit derived from these targeted group is that it set a clear direction on the scope of the research and data type and ring-fenced the topic.

3.3.2.2 Sampling or selecting respondents from the target population

Sampling or selecting respondents from the target population can be defined as the process of selecting from an individual or a group of people for research purpose as Draugalis and Plaza (2009) emphasised that the method of obtaining the sample is critical for research. In academic studies there are usually three types of sampling methods which are used in qualitative research. These sampling methods are the purposive sampling, quota sampling, and snowball sampling, whereas for quantitative studies, Delice (2010) recommended a step-by step approach to be followed for a good sampling namely, describing the study population, listing the members of the population, identifying the sampling type, determining the sample size, selecting the sample, and lastly testing the representation power of the sample. The author Delice (2010) further highlighted population size as an important factor in sample size that is often neglected in “Population and Sampling” sections of some of the studies previously conducted.

Convenience sampling being a method whereby the researcher targets participants who are easily accessible to voluntarily participate in the study appear to be the most appropriate for this study based on the literature reviewed in 2.1, 2.2 and especially 2.3. Chitamba (2018) agreed that convenience sampling is a non-probability sampling technique that is most common sampling technique when collecting data from a large sample. The benefit derived from this type of sampling strategy to the research is that is generally much quicker and easier to carry out. For the purposes of this study 300 participants were selected across multiple industries for completion, however only 276 surveys were returned of which 76 was subsequently deleted as incomplete and deleted. As a result, only 200 surveys were used in the analysis.

3.3.3 Ethical considerations when collecting research data

The purpose of research ethics is to govern the standards of conducting scientific researchers with the aim of protecting the dignity, rights and welfare of research

participants, namely informed consent, not harming, respect for anonymity and confidentiality, and respect for privacy.

As a part-time Master of Business Administration Student, my interest in this is study is strictly academic. I do not stand to gain any commercial benefit through the research. The following ethical considerations were adhered to:

Ethical issues: Deception

- The respondents were not deceived in any way regarding the intent of the research and the expectation from them. The purpose of the study was clearly explained to all respondents in a covering letter that formed part of the data collection process (Appendix 1.1) and email request (Appendix 1.2).
- This study accurately acknowledged all research information gathered from other sources and publications.

Ethical issues: Harm

- The intent of the research is not to cause any harm and to ensure this, the proposals and research instruments that were be used was reviewed by the Wits Business School Faculty Academic Ethics Committee to grant ethical clearance before the research can be conducted thereby ensuring that there was no harm to the participants in any way be it causing stress to the respondents (physically or developmentally) or drive them to a point of 'losing self-esteem'.

Ethical issues: Informed consent.

- An informed consent form detailing the details and purpose of the research and request of voluntary participation was sent to the respondents at the beginning of the survey.

Ethical issue: Invasion of privacy

- The data from the online questionnaires was stored and protected in a secure password protected cloud folder.
- The respondents were not required to reveal sensitive information i.e., identity number, demographics, personality characteristics, etc. The respondents are guaranteed anomality and confidentiality per the consent forms.

3.3.4 Collection of research data and information

Research data collection is described as the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables

one to answer stated research questions, test hypotheses, and evaluate outcome. There are the four mode of research data collection namely (participant observation or ethnography, interviews (face-to-face, telephone, or internet-based), focus group discussion, documents).

The research mode that appears to be the most appropriate for this study based on the literature reviewed in 2.1, 2.2 and especially 2.3 above is a that of online questionnaire. There were no face-to-face interviews conducted due to the current Covid-19 pandemic. The raw data from the online questionnaires was be stored and protected in a secure password protected cloud folder for security and ethical reasons.

3.3.5 Processing and analysis of research data and information

3.3.5.1 Research data and information processing

Research data processing refers to the series of steps that are performed on the collected raw data to verify, organise, transform, integrate, and extract data in an appropriate output form for subsequent use. This processing involved actions and methods performed on data that describe facts, detect patterns, develop explanations, and test hypotheses. The research data that was collected using online questionnaires using the Qualtrics survey platform were counted to ensure that all respondents had completed the questionnaire in full.

(i) Data coding:

Data coding refers to the process of defining the raw data.

(ii) Data entry onto computer:

This refers to the inputting of data into a computer using input devices, such as a keyboard, scanner, disk, and voice, etc.

(iii) Data cleaning:

Data cleaning entails a process of detecting and correcting errors and inconsistencies in a raw data.

3.3.5.2 Research data and information analysis

Research data analysis is used to summarise collected data through interpreting the data collected using analytical and logical reasoning to determine patterns, relationships or trends is. There exist several research data analysis methods for instance regressions analysis, cluster analysis, content analysis, etc. that can be used analyse the data. (Remember for quantitative research strategy it is impossible to mention all of them because they are several). Kaushika and Mathur (2014) emphasised two subdivisions of the statistical method as the descriptive statistics, which analysis and presents numerical data in multiple forms i.e., graphs or tables; and the other being inferential statistics which entails methods for making inferences about the entire population based on observations obtained from samples.

Kaushika and Mathur (2014) noted that descriptive statistics is a summary of the sample and the related observations, appear to be the most appropriate for this study based on the literature reviewed in 2.1, 2.2 and especially 2.3 above. The authors further highlight some of the advantages of using descriptive statistics as (1) collecting and summarising the huge amounts of data and information in a manageable and organised manner, (2) the ability to seamlessly translate the data into results in a distribution of frequency, percentages, and overall averages, and (3) the capability to lay the groundwork for more complex statistical analysis, among others. The collected data sets were then processed using the Statistical Package for Social Sciences (SPSS version 27.0 for Windows) for analysis using descriptive statistics.

Chitamba (2018) in his study further mentioned inferential statistics being used for making generalisations about a population based on the responses of a sample and reaching conclusions. The inferential statistics that were used to interpret the data in this study are factor analysis, Chi-square test, correlation analysis and variance analysis (ANOVA).

3.3.6 Description of the research respondents

The characteristics of the research respondents that was used to authenticate them as the most appropriate providers of information are:

- Age: The respondents must be adults older than 18 years old.
- Role: Currently employed within the financial services banking in SA

- Number of individuals: 276 for questionnaire

3.4 Research strengthens - reliability and validity measures applied

Reliability in research refers to the consistency across time (test-retest reliability), across items (internal consistency), and across researchers (interrater reliability) whereas Validity in research refers to extent to which the scores represent the variable they are intended to. The reliability and validity of the results depends on creating a strong research design, choosing appropriate methods and samples, and conducting the research carefully and consistently. Ochieng (2009) stated that validity is more critical than attempts to define observations of the whole situation in comparison to the quantitative research paradigm which is empirical in nature.

In this study, Cronbach's alpha coefficient was used to assess the extent of the questionnaire's internal consistency with an acceptable reliability coefficient expected to be 0.70 or higher. Table 3-1 indicates the Cronbach's alpha scores of the items in the questionnaire.

Table 3-1: Cronbach's Alpha value

Item	*Cronbach's αlpha*	*n*
Organisation strategy on digital transformation	0.849	9
Utilisation of digital technologies	0.843	4

3.5 Research weaknesses - technical and administrative limitations

The following technical and administrative limitations were likely encountered in the proposed study:

Ochieng (2009) argued that qualitative analysis being a detailed description in nature is unlikely to assign the frequencies to the language features that are found in the raw data, and the ambiguities that are in human language can be recognised in the analysis. However, the disadvantage of qualitative research approach that their findings

cannot be extended to wider populations with the same degree of certainty in comparison to that of a quantitative research Ajubade (2020).

The limitations from an administrative perspective may be that of a lower response rate and/or incomplete surveys due to the online nature that the surveys were conducted in, and the restricted time frame the researcher must complete this study.

4 PRESENTATION OF RESEARCH RESULTS

Chapter three presented the research strategy, research design, the related research procedures and methods, the target population as well as the technique to determine the sample of the study. The primary objective this study is to determine how the digital transformation aspects of the effectiveness of technological advancements on project execution in the South African financial services sector. The research found that so far there is limited literature available. Therefore, this chapter begins with the biographical data of the respondents, focusing on those who are employed in the financial services - banking industry for the purposes of this study (Section 4.1). The chapter then proceed to present and discuss findings to the first research question (Section 4.2) - What is the impact of digital transformation on traditional banking institutions? This discussion is accompanied by its hypothesis; digital transformation impacting on traditional banking institutions in SA in the form of emerging technologies driven by shifting customer's needs. Section 4.3 sought to share and discuss findings to the second research question - how can traditional banks embrace digital transformation? This section further discusses the hypothesis that states that traditional banks can embrace digital transformation through the adoption of emerging technologies. Section 4.4 sought to share and discuss findings to the third research question - What is the role of IT project execution in digital transformation in banking in the digital age? This section further discusses the hypothesis that states that the role of IT project execution has evolved into more agile approaches to deliver speedy response to digital transformation in banking in the digital age. Section 4.5 sought to share and discuss findings in relation to the impact of Covid-19 on the acceleration of the adoption of digital transformation. Lastly Section 4.6 provides summary to the answers for all three research questions.

4.1 Biographical Data

This section illustrates the biographical characteristics of the respondents who participated in the study. The overall study comprised of data collected from the online survey sent to approximately 300 participants across multiple industries for completion, however only 276 surveys were returned of which 76 was subsequently deleted as incomplete and deleted. As a result, only 200 surveys were used in the analysis. The

biographical data used in this study are industry, age, gender, size of organisation, length of organisation in business, industry, and management level.

4.1 Industries Represented

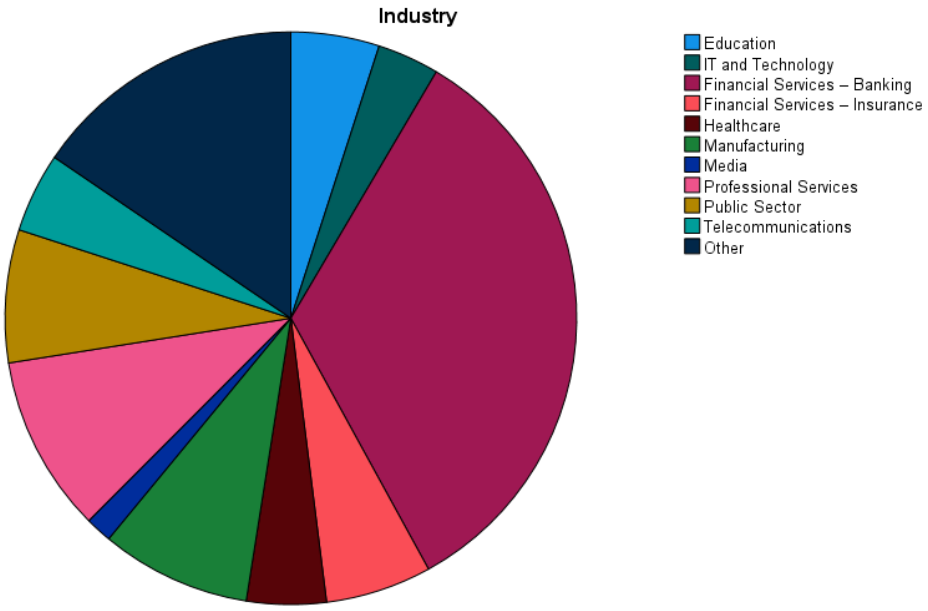


Figure 4-1: Overall industry breakdown

The analysis is based on the respondents that are employed in the financial services - banking sector in SA. Figure 4-1 indicate that most of the respondents, that is 33,5 per cent (67 participants) were employed in the financial services - banking sector. 15,5 per cent of the respondents work in other industries namely chemicals, construction, energy, logistics, management consulting, mining, petroleum, retail, among others. The other 15 per cent of the respondents are employed in professional services, while others are in the manufacturing, public sector, financial services – insurance, education, healthcare, IT and technology, and telecommunications sectors at 8.5 per cent, 7.5 per cent, 6.0 per cent, 5.0 per cent, 4.5 per cent, 4.5 per cent, and 3.5 per cent of the sample, respectively. The least industry represented is media with 1.5 per cent of the sample.

Table 4-1: Frequencies of overall industry, (N = 200)

Overall industry

Industry	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*
Education	10	5.0	5.0	5.0
IT and Technology	7	3.5	3.5	8.5
Financial Services – Banking	67	33.5	33.5	42.0
Financial Services – Insurance	12	6.0	6.0	48.0
Healthcare	9	4.5	4.5	52.5
Manufacturing	17	8.5	8.5	61.0
Media	3	1.5	1.5	62.5
Professional Services	20	10.0	10.0	72.5
Public Sector	15	7.5	7.5	80.0
Telecommunications	9	4.5	4.5	84.5
Other	31	15.5	15.5	100.0
Total	200	100.0	100.0	

4.2 Age of Respondents

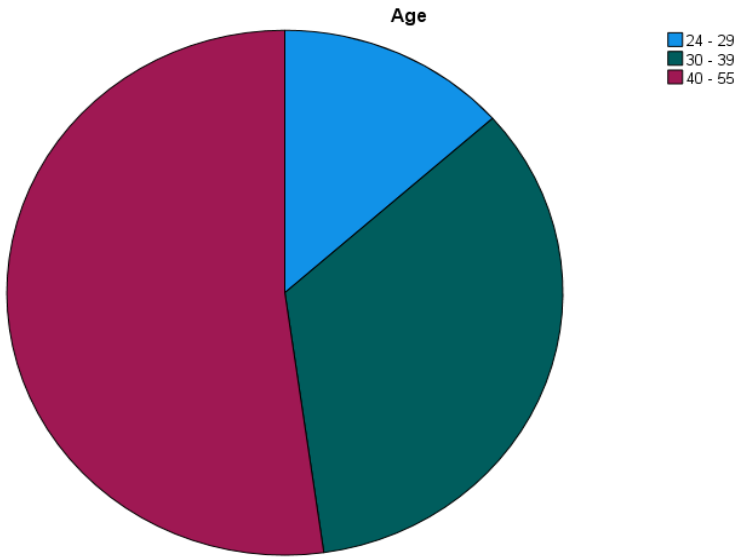


Figure 4-2: Age of respondents

Figure 4-2 indicates that the majority of the respondents, that is 52.2 per cent were between the ages of 40 - 55 years. A further 34.3 per cent of the respondents were

between the ages of 30 - 39 years old. The least age group of the sample were aged between 24 - 29 years old 13.4 per cent of the sample. The are no participants in the age groups between 18 - 23 as well in the age group of 56 years and older working in the fiancial services - banking sector.

Table 4-2: Frequencies of Age distribution, (N = 67)

Distribution of age

	N	*per cent*	*Valid per cent*	*Cumulative per cent*
24 - 29	9	13.4	13.4	13.4
30 - 39	23	34.3	34.3	47.8
40 - 55	35	52.2	52.2	100.0
Total	67	100.0	100.0	

4.3 Gender of respondents

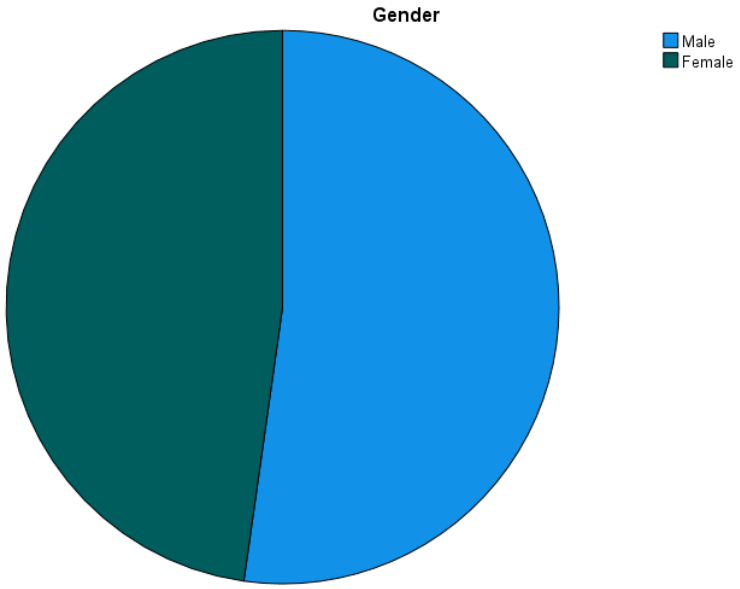


Figure 4-3: Gender of respondents

There were more males 52.2 per cent respondents formed part of the sample compared to 47.8 per cent of females. The Table 4-3 below describes the gender distribution by age.

Table 4-3: Frequencies of Gender, (N = 67)

Gender

	N	*per cent*	*Valid per cent*	*Cumulative per cent*
Male	35	52.2	52.2	52.2
Female	32	47.8	47.8	100.0
Total	67	100.0	100.0	

Overall gender distribution by age:

Table 4-4: Frequencies of Gender, (N = 67)

Age

Gender	Age group	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*	Sum
Male	24 - 29	4	11.4	11.4	11.4	6.0
	30 - 39	12	34.3	34.3	45.7	17.9
	40 - 55	19	54.3	54.3	100.0	28.4
	Total	35	100.0	100.0		52.2
Female	24 - 29	5	15.6	15.6	15.6	7.5
	30 - 39	11	34.4	34.4	50.0	16.4
	40 - 55	16	50.0	50.0	100.0	23.9
	Total	32	100.0	100.0		47.8

The Table 4-4 above describes the overall gender distribution by age with a 1:1 (52:48 per cent) ratio of male and female respondents. The largest category was made of the respondents between 40 - 55 years old at 52.2 per cent of the sample size, with the males at 28.4 per cent and the females 23.9 per cent of the sample within this group. Following this category are the 30 – 39-year-old category with 34.4 per cent of the sample size which where the males and females constituted 28.4 per cent and 16.4 per cent, respectively. The minority category was made of the respondents within the ages of 24-29 at 13.4 per cent of the sample size constituting of males at 6 per cent and the females 7.5 per cent.

4.1.1 Size of organisation

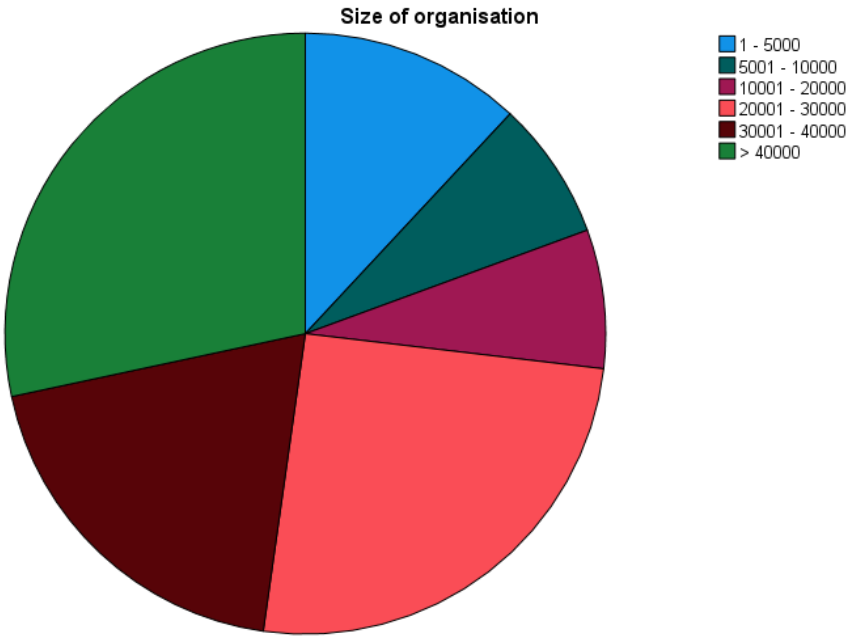


Figure 4-4: Size of respondents' organisation

Figure 4-4 indicate that the majority of the respondents, that is 28.4 per cent are employed in significantly large banks, which comprise above 40 000 employees. Further 25.4 per cent of the respondents work in banks that employ between 20 001 – 30 000 employees. Less than 12 per cent of the respondents work in banks that employ less than 5 000 employees.

Table 4-5: Frequencies of Organisation size, (N = 67)

Size of organisation

Organisation Size	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*
1 - 5000	8	11.9	11.9	11.9
5001 - 10000	5	7.5	7.5	19.4
10001 - 20000	5	7.5	7.5	26.9
20001 - 30000	17	25.4	25.4	52.2
30001 - 40000	13	19.4	19.4	71.6
> 40000	19	28.4	28.4	100.0
Total	67	100.0	100.0	

4.1.2 Length of organisation in business



Figure 4-5: Length respondents' organisation has been in business

More than 76 per cent of participants work in organisations that have been in business for more than 50 years, meaning that these banks have been operating for a significant time and may be regarded as the traditional banks. Less than 10 per cent of the respondents are working on banks that have been in business for less than 10 years meaning that these could be new digital incumbents the financial services industry.

Table 4-6: Frequencies of Length of operating, (N = 67)

Length of organisation in business

Number of years	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*
< 1	1	1.5	1.5	1.5
1- 10	6	9.0	9.0	10.4
11 - 20	1	1.5	1.5	11.9
21 - 50	8	11.9	11.9	23.9
> 50	51	76.1	76.1	100.0
Total	67	100.0	100.0	

4.1.3 Function of respondents

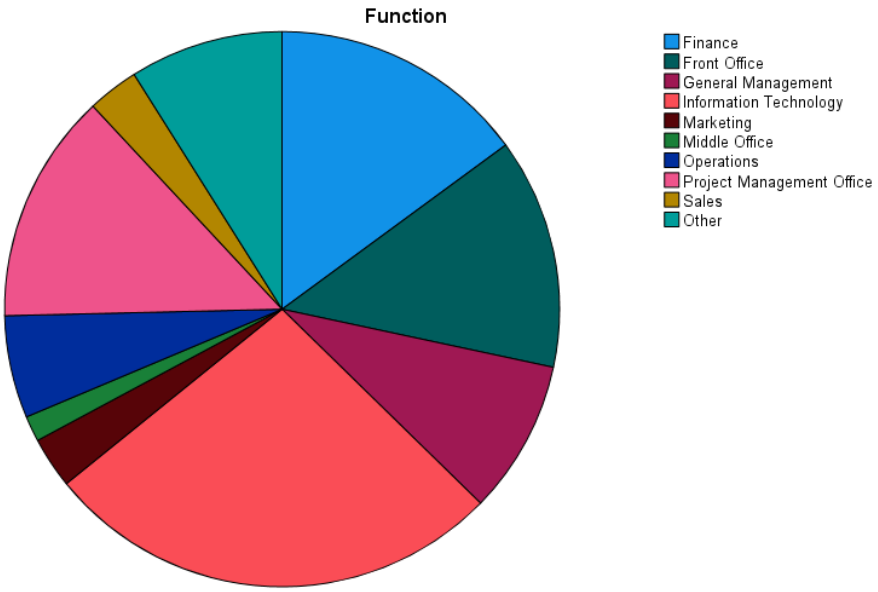


Figure 4-6: The job functions of respondents

Figure 4-6 indicate that the majority of the respondents, that is 26.9 per cent are operate in an IT functional area, with 14.9 per cent, 13.4 per cent in finance, project management office and front office respectively. Only 1.5 per cent of the respondednt operate in a middle office function. A further 9 per cent of the respondents were employed in other functional areas which included business and product development, as well as the risk management departments.

Table 4-7: Frequencies of Function, (N = 67)

Function

Function	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*
Finance	10	14.9	14.9	14.9
Front Office	9	13.4	13.4	28.4
General Management	6	9.0	9.0	37.3
Information Technology	18	26.9	26.9	64.2
Marketing	2	3.0	3.0	67.2
Middle Office	1	1.5	1.5	68.7
Operations	4	6.0	6.0	74.6
Project Management Office	9	13.4	13.4	88.1
Sales	2	3.0	3.0	91.0
Other	6	9.0	9.0	100.0
Total	67	100.0	100.0	

4.1.4 Management levels

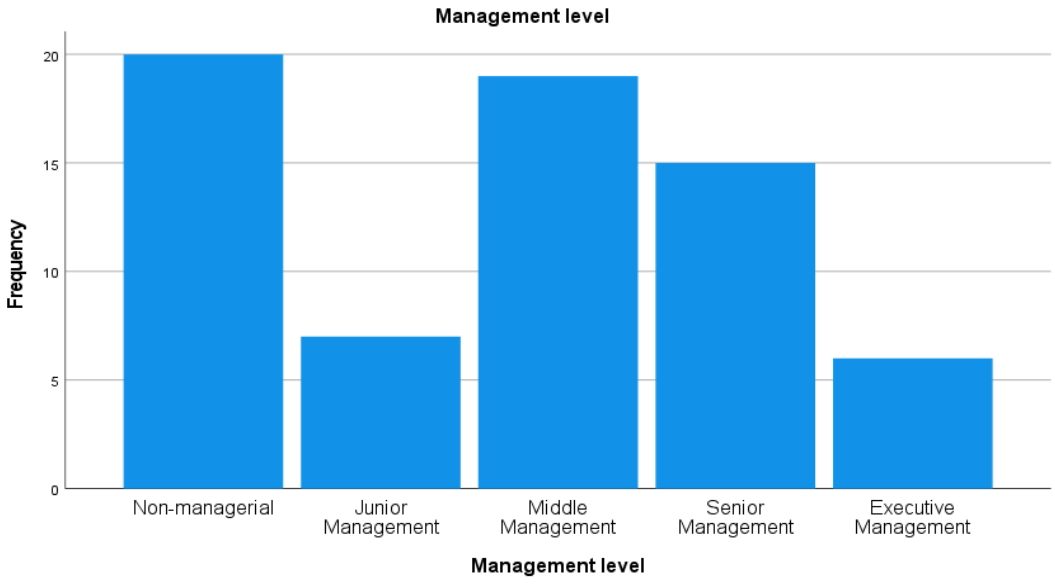


Figure 4-7: Management level of respondents

More than 29 per cent of respondents were non-management employees. They are employed in specialist type roles such as business analyst, credit specialist, SME

(subject matter expert) roles, software developer, technical testers, and traders. Another 28.4 per cent and 22.4 per cent of the participants fulfil middle and senior management roles, respectively. Less than 10 per cent of the respondents are in executive management roles, which relates to senior decision making and strategic roles within their organisations.

Table 4-8: Frequencies of Management level, (N = 67)

Management level

Management level	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*
Non-managerial	20	29.9	29.9	29.9
Junior Management	7	10.4	10.4	40.3
Middle Management	19	28.4	28.4	68.7
Senior Management	15	22.4	22.4	91.0
Executive Management	6	9.0	9.0	100.0
Total	67	100.0	100.0	

4.2 The impact of digital transformation on South African traditional banking institutions

This section presents the empirical results to determine the correlation between emerging technologies and shifting customer's needs, as well as the comparison of the statistical results to those of similar studies. Broadly, there is the presentation of descriptive statistics (Section 4.2.1) and the statistical hypothesis testing for this relationship (Section 4.2.2).

The section explores the attributes that trigger and influence digital transformation as identified in the surveys. These triggers comprise of both internal and/or external drivers pushing organisations to embark on a digital transformation journey thus staying abreast of digital shifts occurring in the industry in which they operate (Osmundsen et al., 2018). Everyone is affected by “digital”, though not everyone needs to act. (Digital) Innovation is double-edged: Even though most processes need to be digitalised, a platform conversion of businesses and clients does not always provide a viable option and does not make economic sense for all applicable cases (Berghaus and Back, 2017).

4.2.1 Descriptive statistics

Shifting customer behaviours and expectations:
Digital transformation is found to often be triggered by changing customer behaviours and expectations (Haffke et al. 2017; Schmidt, Drews, and Schirmer, 2017), digital shifts in the organisation's industry, and changes in the competitive landscape (Berghaus and Back, 2017). These shifts are causing the senior management of the organisation to revisit their strategy and adopt a digital strategy.

The survey indicated that most of the respondents view the objectives of their organisation's digital strategy as to:

- Improve customer experience and engagement
- Improve innovation
- Improve business decision making
- Increase efficiency (e.g., automation, timely access to expertise and communities).

Digital shifts in the industry and changing competitive landscape:

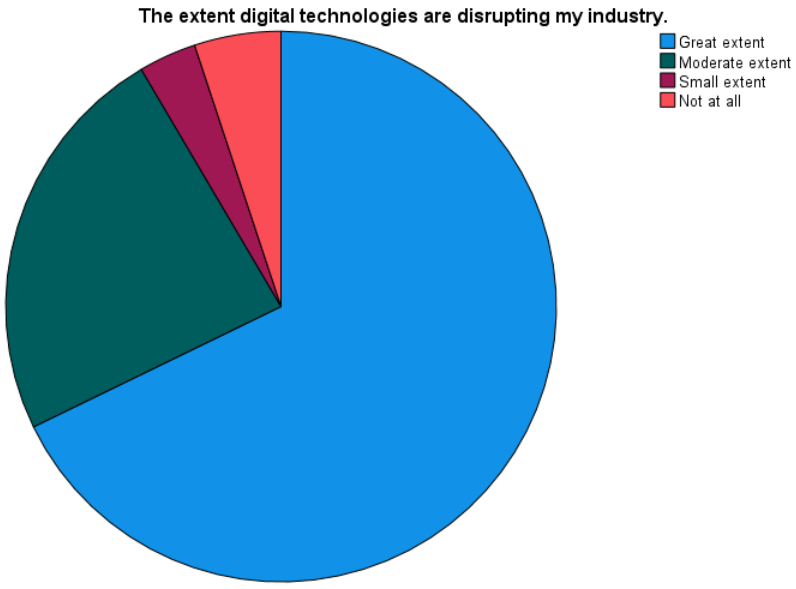


Figure 4-8: Extent of disruption

The survey indicated that 59.7 per cent majority of the respondents agree that digital technologies are disrupting the banking industry to a great extent, while 14 per cent of

the sample indicated to a moderate extent. The minority of the sample (4.5 per cent) indicated that digital technologies are not disrupting the banking industry at all.

4.2.2 Statistical hypothesis testing

This section presents the relationship found between the biographical data and the research statements pertaining to the impact of digital transformation on SA traditional banking institutions. The relationship between the variables is measured using the correlation coefficient which is a statistical measure of the strength of the relationship between the relative movements of two variables with values ranging between -1.0 and 1.0. The correlation coefficient of r>0.7 is considered a strong correlation; 0.5>r<0.7 is a moderate correlation, and r<0.4 is weak or no correlation. The correlation coefficient "**." is significant at the 0.05 level (2-tailed) whereas correlation coefficient "**." is significant at the 0.01 level (2-tailed).

Table 4-9: Correlation between Gender and the research statements

Variables	*r*	*p*	*n*
Improve customer experience and engagement	0.198	0.108	67
Improve innovation	0.014	0.914	67
Improve business decision making	0.141	0.254	67
Increase efficiency	-0.037	0.766	66
The extent digital technologies are disrupting my industry	-0.035	0.792	59

Table 4-9 indicated that the relationship between Gender and the research statements relating to the impact of digital transformation on SA traditional banking institutions are mostly positively correlated except for (1) "Increase efficiency" and (2) "The extent digital technologies are disrupting my industry" which are negatively correlated. The relationship between all the variables appears to be a weak correlation. However, the results of the Spearman correlation did not indicate any significant association between Gender and the research statements as the p-values were above the significance level of 0.01 and 0.05.

Table 4-10: Correlation between Age and the research statements

Variables	*r*	*p*	*n*
Improve customer experience and engagement	0.226	0.066	67
Improve innovation	0.259*	0.034	67
Improve business decision making	0.227	0.064	67
Increase efficiency	0.002	0.986	66
The extent digital technologies are disrupting my industry	0.015	0.911	59

Table 4-10 indicated that the relationship between the Age and the research statements relating to the impact of digital transformation on SA traditional banking institutions to be positively correlated. However, the results of the Spearman correlation further indicated that the only significant association was found between Age and 'Improve innovation', (r_s (67) = 0.259, $p < .005$). The relationship between all the variables appears to have a weakly correlation.

Table 4-11: Correlation between Size of the organisation and the research statements

Variables	*r*	*p*	*n*
Improve customer experience and engagement	0.389**	0.001	67
Improve innovation	0.21	0.088	67
Improve business decision making	0.053	0.669	67
Increase efficiency	0.029	0.815	66
The extent digital technologies are disrupting my industry	-0.142	0.285	59

Table 4-11 indicated that the relationship between the Size of the organisation and the research statements relating to the impact of digital transformation on SA traditional banking institutions to be positively correlated except for 'The extent digital technologies are disrupting my industry' which appeared to be negatively correlated. However, the results of the Spearman correlation further indicated that the only significant association was found between Size of the organisation and 'Improve

customer experience and engagement', (rs (67) = 0.389, p < .005). The relationship between all the variables appears to be weakly correlated.

Table 4-12: Correlation between Length of organisation in business and the research statements

Variables	*r*	*p*	*n*
Improve customer experience and engagement	0.018	0.885	67
Improve innovation	0.06	0.627	67
Improve business decision making	-0.039	0.755	67
Increase efficiency	-0.026	0.834	66
The extent digital technologies are disrupting my industry	0.041	0.758	59

Table 4-12 indicated that the relationship between the Length of organisation in business and the research statements relating to the impact of digital transformation on SA traditional banking institutions are mostly positively correlated except for (1) Improve business decision making, and (2) Increase efficiency' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Length of organisation in business and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated.

Table 4-13: Correlation between Function and the research statements

Variables	*r*	*p*	*n*
Improve customer experience and engagement	0.121	0.33	67
Improve innovation	0.046	0.713	67
Improve business decision making	-0.015	0.902	67
Increase efficiency	-0.034	0.786	66
The extent digital technologies are disrupting my industry	-0.289*	0.026	59

Table 4-13 indicated that the relationship between Function and the research statements relating to the impact of digital transformation on SA traditional banking institutions to be mostly negatively correlated except for (1) Improve customer experience and engagement, and (2) Improve innovation' which appeared to be positively correlated. However, the results of the Spearman correlation further indicated that the only significant association was found between Function and 'The extent digital technologies are disrupting my industry', (rs (59) = 0.280, p < .005). The relationship between all the variables appears to be weakly correlated.

Table 4-14: Correlation between Management Level and the research statements

Variables	*r*	*p*	*n*
Improve customer experience and engagement	0.357**	0.003	67
Improve innovation	0.343**	0.005	67
Improve business decision making	0.156	0.208	67
Increase efficiency	0.153	0.221	66
The extent digital technologies are disrupting my industry	-0.137	0.299	59

Table 4-14 indicated that the relationship between Management Level and the research statements relating to the impact of digital transformation on SA traditional banking institutions to be mostly positively correlated except for the extent digital technologies are disrupting my industry which appeared to be negatively correlated. However, the results of the Spearman correlation further indicated a significant association was found between Management Level and (1) 'Improve customer experience and engagement', (rs (67) = 0.357, p < .005), and (2) 'Improve innovation', (rs (67) = 0.343, p < .005). The relationship between all the variables appears to be weakly correlated.

Due to the weak correlation between the biographical data and the research statements pertaining to the research question, the study undertaken does not reject a null hypothesis which assumed that there is no impact of digital transformation on traditional banking institutions in SA as the correlation between the variables are weak and insignificant. The research hypothesis conducted suggested that digital transformation has a minimal impact on traditional banking institutions in SA, compared

the literature reviewed highlighted the impact of digital transformation in the financial services banking sector in the form of emerging technologies driven by shifting customer's needs. Therefore, shifting customer needs and preferences appeared to be factors driving emerging technologies in traditional banking institutions in SA.

4.3 Embracing digital transformation in South African traditional banks

This section presents the empirical results to determine the correlation between adoption of emerging technologies and digital leadership as well as learning agility, as well as the comparison of the statistical results to those of similar studies. The study undertaken presents the descriptive statistics (Section 4.3.1) and the statistical hypothesis testing for this relationship (Section 4.3.2). The section explores the attributes relating to the success factors which are essential organisational elements for accomplishing digital transformation.

A critical success factor for traditional banks is to consider outsourcing digital transformation projects to gain more enhanced digitally driven user experiences thus minimising the barriers of implementing digital transformation as the survey indicated. Kohli and Johnson (2011) agreed that the benefit of outsourcing can be realised by transforming in a cost saving, scalable, and time-efficient manner enabling the traditional organisation to share implementation risks and reduce overhead costs. The authors further highlight gaining access to access to first-rate specialists in various technologies; rare technological skills and expertise; and the potential to leverage from data science services as other benefits of outsourcing digital transformation projects.

4.3.1 Descriptive statistics

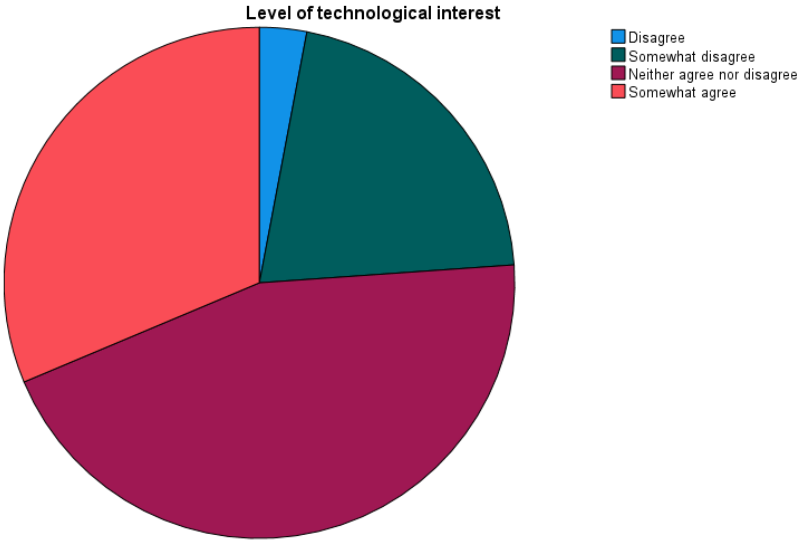


Figure 4-9: Level of technological interest

Question 13 of the survey asked the respondents to indicate their level of technological interest. Figure 4-9 indicated that most of the respondents (44.8 per cent) have a high level of technological interest where they enjoy learning about new technologies whilst 31.3 per cent indicated that they aware of emerging technologies and an early stage. The minority of the sample (3.0 per cent) indicated that they somewhat have a low level of technological interest where they only use the tools provided to them to perform their function and only adapt once they are familiar with the tools. None of the respondents indicated that they have a low level of technological interest where they only use the tools provided to them to perform their function.

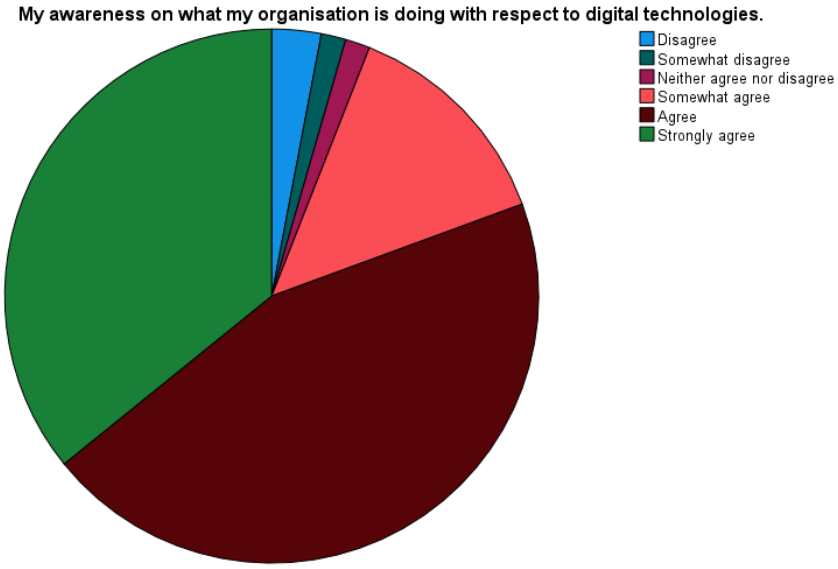


Figure 4-10: Awareness regarding digital technologies

The survey indicated that 94 per cent majority of the respondents agree (44.8 per cent, 35,8 per cent and 13.4 per cent) are aware of what their organisation is doing with respect to digital technologies. While only 6 per cent of the sample (3.0 per cent and 1.5 per cent) indicated that they were unaware of what their organisation is doing with respect to digital technologies.

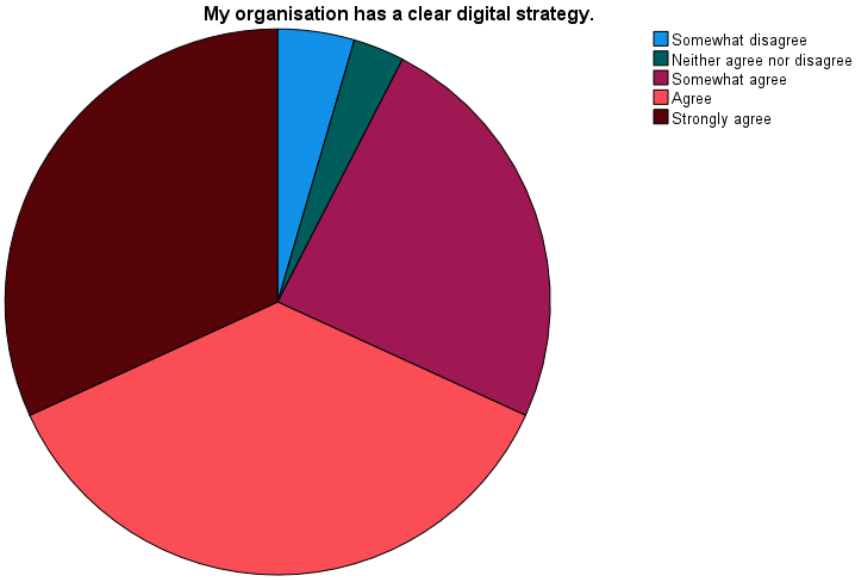


Figure 4-11: Clear digital strategy

The survey indicated that 91 per cent, which is most of the respondents (35.8 per cent, 31.3 per cent and 23.9 per cent) agreed that their organisation has a clear digital strategy, whilst 4.5 per cent of the sample indicated that their organisation does not have clear digital strategy.

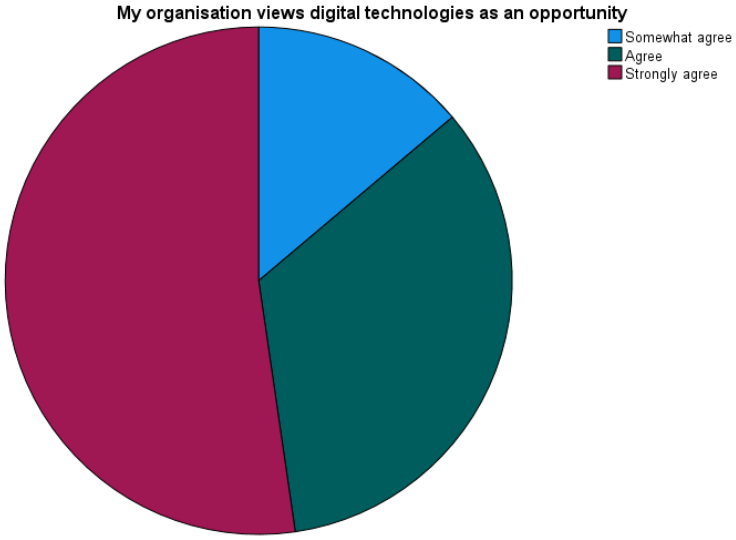


Figure 4-12: View of digital technologies as an opportunity

The survey results indicated that all the respondents (100 per cent) agreed that their organisation views digital technologies as an opportunity.

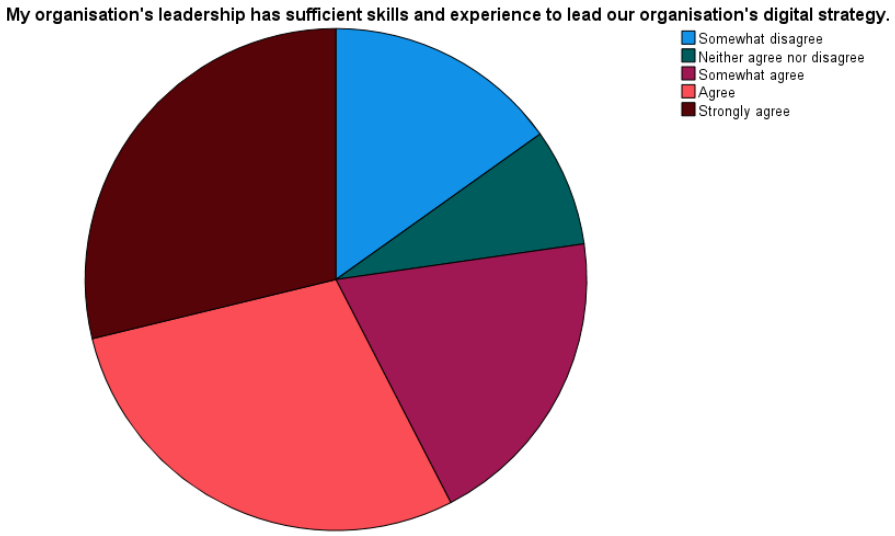


Figure 4-13: Leadership skillsets

The survey indicated that 76.4 per cent majority of the respondents (28.4 per cent, 28.4 per cent and 19.4 per cent) agreed that their organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy, while 14.9 per cent minority of the sample indicated that their organisation's leadership does not have sufficient skills and experience to lead their organisation's digital strategy. It is critical for the banks to prioritise investing in education programs and reskilling to ensure that technology supplements, instead of replacing low-skilled workers with higher-skilled workers (Ndung'u & Signé, 2020)

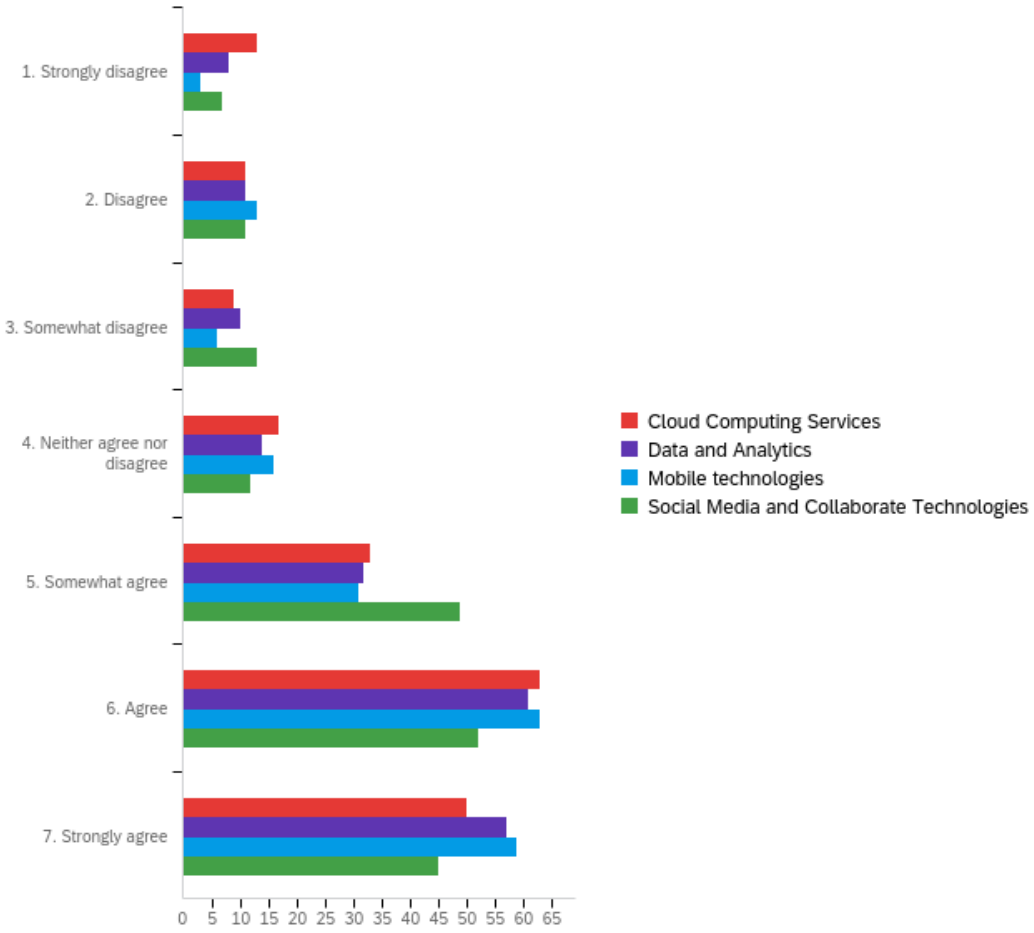


Figure 4-14: Utilisation of digital technologies

Cross-industries Figure 4-14 indicated that most of the respondents agree that their organisation is embracing these trending digital technologies. Cloud computing services provides the banks with the benefit of increased efficiency, improved new customer experiences, and developed rapidity to market through new secure deployment options (Asadi et al., 2017). Data and analytics provide the banks with the benefit of delivering better customer experiences and services with improved active and passive security systems (Srivastava and Gopalkrishnan, 2015). Mobile technologies as an example of IoT is beneficial enablers for banks in the implementation of its digital transformation (Khanboubi et al., 2019). Social media and collaborate technologies are beneficial for banks in the configuration of their integrated business environment with advances in the IT infrastructure thereby enabling faster adaptation and responses to an integrated and networked technology providing virtual banking services (Ajibade & Mutula, 2020).

The survey indicated that 87 per cent, most of the respondents view their organisation as getting close to an ideal digitally transformed organisation fully embracing digital

technologies and capabilities, with 13.4 per cent of this sample indicating their organisation being remarkably close. None of the respondents indicated that their organisation is not close at all. A further 88 per cent of the sample indicated that digital technologies and capabilities are important to their organisation.

Barriers to embracing digital transformation:

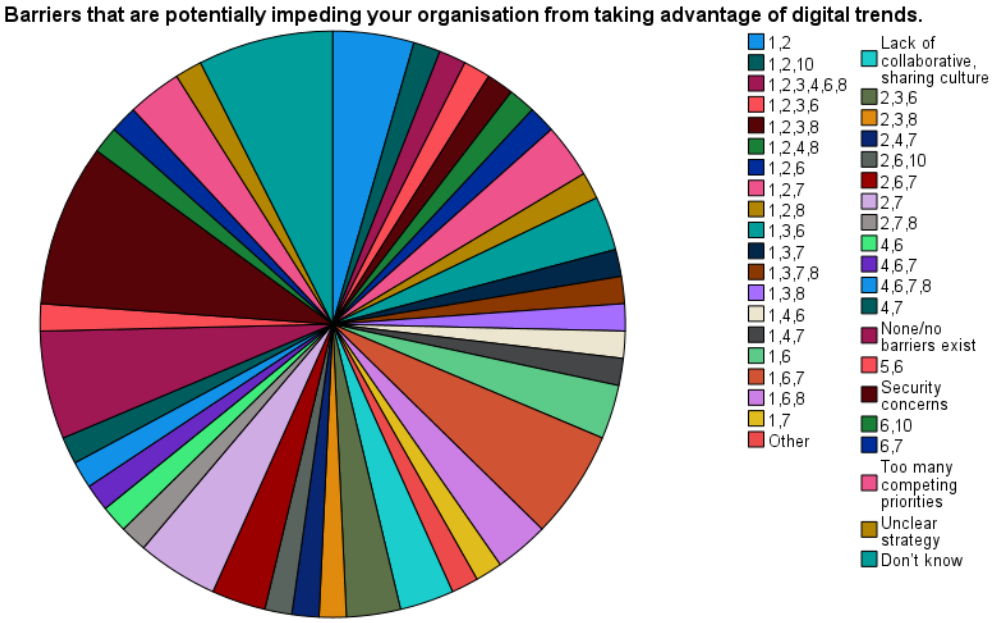


Figure 4-15: Barriers to embracing digital transformation

The survey indicated a combination of barriers to embracing digital transformation, with the top five listed as (first) Insufficient skills and capabilities, (second) Security concerns, (third) Lack of collaborative and sharing culture, and (fourth) Too many competing priorities, and (fifth) Unclear strategy.

Other comments from respondents on the barriers to embracing digital transformation:

- "Not competing priorities, just a lot of projects".
- "Time: The forecasted time to complete verses the time taken to date. Many items and descoped to deliver something, to reduce further cost and at the same time show some type of delivery. The digital beast is greater than what was imagined. It is like taming a dragon not a lion or tiger! If you get it right the results will be mind-blowing".

- "Lagging administrative, financial, and legal support processes to the drive to be more innovative. The technology and strategic thinking are far ahead to the administrative back-offices' capability and thinking".
- "The regulatory environment in the financial services sector make technological adoption challenging for companies' operation in this sector due to limited knowledge or lack thereof and understanding of these new advances in technology by the general consumer market".

Insufficient skills as barrier:

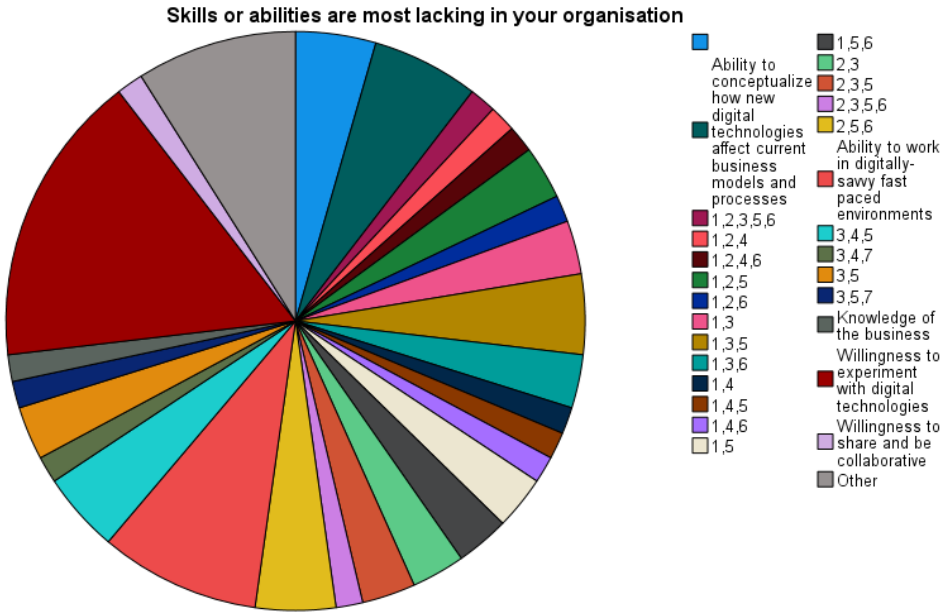


Figure 4-16: Skills or abilities most lacking

Most of the respondents indicated the top three skills or abilities as most lacking in their organisation as the ability to conceptualise how new digital technologies affect current business models and processes (20.9 per cent), the willingness to experiment with digital technologies (19.4 per cent), and lastly as the ability to work in digitally-savvy fast paced environments (17.9 per cent). While the ability to use digital technologies to execute one's job, the willingness to share and be collaborative, and the knowledge of the business being mentioned as well. Others indicated the willingness to adapt to new technologies for fear of breaking what already works, Organisation is driving a digital agenda, upskilling of all staff is taking time however there has been some progress made, and the outdated project time/cost/scope model is still being applied to the administrative running, whilst the mode of execution is "agile". These two parallel

approaches do create the need for more people to run the actual project, thus making implementation of new, digital solutions more inefficient than it could be, and digitalising the back-office as well.

4.3.2 Statistical hypothesis testing

This section presents the relationship found between the biographical data and the research statements pertaining to embracing digital transformation in SA traditional banking institutions. The relationship between the variables is measured using the correlation coefficient which is a statistical measure of the strength of the relationship between the relative movements of two variables with values ranging between -1.0 and 1.0. The correlation coefficient of r>0.7 is considered a strong correlation; 0.5>r<0.7 is a moderate correlation, and r<0.4 is considered a “weak” or no correlation. The correlation coefficient "**." is significant at the 0.05 level (2-tailed) whereas correlation coefficient "**." is significant at the 0.01 level (2-tailed).

Table 4-15: Correlation between Gender and the research statements

Variables	*r*	*p*	*n*
My level of technological interest	-0.091	0.465	67
My level of awareness of what the organisation is doing with respect to digital technologies	-0.026	0.832	67
My organisation has a clear digital strategy	0.022	0.86	66
My organisation views digital technologies as an opportunity	0.003	0.979	65
My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy	0.154	0.217	66
Utilisation of digital technologies - Cloud Computing Services	0.068	0.589	66
Utilisation of digital technologies - Data and Analytics	0.215	0.08	67
Utilisation of digital technologies - Mobile technologies	0.13	0.297	66
Utilisation of digital technologies - social media and Collaborate Technologies	0.146	0.245	65

Table 4-15 indicated that the relationship between Gender and the research statements relating to embracing digital transformation in SA traditional banking institutions, to be mostly positively correlated except for (1) 'My level of technological interest', and (2)

'My level of awareness of what the organisation is doing with respect to digital technologies' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Gender and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated.

Table 4-16: Correlation between Age and the research statements

Variables	*r*	*p*	*n*
My level of technological interest	-0.004	0.972	67
My level of awareness of what the organisation is doing with respect to digital technologies	0.218	0.076	67
My organisation has a clear digital strategy	0.248*	0.045	66
My organisation views digital technologies as an opportunity	0.328**	0.008	65
My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy	0.453**	0	66
Utilisation of digital technologies - Cloud Computing Services	0.275*	0.025	66
Utilisation of digital technologies - Data and Analytics	0.143	0.25	67
Utilisation of digital technologies - Mobile technologies	0.258*	0.036	66
Utilisation of digital technologies - social media and Collaborate Technologies	0.383**	0.002	65

Table 4-16 indicated the relationship between Age and the research statements relating to embracing digital transformation in SA traditional banking institutions, to be mostly positively correlated except for 'My level of technological interest' which appeared to be negatively correlated. However, the results of the Spearman correlation further indicated a significant association was found between Age and the following research statements:

- 'My organisation has a clear digital strategy', (r_s (66) = 0.248, $p < .005$).
- 'My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy', (r_s (66) = 0.453, $p < .005$).
- 'Utilisation of digital technologies - Social Media and Collaborate Technologies', and (r_s (65) = 0.383, $p < .005$).

The relationship between all the variables appears to be weakly correlated.

Table 4-17: Correlation between Size of the organisation and the research statements

Variables	*r*	*p*	*n*
My level of technological interest	-0.006	0.961	67
My level of awareness of what the organisation is doing with respect to digital technologies	0.139	0.262	67
My organisation has a clear digital strategy	0.267*	0.03	66
My organisation views digital technologies as an opportunity	0.359**	0.003	65
My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy	0.128	0.307	66
Utilisation of digital technologies - Cloud Computing Services	0.068	0.586	66
Utilisation of digital technologies - Data and Analytics	0.007	0.953	67
Utilisation of digital technologies - Mobile technologies	0.315**	0.01	66
Utilisation of digital technologies - social media and Collaborate Technologies	0.257*	0.039	65

Table 4-17 indicated the relationship between Size of the organisation and the research statements relating to embracing digital transformation in SA traditional banking institutions, to be mostly positively correlated except for 'My level of technological interest' which appeared to be negatively correlated. However, the results of the Spearman correlation further indicated a significant association was found between Size of the organisation and the following research statements:

- 'My organisation views digital technologies as an opportunity', (r_s (65) = 0.359, $p < .005$); and
- 'Utilisation of digital technologies - Mobile technologies', (r_s (66) = 0.315, $p < .005$).

The relationship between all the variables appears to be weakly correlated.

Table 4-18: Correlation between Length of organisation in business and the research statements

Variables	*r*	*p*	*n*
My level of technological interest	0.178	0.149	67
My level of awareness of what the organisation is doing with respect to digital technologies	0.142	0.252	67
My organisation has a clear digital strategy	-0.065	0.606	66
My organisation views digital technologies as an opportunity	-0.083	0.509	65

Variables	r	p	n
My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy	0.004	0.974	66
Utilisation of digital technologies - Cloud Computing Services	-0.061	0.627	66
Utilisation of digital technologies - Data and Analytics	-0.042	0.739	67
Utilisation of digital technologies - Mobile technologies	0.113	0.365	66
Utilisation of digital technologies - social media and Collaborate Technologies	-0.074	0.558	65

Table 4-18 indicated the relationship between Length of organisation in business and the research statements relating to embracing digital transformation in SA traditional banking institutions, to be mostly negatively correlated with the exception of (1) 'My level of technological interest', (2) 'My level of awareness of what the organisation is doing with respect to digital technologies', (3) 'My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy', and (4) 'Utilisation of digital technologies - Mobile technologies' which appeared to be positively correlated. However, the results of the Spearman correlation did not indicate any significant association between Length of organisation in business and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated.

Table 4-19: Correlation between Function and the research statements

Variables	r	p	n
My level of technological interest	0.178	0.149	67
My level of awareness of what the organisation is doing with respect to digital technologies	0.142	0.252	67
My organisation has a clear digital strategy	-0.065	0.606	66
My organisation views digital technologies as an opportunity	-0.083	0.509	65
My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy	0.004	0.974	66
Utilisation of digital technologies - Cloud Computing Services	-0.024	0.85	66
Utilisation of digital technologies - Data and Analytics	0.03	0.812	67
Utilisation of digital technologies - Mobile technologies	0.119	0.339	66
Utilisation of digital technologies - social media and Collaborate	0.124	0.325	65

Variables	r	p	n
Technologies			

Table 4-19 indicated the relationship between Function and the research statements relating to embracing digital transformation in SA traditional banking institutions, to be mostly positively correlated except for (1) 'My organisation has a clear digital strategy', (2) 'My organisation views digital technologies as an opportunity', and (3) 'Utilisation of digital technologies - Cloud Computing Services' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Function and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated.

Table 4-20: Correlation between Management Level and the research statements

Variables	r	p	n
My level of technological interest	0.082	0.508	67
My level of awareness of what the organisation is doing with respect to digital technologies	0.399**	0.001	67
My organisation has a clear digital strategy	0.245*	0.048	66
My organisation views digital technologies as an opportunity	0.367**	0.003	65
My organisation's leadership has sufficient skills and experience to lead their organisation's digital strategy	0.259*	0.035	66
Utilisation of digital technologies - Cloud Computing Services	0.2	0.108	66
Utilisation of digital technologies - Data and Analytics	0.028	0.825	67
Utilisation of digital technologies - Mobile technologies	0.164	0.188	66
Utilisation of digital technologies - social media and Collaborate Technologies	0.126	0.317	65

Table 4-20 Table 4-17 indicated the relationship between Management Level and the research statements relating to embracing digital transformation in SA traditional banking institutions, to be positively correlated. However, the results of the Spearman correlation further indicated a significant association was found between Management Level and the following research statements:

- 'My level of awareness of what the organisation is doing with respect to digital technologies', (rs (67) = 0.399, p < .005); and
- 'My organisation views digital technologies as an opportunity', (rs (65) = 0.367, p < .005).

The relationship between all the variables appears to be weakly correlated.

Due to the weak correlation between the biographical data and the research statements pertaining to the research question, the study undertaken does not reject a null hypothesis which assumed that there is no need for traditional banks to embrace digital transformation as the correlation between the variables is weak and insignificant. The research hypothesis conducted suggested that there is low need for traditional banks to embrace digital transformation. Even though the literature reviewed suggested that traditional banks can embrace digital transformation through the adoption of emerging technologies. Seemingly, the success factor of digital transformation is influenced by the flexibility of investing in digital leadership and learning agility.

4.4 The role of IT project execution in digital transformation on South African traditional banks in the digital age

This section presents the empirical results to determine the correlation between project methodology and speed of delivering digital transformation (emerging technologies), as well as the comparison of the statistical results to those of similar studies. Broadly, we present the descriptive statistics (Section 4.4.1) and the statistical hypothesis testing for this relationship (Section 4.4.2). The section explores the attributes relating to the implications refer to the effect's organisations experience because of digital transformation.

4.4.1 Descriptive statistics

The role of CDO in digital transformation:

Table 4-21: Frequencies of role managing digital strategy, (N = 67)

Role fully responsibility for overseeing organisation's digital strategy

		N	*per cent*	*Valid per cent*	*Cumulative per cent*
Valid	Yes	48	71.6	84.2	84.2
	No	9	13.4	15.8	100.0
	Total	57	85.1	100.0	
Missing	System	10	14.9		
Total		67	100.0		

Table 4-21 indicates that most of the respondents (71.6 per cent) agreed that there is a single person or group fully responsibility for overseeing/managing their organisation's digital strategy, while 13.4 per cent of the sample disagrees. The CDO role is critical in overseeing the establishment of digital capabilities in the organisation (Osmundsen et al., 2018).

The role of IT projects teams in digital transformation:
The survey indicated that the organisations of the sample implement digital initiatives in a variety of ways with most of the respondents (20.9 per cent) indicating Agile Scrum Methodology, followed by 13.4 per cent on Traditional SDLC methodologies and 11.9 per cent on Lean Software Development. Kanban and Feature Driven Development has also been indicated as an implementation method while others indicated DevOPS even though it is in its infancy and that the above methods are not purely applied, due to the banking sector has a very complex systems landscape. The minority of the sample indicated the hybrid approach (Agile/Waterfall) - driven by capability delivery, mixed methodology and SaFe as other methods of implementing digital initiatives in their organisation. Further to this, for senior management to treat the adoption of agile IT project methodologies and capabilities as a strategic priority that can fast-tract the implementation of digital transformation thus enabling the organisation to gain a sustainable competitive advantage by being first to market (Handscomb et al., 2018).

4.4.2 Statistical hypothesis testing

This section presents the relationship found between the biographical data and the research statements pertaining to the role of IT project execution in digital transformation on SA traditional banks in the digital age. The relationship between the

variables is measured using the correlation coefficient which is a statistical measure of the strength of the relationship between the relative movements of two variables with values ranging between -1.0 and 1.0. The correlation coefficient of r>0.7 is considered a strong correlation; 0.5>r<0.7 is a moderate correlation, and r<0.4 is considered a weak or no correlation. The correlation coefficient "**." is significant at the 0.05 level (2-tailed) whereas correlation coefficient "**." is significant at the 0.01 level (2-tailed).

Table 4-22: Correlation between Gender and the research statements

Variables	*r*	*p*	*n*
How close my organisation is to an ideal digitally transformed organisation fully embracing digital technologies and capabilities.	0.187	0.13	67
The extent of the importance of digital technologies and capabilities to my organisation	-0.038	0.768	64
Single person or group fully responsibility for overseeing/managing your organisation's digital strategy	0.086	0.523	57

Table 4-22 indicated the relationship between Gender and the research statements relating to the role of IT project execution in digital transformation on SA traditional banks in the digital age, to be mostly positively correlated except for 'The extent of the importance of digital technologies and capabilities to my organisation' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Gender and the research statements. The relationship between all the variables appears to be weakly correlated.

Table 4-23: Correlation between Age and the research statements

Variables	*r*	*p*	*n*
How close my organisation is to an ideal digitally transformed organisation fully embracing digital technologies and capabilities.	0.177	0.151	67
The extent of the importance of digital technologies and capabilities to my organisation	0.13	0.306	64
Single person or group fully responsibility for overseeing/managing your organisation's digital strategy	-0.134	0.322	57

Table 4-23 indicated the relationship between Age and the research statements relating to the role of IT project execution in digital transformation on SA traditional banks in the digital age, to be mostly positively correlated except for 'Single person or

group fully responsibility for overseeing/managing your organisation's digital strategy' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Age and the research statements. The relationship between all the variables appears to be weakly correlated.

Table 4-24: Correlation between Size of the organisation and the research statements

Variables	*r*	*p*	*n*
How close my organisation is to an ideal digitally transformed organisation fully embracing digital technologies and capabilities.	0.156	0.207	67
The extent of the importance of digital technologies and capabilities to my organisation	0.107	0.402	64
Single person or group fully responsibility for overseeing/managing your organisation's digital strategy	-0.13	0.334	57

Table 4-24 indicated the relationship between Size of the organisation and the research statements relating to the role of IT project execution in digital transformation on SA traditional banks in the digital age, to be mostly positively correlated except for 'Single person or group fully responsibility for overseeing/managing your organisation's digital strategy' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Size of the organisation and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated

Table 4-25: Correlation between Length of organisation in business and the research statements

Variables	*r*	*p*	*n*
How close my organisation is to an ideal digitally transformed organisation fully embracing digital technologies and capabilities.	0.041	0.74	67
The extent of the importance of digital technologies and capabilities to my organisation	0.149	0.241	64
Single person or group fully responsibility for overseeing/managing your organisation's digital strategy	-0.162	0.229	57

Table 4-25 indicated the relationship between Length of organisation in business and the research statements relating to the role of IT project execution in digital

transformation on SA traditional banks in the digital age, to be mostly positively correlated except for 'The extent of the importance of digital technologies and capabilities to my organisation' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Length of organisation in business and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated.

Table 4-26: Correlation between Function and the research statements

Variables	*r*	*p*	*n*
How close my organisation is to an ideal digitally transformed organisation fully embracing digital technologies and capabilities.	0.061	0.621	67
The extent of the importance of digital technologies and capabilities to my organisation	0.048	0.708	64
Single person or group fully responsibility for overseeing/managing your organisation's digital strategy	-0.023	0.863	57

Table 4-26 indicated the relationship between Function and the research statements relating to the role of IT project execution in digital transformation on SA traditional banks in the digital age, to be mostly positively correlated except for 'The extent of the importance of digital technologies and capabilities to my organisation' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Function and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated.

Table 4-27: Correlation between Management Level and the research statements

Variables	*r*	*p*	*n*
How close my organisation is to an ideal digitally transformed organisation fully embracing digital technologies and capabilities.	0.118	0.344	67
The extent of the importance of digital technologies and capabilities to my organisation	0.228	0.07	64
Single person or group fully responsibility for overseeing/managing your organisation's digital strategy	-0.163	0.224	57

Table 4-27 indicated the relationship between Management Level and the research statements relating to the role of IT project execution in digital transformation on SA traditional banks in the digital age, to be mostly positively correlated except for 'The extent of the importance of digital technologies and capabilities to my organisation' which appeared to be negatively correlated. However, the results of the Spearman correlation did not indicate any significant association between Management level and the research statements as the p-values are above the significance level of 0.01 and 0.05. The relationship between all the variables appears to be weakly correlated.

Based on the weak correlation between the biographical data and the research statements pertaining to the research question, we do not reject a null hypothesis which assumed that IT project execution plays no role in digital transformation in banking in the digital age as the correlation between the variables is weak and insignificant. The research hypothesis conducted suggested that there is low need for the role IT project execution plays in digital transformation in banking in the digital age. Even though the literature reviewed suggested that IT project execution plays a critical role in digital transformation in banking in the digital age and has evolved into more agile approaches to deliver speedy response to digital transformation in banking in the digital age. Seeming, if organisation had the flexibility of outsourcing skilled IT project execution, they would be more effective in responding to digital transformation in banking in the digital age.

4.5 Implications of Covid-19 pandemic

The banking sector like many others operating in SA and abroad have had to deal with the impact of the unforeseen wave of the Covid-19 global pandemic which may have impacted on the adoption of digital technologies (i.e., cloud computing, data and analytics, mobile technologies, social media and collaborate technologies, etc.). The Covid-19 impacted SA, an emerging economy both in health and financial crisis seeing a slowdown in investments and capital injection, especially foreign investors withdrawing capital to mitigate their own financial risks which resulted in liquidity challenges for the traditional banks.

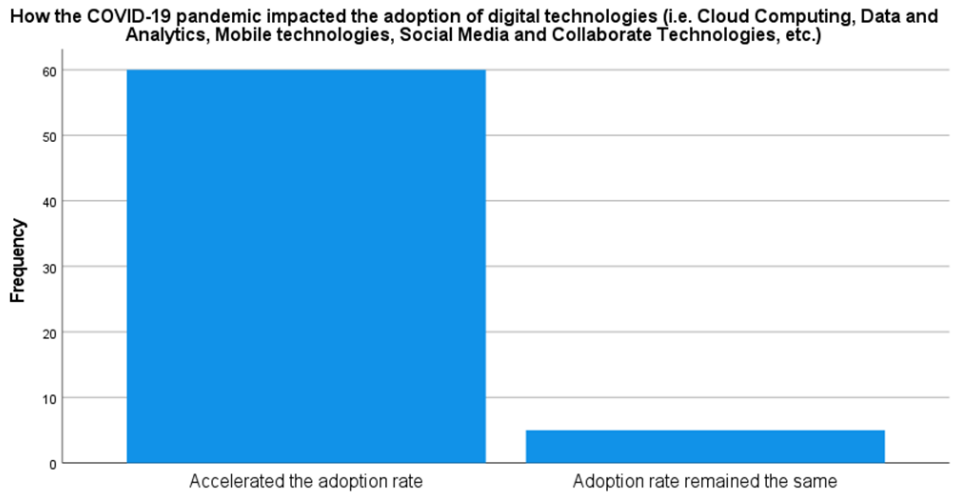


Figure 4-17: Covid-19 on adoption of digital technologies

Question 31 of the survey asked the respondents to indicate how the Covid-19 pandemic impacted the adoption of digital technologies (i.e., cloud computing, data and analytics, mobile technologies, social media and collaborate Technologies, etc.). Figure 4-17 indicates that most of the respondents (89.6 per cent) felt that the Covid-19 pandemic accelerated the adoption of digital technologies in their organisation, other the other hand minimal to no impact was indicated by 7.5 per cent of the sample.

Table 4-28: Frequencies of Respondents' view on the impact of Covid-19, (N = 67)

Impact of Covid-19 pandemic on the adoption of digital technologies

	Impact on adoption rate	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*
Valid	Accelerated the adoption rate	60	89.6	92.3	92.3
	Adoption rate remained the same	5	7.5	7.7	100.0
	Total	65	97.0	100.0	
Missing	System	2	3.0		
Total		67	100.0		

The pandemic forced the traditional banking incumbents to deal with the Covid-19 lockdown dilemma as Babuna, Yang, Gyilbag, Awudi, Ngmenbelle and Bian (2020) agreed that the fast-paced spread of the Coronavirus forced the governments to initiate total lockdown of nations, ban on travels, public gatherings, and closure of offices. In

SA, the national lockdown which was initially forecasted to 21 days in March 2020 with unforeseen extensions continued until 2021 resulting in traditional banks looking for ways to survive and remain in operations for an extended period while meeting investors' expectations of return on investment and pressure group expectations preventing job loss during this period.

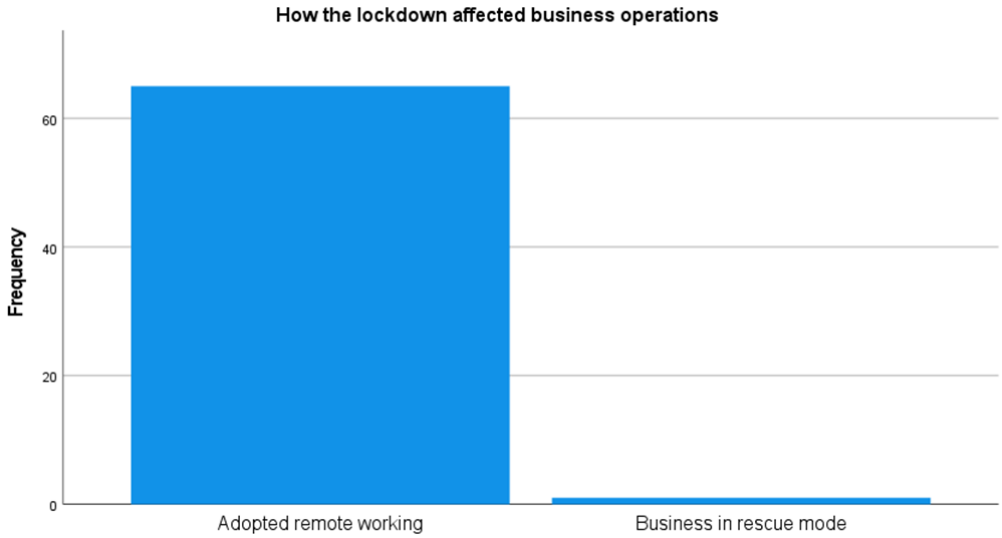


Figure 4-18: Lockdown impact on business operations

Question 32 of the survey asked the respondents to indicate how the lockdown affected business operations within your organisation. Figure 4-18 indicates that most of the respondents (97 per cent) felt that the lockdown significantly increased the adoption of remote working, while 1.5 per cent of the sample experienced adverse impact of their business in rescue mode. None of the respondent in the banking sector gave an indication that the lockdown forced their business to reduce workforce of shutdown unlike experience in other sectors also indicating "Continued as usual", "Care and maintenance", "Not much effect, Rotational work implemented for colleagues", and "Increased remote working particularly when meetings prohibited" as other impact of lockdown on their respective industries.

Table 4-29: Frequencies of impact of lockdown impact on business operations, (N = 67)

Impact of lockdown on business operations

	Impact	*N*	*per cent*	*Valid per cent*	*Cumulative per cent*
Valid	Adopted remote working	65	97.0	98.5	98.5
	Business in rescue mode	1	1.5	1.5	100.0
	Total	66	98.5	100.0	
Missing	System	1	1.5		
Total		67	100.0		

4.6 Summary to the research questions

The results from the survey indicated that the issues pertaining to digital transformation are multifaceted and go beyond the incumbents in the financial services banking sector as they affect companies operating in other industries across SA as well.

Table 4-30: Summary of research hypothesis conducted

Research hypothesis	Results	Factors
Hypothesis 1:	**Partially Supported**	All factors got accepted except for: • Gender*Research statements. • Size of organisation*Research statements. • Length of organisation in business*Research statements
Hypothesis 2:	**Partially Supported**	All factors got accepted except for: • Gender*Research statements • Length of organisation in business*Research statements. • Function*Research statements.
Hypothesis 3:	**Not Supported**	All factors rejected.

Table 4-30 illustrates a summary of the hypothesis testing conducted and whether each of the hypothesis conducted was indeed supported by the data or not. It cannot be concluded from the hypothesis conducted that two were partially supported while one was not supported by the data collected.

5 THE BUSINESS VENTURE PROPOSAL

In this chapter there is the brief introduction of the business venture proposal in Section 5.1 generally and broadly, while the strategic review and plan is in Section 5.2. Section 5.3 details the stakeholder analysis. The situation analysis in Section 5.4 provides for the external macro environment analysis (Section 5.4.1), industry analysis (Section 5.4.2), competitive analysis (Section 5.4.3), SWOT analysis (Section 5.4.4), market and strategic analysis (Section 5.4.5), as well as the target market (Section 5.4.6). Section 5.5 illustrates the financial projections and milestones schedule. This section concludes with the summary of the business venture proposal in Section 5.6.

5.1 Description

Dig*IT*al Solutions (Pty) Ltd is a Johannesburg (within South Africa) based management consulting start-up providing digital transformation related advisory, implementation, and post implementation support services to the banking incumbents operating in the financial services sector in SA. Dig*IT*al Solutions (Pty) Ltd is a fictitious company name for the purposes of this business venture proposal and is considered a resourcing partner working in collaboration with the Microsoft Corporation - a leading multinational technology company based in the United States of America - to provide clients with innovative cloud technologies. The management consulting start-up aims to provide technological solutions to financial services incumbents to mitigate the problem statements highlighted above by offering their expertise to enable these traditional banks to seamlessly and cost effectively embrace digital transformation. Consulting (2021) suggested that there are diverse advisory disciplines, from financial advisory, architecture and engineering to management consulting which are distinguishable by products, sectors, and expertise areas. Dig*IT*al Solutions (Pty) Ltd as an IT consulting start-up focusses technology services aimed at improving and managing the IT-infrastructure of organisations (Consultancy, 2021).

Product and services catalogue:

Table 5-1: Summary of resrahc hypothesis conducted

Service offering	Product or service details

Service offering	Product or service details
Advisory	Analysis of the impact of digital transformation for the client formulating a digital strategy, digital transformation strategy, and a digital roadmapping. We therefore assist our clients to embrace digital transformation.
Implementation and post-implementation technical support	IT project execution in digital transformation in the digital age.
Product offering	Implementation and support of product suite of Cloud Technologies in partnership with Microsoft: • Azure Cloud and basic support • Office 365 (with Microsoft Teams) • Dynamics 365 • Cyber Security

5.2 Strategic review and plan

Table 5-2: Strategic review

Goals				
Dig*IT*al Solutions (Pty) Ltd is a strategic partner enabling clients to transform digitally.				
Strategy	**Action**	**Goal**	**Responsibility**	**Dates during from Year 1 2021**
Market analysis and research	Analysis of the market in the form of macro environmental and industry analysis	Identify opportunities in the market	CEO	Q2 to Q4 2021, thereafter ongoing.
Client Acquisition	Pitch to new clients	Increase new clients by 10 per cent volume	CEO	Q3 to Q4 2021, thereafter ongoing.
Marketing and	Market	Strategically	COO	Q3 to Q4

Goals				
Brand building	positioning and brand building.	position the start-up in the market		2021, thereafter ongoing.
Recruitment and Training	hiring and upskilling a solid team on expert management consultants.	Building a skilled team	COO	Q1 of 2022, thereafter ongoing.

Measures of success:

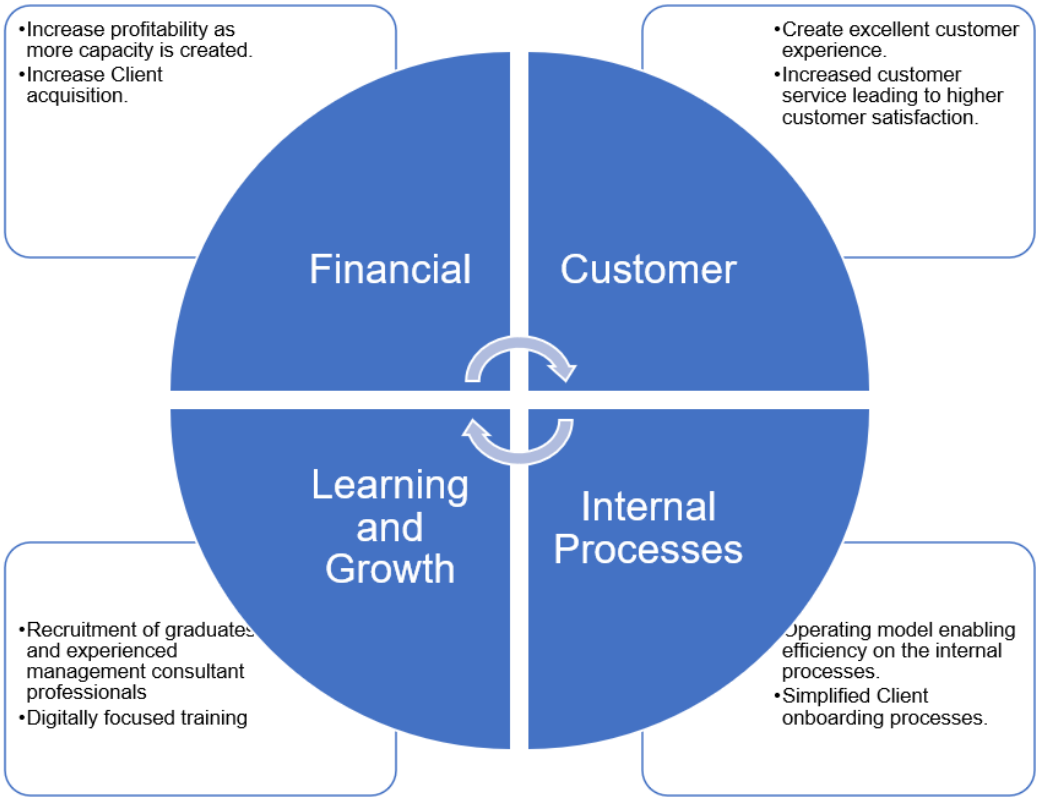


Figure 5-1: Dig*IT*al Solutions (Pty) Ltd Balanced Score Card

Figure 5-1 illustrates the measures of success that Dig*IT*al Solutions (Pty) Ltd will be measured based on a 4 pillar of the Balanced Scorecard namely Financial; Learning and Growth; Customer and Internal Processes centred on the digital transformation Vision and Mission of being a partner in enabling clients to transform digitally.

5.3 Stakeholder analysis

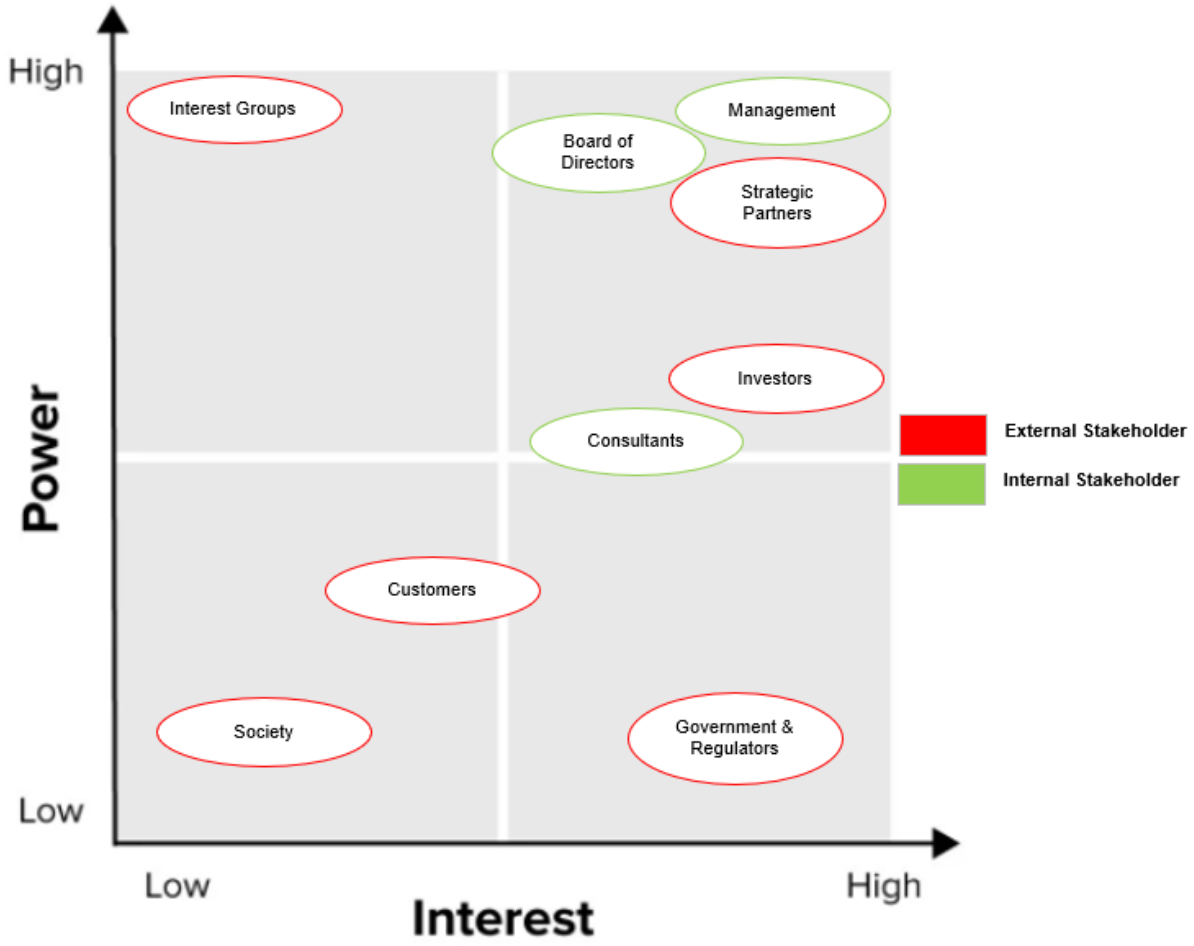


Figure 5-2: Stakeholder Analysis

Figure 5-1 indicate the stakeholder analysis diagram which represents all of the stakeholders which Dig*IT*al Solutions (Pty) Ltd takes in to when developing its future strategy and communication plans, highlighting the amount of influence and interest held by each of the stakeholders in the management consulting start-up's organisational strategy, whereby for instance, the organisation's senior managers hold both a high amount of influence and interest in development and outcome of Dig*IT*al Solutions (Pty) Ltd strategy. Whereas interest groups such as the trade unions have higher influence over the development and direction of Dig*IT*al Solutions (Pty) Ltd strategy but with a lower level of interest in the organisation's strategic success.

5.4 Situational analysis

The situation analysis for the purposes of this research paper focuses mainly on the implications of a digital start-up offering services to banking incumbents on the financial services sector in SA, who are is facing an enormous wave of turbulent yet exciting times in the current VUCA (Volatile, uncertain, complex, and ambiguous) environment where the pace of evolution is increasing rapidly (Mahlomotja, 2018).

5.4.1 Macro environment analysis

Koekemoer (2019) postulated that with the national productivity and entrepreneurial activity being the lowest it has been in decades; this presents the need for entrepreneurship to drive economic activity as indicated in Table 5-4.

Table 5-3: Implications of PESTEL analysis

Macro-environmental factor	Strength of factor	Implication for business venture
Political: • The intensified focus on the quality of African governance where SA has a sound political institution. • Problematic factors for doing business in SA namely government instability, inefficient government bureaucracy, high levels of corruption, crime and theft, and high tax rates.		**Threat** 
Economic: • Declining economic growth in banking and other sectors in SA influenced by sensitivity to inflation rate, interest rates,		**Opportunity** 

Macro-environmental factor	Strength of factor	Implication for business venture
foreign exchange rates, foreign direct investment, and the Covid-19 pandemic. • Sound financial system.		
Social and cultural: • Lack of social inclusion as SA is one of the most unequal countries in the world. • Shift towards digitisation.		**Opportunity** 
Technological: • 4IR driving rapid technological progress and innovation. • Covid-19 pandemic influencing the acceleration of 4IR adoption and shift towards digitisation • South Africa has scope for significant improvement given the maturity of the market and the extensive foundations already established.		**Opportunity** 
Legal: • SA has one of the most progressive constitutions in the world and where the country's strong legal and regulatory structures promote increased business opportunities (Crush, 2001). • Robust domestic financial infrastructure promotes financial stability, financial inclusion, and general confidence in the SA financial system • SA is considered in more detail about the legislative and regulatory developments in the local banking sector, insurance sector		**Opportunity** 

Macro-environmental factor	Strength of factor	Implication for business venture
and financial markets in comparison to global regulatory developments in financial technology.		
Environmental: • The country's commitment to address environmental issues through 1) Environmental policies such as climate change and the 'Green' agenda), 2) Availability and use of natural resources, and 3) Population dynamics.		**Opportunity** 

Red = High, **Amber** = Medium, **Green** = Low

Source: Koekemoer (2019)

The overall implication of the external macro environmental analysis conducted using the PESTEL framework indicated that challenging yet favourable for a digital management consulting start-up to thrive in the banking sector.

5.4.2 Industry analysis

Chitamba (2018) noted that Porter highlighted five forces that are at play in every industry and market as indicated in Table 5-5.

Table 5-4: Implications of Industry Analysis

Force	Strength of Force in banking sector	Implication for business venture
Competitive rivalry: • Hight as the incumbents are mostly of the same size, offering similar products and services.		**Opportunity** 

Force	Strength of Force in banking sector	Implication for business venture
• the level of competition tends to be high. Rivalry between retail banks.		
Threat of new entrants: • The SA government encourages the establishment of local financial institutions as seen in the entrants of new players (Tyme Bank, BankZero and Discovery Bank FinTech, etc.) the market.		**Opportunity** 
Threat of substitutes: • Substitute banking products and service being easily accessible due to the products offered in the SA retail banking sector being similar making it easier for customers switch.		**Threat** 
Bargaining power of buyers: • Banking consumers have high bargaining power as there are numerous alternatives or substitutes in the market and low switching costs.		**Opportunity** 
Bargaining power of suppliers: • Less bargaining power as SARB (The South African Reserve Bank) controls the banking industry in SA.		**Threat** 

Red = High, **Amber** = Moderate, **Green** = Low

Source: Chitamba (2018). Customers perceptions on competitiveness of ABSA Bank in South Africa (Doctoral dissertation).

The overall implication of the industry analysis that was conducted using Porter's 5 forces indicated that the industry challenging yet favourable for a digital management consulting start-up to thrive in the industry.

5.4.3 Competitive analysis

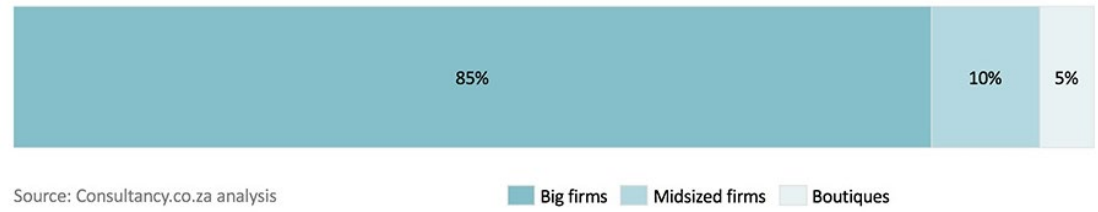


Figure 5-3: Market Share of consultancy firms in SA consulting market (2015)

Figure 5-3 indicated that most the segment's total revenues (85 per cent) were generated through high-profile projects won by big consultancy firms (Consultancy, 2021). The level of competition in the management consulting practices are extremely stringent.

Management consulting firms providing services to the financial services banking sector in SA are broadly made up of three categories namely Tier 1, Tier 2, and boutique management consulting firms. Tier 1 firms are generally made up of the prestigious and well-known largest global management consulting firms offering wide variety of services across multiples industries with operations in SA. MBB knowns as McKinsey and Company, Bain and Company and Boston Consulting Group mainly specialising in strategy operates in this category. Similarly, to Tier 1, Tier 2 firms are global management consulting firms offering wide variety of services across multiples industries with operations in SA but are not as prestigious and as large. Accenture, Deloitte, Strategy& (PwC), Ernest and Young, and Oliver Wyman among others operates in this category (Consultancy, 2021).

Dig*IT*al Solutions (Pty) Ltd will be operating in the boutique management consulting categories alongside players such as Analyze Consulting, Axon, FTI Consulting, Monocle Solutions, among many others. These categories of firms are small management consulting firms offering limited number of services for the local client base. The overall implication of the competitive analysis is that the level of competition across the industry may be aggressive yet favourable for a digital management consulting start-up to compete in the industry.

5.4.4 SWOT analysis

Table 5-5: SWOT analysis

Strengths (Internal)	**Weaknesses (Internal)**
S1: Niche product offering. **S2:** Partnership with leading global player - Microsoft	**W1:** Support Services, may need to be outsourced. **W2:** Business structure not yet tested.
Opportunities (External)	**Threats (External)**
O1: Technological: 4IR driving rapid technological progress/innovation. **O2:** Technological: Covid 19 pandemic influencing the acceleration of 4IR adoption and shift towards digitisation Related special development projects. **O3:** Legal: SA has one of the most progressive constitutions in the world and where the country's strong legal and regulatory structures promote increased business opportunities	**T1**: Political: Problematic factors for doing business in SA namely government instability, inefficient government bureaucracy, corruption, crime and theft, and high tax rates. **T2:** Economic: Declining economic growth in banking and other sectors in SA influenced by sensitivity to inflation rate, interest rates, foreign exchange rates, foreign direct investment and the Covid 19 pandemic.

The overall implication of the SWOT analysis is favourable for a digital management consulting start-up to leverage its strength to exploit the opportunities in the market.

5.4.5 Market and Strategic analysis

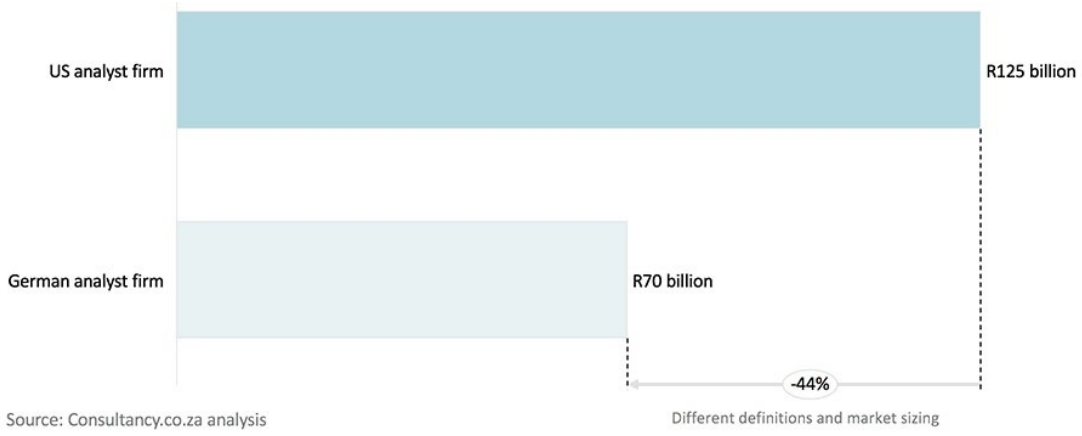


Figure 5-4: Size of the SA consulting market

Figure 5-4 indicated that the business and management consulting segment of the SA market is worth approximately R125 billion ($9 billion).

At a corporate level, the recommended growth strategy of the product development (new product developed for existing markets i.e., lien extension, expansion of service scope, etc.) for Dig*IT*al Solutions (Pty) Ltd to consider as growth and scaling-up is illustrated in Figure 5-3.

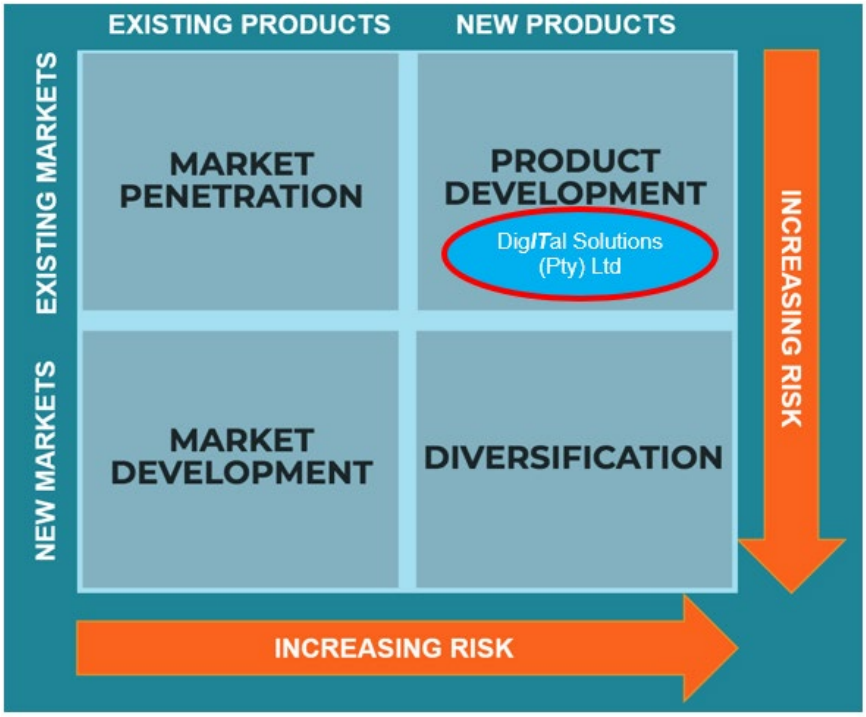


Figure 5-5: Dig*IT*al Solutions (Pty) Ltd strategies per Ansoff Matrix

Dig***IT***al Solutions (Pty) Ltd can utilise the Ansoff's Matrix (Figure 5-3) to evaluate and analyse their strategic option of focussing on product development. This is to enable the management consulting start-up to tap into developing new products for existing markets which with the aim of higher profits and increased market share in the domestic market (Johnson et al., 2017).



Figure 5-6: Dig*IT*al Solutions (Pty) Ltd Generic Strategy framework

At a business level, Dig***IT***al Solutions (Pty) Ltd needs to look at adopting the Generic Strategies tools (Figure 5-4) in their analysis and evaluation of strategic option of implementing a low Cost of Leadership by targeting the lowest prices of their products in comparison to their competitors in the respective target market segment, while maintaining a good balance with achieving sustained profitability and return on investment Johnson (2017). This type of strategy is aligned with the objective of expanding on the existing product offering to a wider target market.

5.4.6 Target market

Dig***IT***al Solutions (Pty) Ltd is targeting the Gauteng operations of traditional in the short to medium term, with long term plan to broaden the geographic target to other provinces in SA as the start-up grows. Except for Capitec Bank Limited, these banks are broadly structured in the following functions which are heavily impacted by the emerging technologies trends:

- Capital raising (Corporate and Investment banking).
- Deposits and lending (Retail and Business Banking).
- Insurance.

- Investment management (Wealth and Asset management).
- Market provisioning.
- Payments.

The start-up may in future offer its product and services to incumbents operating in non-financial services industries.

Table 5-6: Network and reach of the target banks

Bank	Employees (SA)	Branches (group)	ATMs (group)
Capitec Bank Limited	**29 578**	**1 114**	8 970
Absa bank Limited	28 296	1 016	**9 763**
Standard Bank of South Africa Limited	Not stated	604	5 622
First Rand Limited	29 213	692	4 398
Nedbank Limited	14 590	864	5 652

Source: Created by author based on specific literature, (Writer, 2020)

Table 5-7 illustrates the network and reach of the targeted traditional banks. With Standard Bank Limited being the largest employer and having the biggest branch network and the second biggest ATM network (Writer, 2020). The market expects a decrease in the number of branches and ATMs as customers' needs shift towards more digital service offerings.

Table 5-7: Number of customers of the target banks

Bank	Customers *(in millions)*	Customer Satisfaction *(2019.20)*
Capitec Bank Limited	14.5	84.0
Absa bank Limited	9.7	76.8
Standard Bank of South Africa Limited	9.2	75.3
First Rand Limited	8.2	79.9
Nedbank Limited	7.3	80.2

Source: Created by author based on specific literature, (Writer, 2020)

Table 5-8 illustrates the size of customer the targeted traditional banks provide its product and services to, with Capitec leading according to the South African Customer Satisfaction Index (SAcsi) on banking for 2019 and 2020 (Writer, 2020).

5.5 Financial Projections and Milestones schedule

5.5.1 Financial Projections

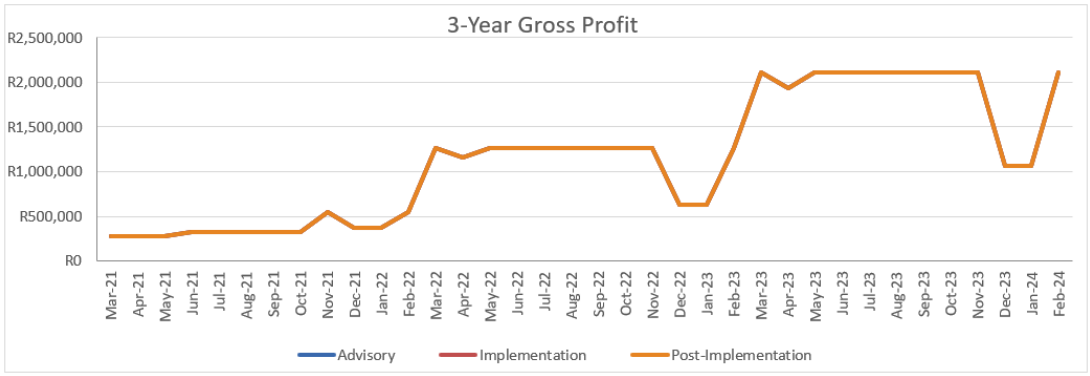


Figure 5-7: 3-year Gross Profit Projections

Figure 5-7 indicates the Gross Profit projection over a three-year period starting with 5 consultants employed during year 1, with an expected steady growth to 10 consultants complement of in year 2 and 15 consultant employed in year 3. As Dig*IT*al Solutions (Pty) Ltd is grows, additional consultants will need to be hired to meet the increased demand to support the implementation of the organisational strategy.

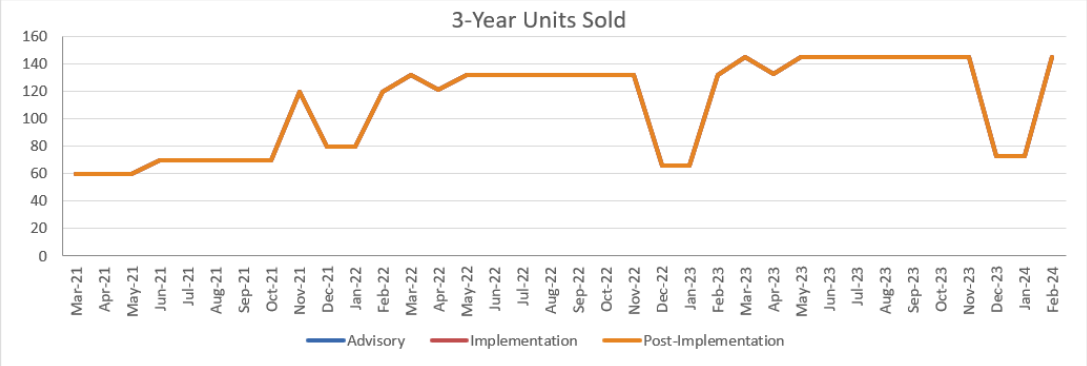


Figure 5-8: 3-year projection of time per consultant

Figure 5-7 indicates the trend analysis of the hours of work per consultant over a three period. As Dig*IT*al Solutions (Pty) Ltd is grows, additional work hours are expected from the consultants to support the implementation of the organisational strategy.

Other underlying assumptions on the financial projections:

- **Assumption 01:** 120 hours are based on consultants working 80 per cent out of 160 hours work week from Monday to Friday business days. 10 per cent escalation in the hours of work due to increasing projects demand.
- **Assumption 02:** Public holidays and weekend are considered as non-business days.
- **Assumption 03:** Consultant's billing: rate of R1000 per hour with an annual 10 per cent growth rate.
- **Assumption 04:** Above inflation costs escalation at an annual rate of 8 per cent.

Refer to Appendix 4.1 for detailed financial projections.

5.5.2 Milestone schedule

Table 5-8: High-level Milestones schedule

	2021			2022				2023				2024
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Stage 1: Market analysis and research												
Stage 2: Client Acquisitions												
Stage 3: Marketing and Brand building												
Stage 4: Recruitment and Training												

Table 5-9 indicates the major milestones that Dig*IT*al Solutions (Pty) Ltd needs to achieve to be a successful management consulting start-up in the financial services banking sector. Dig*IT*al Solutions (Pty) Ltd adopts an iterative approach to the four critical stages which entail:

- The market analysis and research Stage 1 entails a robust analysis of the market in the form of macro environmental and industry analysis.
- The client acquisition Stage 2 entails identifying potential clients and pitching the proposals for new business.
- The marketing and brand building Stage 3 entails market positioning and brand building.

- The recruitment and training Stage 4 entails hiring and upskilling a solid team on expert management consultants.

5.6 Summary

The analysis conducted indicated that the market is overall challenging yet favourable for a digital management consulting start-up to build a strong balance sheet and clients to enable it to thrive in the banking sector.

6 SUMMARY, CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

This chapter presents a summary of the study (Section 6.1) with the related conclusions (Section 6.2). Section 6.3 acknowledges the limitations of the study. Lastly Section 6.4 highlights possible recommendations.

6.1 Summary

6.1.1 Purpose of the study

The purpose of this study was to assess how 4IR is impacting the execution of IT projects within the financial services banking sector in SA.

The key objectives of the study were:

- To assess the impact of digital transformation on traditional banking institutions.
- To determine the factors influencing traditional banks to embrace digital transformation.
- To assess role of IT project execution in digital transformation in banking in the digital age.

6.1.2 Findings from the study

6.1.2.1 First objective

The survey was designed with questions structured to attempt to infer what the impact of digital transformation is on traditional banking institutions in SA. The general insinuation was that there is some impact even though the extent was not clear.

6.1.2.2 Second objective

The survey was designed with questions structured to attempt to infer what factors influence traditional banks to embrace digital transformation.

6.1.2.3 Third objective

The survey was designed with questions structured to attempt to the role IT project execution plays in digital transformation in banking in the digital age.

6.2 Conclusions

The results of this study indicated that traditional banks are disrupted by the wave of emerging technologies at a remarkably high extent. This shift towards digital transformation is seen in multiple industries beyond the banking sector. The study further indicated that organisations may deploy certain strategies to overcome various barriers such as uncertain regulatory changes relating to cyber-security and digital infrastructure among others, when embarking on a digital transformation journey (Ndung'u & Signé, 2020). The study and indicated the importance for organisations to institute the role of a CDO at a senior level, with full responsibility for driving their organisation's digital strategy and establishing digital capabilities in the organisation (Osmundsen et al., 2018).

Furthermore, the study indicated that agile IT capabilities to be an effective approach for meeting the evolving business demands and customer preferences (Haffke et al. 2017 and Barthel and Hess, 2019). Such project methodologies and capabilities can be adopted over and above the traditional SDLC waterfall methodologies to fast tract the implementation of digital transformation, thereby enabling the organisation to gain a sustainable competitive advantage by being first to market. Lastly, the literature conducted, and survey results indicated that emerging technology, customer perceptions and preferences change overtime. Thus, it is imperative for traditional banks to regularly conduct industry analysis to keep abreast with the dynamic trends and customers' preferences.

6.3 Limitations

The main limitation to this study was its scope which focussed on the big four traditional banks in SA and did not contain the impacts of digital transformation in smaller banks and new entrants in the financial service sector. The technical limitations encountered in the study was qualitative analysis being a detailed description unlikely to assign the frequencies to the language features found in the raw data, and the ambiguities that are in human language can be recognised in the analysis (Ochieng 2009). The limitations from the use of a sampling perspective were that research findings are subject to the limitations that are associated with the sampling technique. Further the limitations from an administrative perspective were that of a lower response rate and incomplete surveys due to the online nature that the surveys will be conducted, and the restricted time frame the researcher had to complete this study.

6.4 Recommendations

The study provides opportunities for future research. Osmundsen et al. (2018) highlighted the need for future research on digital transformation to include comparative case studies from a larger spectrum of organisations and industries within the wider economy. These contributes to help practice and managers better understand the drivers, success factors and implications of digital transformation. Haffke et al. (2017) agreed that future research will assist in contributing to developing a framework for the effective implementation of a digital IT Function. Future studies may also be conducted to assess the impact of digital transformation in a post Covid-19 environment in any economic sectors.

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APPENDICES

Appendix 1.1: Online Questionnaire - Data collection instrument



1669032 Research Questionnaire - Digita

Appendix 1.2: Draft email - Data collection instrument



1669032 Draft Email Questionnaire Comp

Appendix 2.1: One-page bio of the researcher



One-page bio of Samuel Rantao.pdf

Appendix 2.2: Documentation - Ethics Application



Rantao-Samuel_1669032_ARP_Ethics_appli

Appendix 2.3: Documentation - Ethics

Consent Forms:



1669032 Consent Form for Research C

Participant Information Sheet:



1669032 Info Sheet October 2020.docx

Permission Letters (Draft):



1669032 Permission Letter for Research (

Appendix 3.1: Filled in data collection instruments

Unedited Survey results:



0203_Original_MBA Research Questionn

Cleaned Survey results:



0203_Clean_MBA Research Questionn

Appendix 4.1: Detailed Financial Projections

Year 1 Financial projections:

Dig/Tal Solutions (Pty) Ltd Sales Forecast

Units Sold	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Year 1 Total Units Sold
Advisory	60	60	60	70	70	70	70	70	120	80	80	120	930
Implementation	60	60	60	70	70	70	70	70	120	80	80	120	930
Post-Implementation	60	60	60	70	70	70	70	70	120	80	80	120	930
Unit Price													**Avg Unit Price**
Advisory	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000
Implementation	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000
Post-Implementation	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000	R5,000
Sales Growth Rate													**Avg Growth Rate**
Advisory	0%	0%	0%	17%	0%	0%	0%	0%	71%	-33%	0%	50%	10%
Implementation	0%	0%	0%	17%	0%	0%	0%	0%	71%	-33%	0%	50%	10%
Post-Implementation	0%	0%	0%	17%	0%	0%	0%	0%	71%	-33%	0%	50%	10%
Revenue	*(Units Sold * Unit Price)*												**Total Revenue**
Advisory	R300,000	R300,000	R300,000	R350,000	R350,000	R350,000	R350,000	R350,000	R600,000	R400,000	R400,000	R600,000	**R4,650,000**
Implementation	R300,000	R300,000	R300,000	R350,000	R350,000	R350,000	R350,000	R350,000	R600,000	R400,000	R400,000	R600,000	**R4,650,000**
Post-Implementation	R300,000	R300,000	R300,000	R350,000	R350,000	R350,000	R350,000	R350,000	R600,000	R400,000	R400,000	R600,000	**R4,650,000**
Total Revenue	**R900,000**	**R900,000**	**R900,000**	**R1,050,000**	**R1,050,000**	**R1,050,000**	**R1,050,000**	**R1,050,000**	**R1,800,000**	**R1,200,000**	**R1,200,000**	**R1,800,000**	**R13,950,000**
Unit COGS													**Avg COGS**
Advisory	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400
Implementation	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400
Post-Implementation	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400	R400
Margin Per Unit	*(Unit Price - Unit COGS)*												**Avg Margin**
Advisory	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600
Implementation	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600
Post-Implementation	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600	R4,600
Gross Profit	*(Revenue - COGS or Margin Per Unit * Units Sold)*												**Total Gross Profit**
Advisory	R276,000	R276,000	R276,000	R322,000	R322,000	R322,000	R322,000	R322,000	R552,000	R368,000	R368,000	R552,000	**R4,278,000**
Implementation	R276,000	R276,000	R276,000	R322,000	R322,000	R322,000	R322,000	R322,000	R552,000	R368,000	R368,000	R552,000	**R4,278,000**
Post-Implementation	R276,000	R276,000	R276,000	R322,000	R322,000	R322,000	R322,000	R322,000	R552,000	R368,000	R368,000	R552,000	**R4,278,000**
Total Gross Profit	**R828,000**	**R828,000**	**R828,000**	**R966,000**	**R966,000**	**R966,000**	**R966,000**	**R966,000**	**R1,656,000**	**R1,104,000**	**R1,104,000**	**R1,656,000**	**R12,834,000**

Figure 4.1-1: Year 1 Sales Forecast

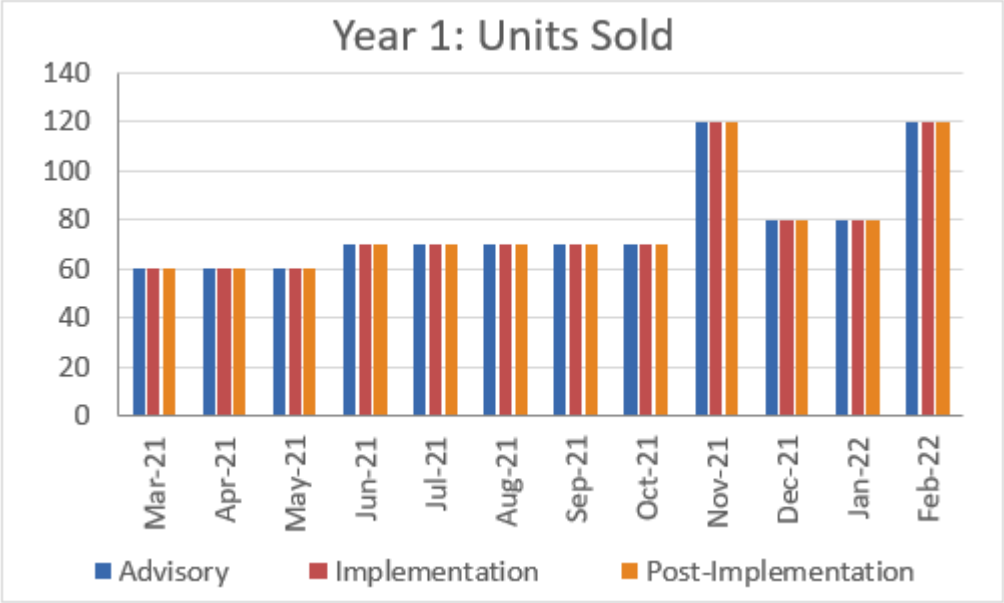


Figure 4.1-2: Year 1 Time billed

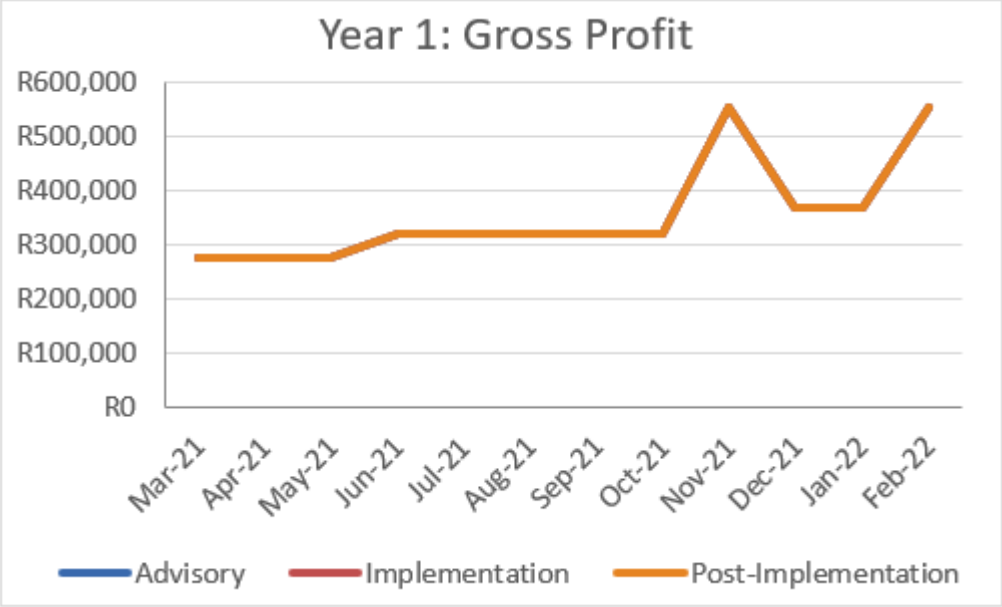


Figure 4.1-3: Year 1 Gross Profit

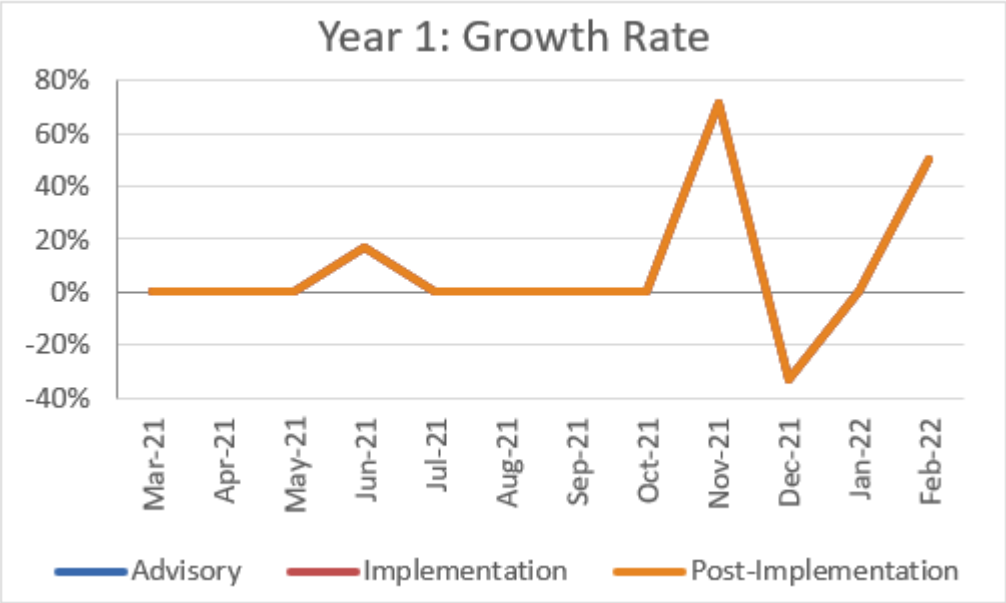


Figure 4.1-4: Year 1 Growth rate

Year 2 Financial projections:

Sales Forecast Year 2

Units Sold	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Year 2 Total Units Sold
Advisory	132	121	132	132	132	132	132	132	132	66	66	132	1441
Implementation	132	121	132	132	132	132	132	132	132	66	66	132	1441
Post-Implementation	132	121	132	132	132	132	132	132	132	66	66	132	1441
Unit Price													**Avg Unit Price**
Advisory	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000
Implementation	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000
Post-Implementation	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000	R10,000
Sales Growth Rate													**Avg Growth Rate**
Advisory	10%	-8%	9%	0%	0%	0%	0%	0%	0%	-50%	0%	100%	5%
Implementation	10%	-8%	9%	0%	0%	0%	0%	0%	0%	-50%	0%	100%	5%
Post-Implementation	10%	-8%	9%	0%	0%	0%	0%	0%	0%	-50%	0%	100%	5%
Revenue													**Total Revenue**
Advisory	R1,320,000	R1,210,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R660,000	R660,000	R1,320,000	**R14,410,000**
Implementation	R1,320,000	R1,210,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R660,000	R660,000	R1,320,000	**R14,410,000**
Post-Implementation	R1,320,000	R1,210,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R1,320,000	R660,000	R660,000	R1,320,000	**R14,410,000**
Total Revenue	**R3,960,000**	**R3,630,000**	**R3,960,000**	**R3,960,000**	**R3,960,000**	**R3,960,000**	**R3,960,000**	**R3,960,000**	**R3,960,000**	**R1,980,000**	**R1,980,000**	**R3,960,000**	**R43,230,000**
Unit COGS													**Avg COGS**
Advisory	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432
Implementation	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432
Post-Implementation	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432	R432
Margin Per Unit													**Avg Margin**
Advisory	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568
Implementation	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568
Post-Implementation	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568	R9,568
Gross Profit													**Total Gross Profit**
Advisory	R1,262,976	R1,157,728	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R631,488	R631,488	R1,262,976	**R13,787,488**
Implementation	R1,262,976	R1,157,728	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R631,488	R631,488	R1,262,976	**R13,787,488**
Post-Implementation	R1,262,976	R1,157,728	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R1,262,976	R631,488	R631,488	R1,262,976	**R13,787,488**
Total Gross Profit	**R3,788,928**	**R3,473,184**	**R3,788,928**	**R3,788,928**	**R3,788,928**	**R3,788,928**	**R3,788,928**	**R3,788,928**	**R3,788,928**	**R1,894,464**	**R1,894,464**	**R3,788,928**	**R41,362,464**

Figure 4.1-5: Year 2 Sales Forecast

Year 3 Financial projections:

Sales Forecast Year 3

Units Sold	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Year 3 Total Units Sold
Advisory	145	133	145	145	145	145	145	145	145	73	73	145	1584
Implementation	145	133	145	145	145	145	145	145	145	73	73	145	1584
Post-Implementation	145	133	145	145	145	145	145	145	145	73	73	145	1584

Unit Price													Avg Unit Price
Advisory	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000
Implementation	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000
Post-Implementation	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000	R15,000

Sales Growth Rate													Avg Growth Rate
Advisory	10%	-8%	9%	0%	0%	0%	0%	0%	0%	-50%	0%	99%	5%
Implementation	10%	-8%	9%	0%	0%	0%	0%	0%	0%	-50%	0%	99%	5%
Post-Implementation	10%	-8%	9%	0%	0%	0%	0%	0%	0%	-50%	0%	99%	5%

Revenue													Total Revenue
Advisory	R2,175,000	R1,995,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R1,095,000	R1,095,000	R2,175,000	**R23,760,000**
Implementation	R2,175,000	R1,995,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R1,095,000	R1,095,000	R2,175,000	**R23,760,000**
Post-Implementation	R2,175,000	R1,995,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R2,175,000	R1,095,000	R1,095,000	R2,175,000	**R23,760,000**
Total Revenue	**R6,525,000**	**R5,985,000**	**R6,525,000**	**R6,525,000**	**R6,525,000**	**R6,525,000**	**R6,525,000**	**R6,525,000**	**R6,525,000**	**R3,285,000**	**R3,285,000**	**R6,525,000**	**R71,280,000**

Unit COGS													Avg COGS
Advisory	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467
Implementation	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467
Post-Implementation	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467	R467

Margin Per Unit													Avg Margin
Advisory	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533
Implementation	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533
Post-Implementation	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533	R14,533

Gross Profit													Total Gross Profit
Advisory	R2,107,285	R1,932,889	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R1,060,909	R1,060,909	R2,107,285	**R23,020,272**
Implementation	R2,107,285	R1,932,889	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R1,060,909	R1,060,909	R2,107,285	**R23,020,272**
Post-Implementation	R2,107,285	R1,932,889	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R2,107,285	R1,060,909	R1,060,909	R2,107,285	**R23,020,272**
Total Gross Profit	**R6,321,855**	**R5,798,667**	**R6,321,855**	**R6,321,855**	**R6,321,855**	**R6,321,855**	**R6,321,855**	**R6,321,855**	**R6,321,855**	**R3,182,727**	**R3,182,727**	**R6,321,855**	**R69,060,816**

Figure 4.1-6: Year 3 Sales Forecast

Year-to-Year Comparison

	Yr 2 vs Yr 1	Yr 3 vs Yr 2
Units Sold	% Change	% Change
Advisory	55%	10%
Implementation	55%	10%
Post-Implementation	55%	10%
Unit Price	Difference	Difference
Advisory	R5,000	R5,000
Implementation	R5,000	R5,000
Post-Implementation	R5,000	R5,000
Sales Growth Rate	Difference	Difference
Advisory	-5%	0%
Implementation	-5%	0%
Post-Implementation	-5%	0%
Revenue	Difference	Difference
Advisory	R9,760,000	R9,350,000
Implementation	R9,760,000	R9,350,000
Post-Implementation	R9,760,000	R9,350,000
Total Revenue	R29,280,000	R28,050,000
Unit COGS	Difference	Difference
Advisory	R32	R35
Implementation	R32	R35
Post-Implementation	R32	R35
Margin Per Unit	Difference	Difference
Advisory	R4,968	R4,965
Implementation	R4,968	R4,965
Post-Implementation	R4,968	R4,965
Gross Profit	Difference	Difference
Advisory	R9,509,488	R9,232,784
Implementation	R9,509,488	R9,232,784
Post-Implementation	R9,509,488	R9,232,784
Total Gross Profit	R28,528,464	R27,698,352

Figure 4.1-7: Year to year comparison

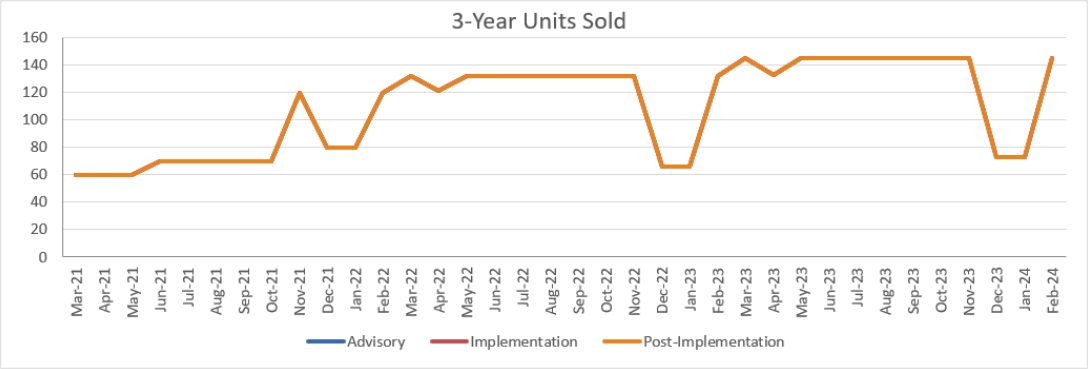


Figure 4.1-8: 3 Year Time billed.

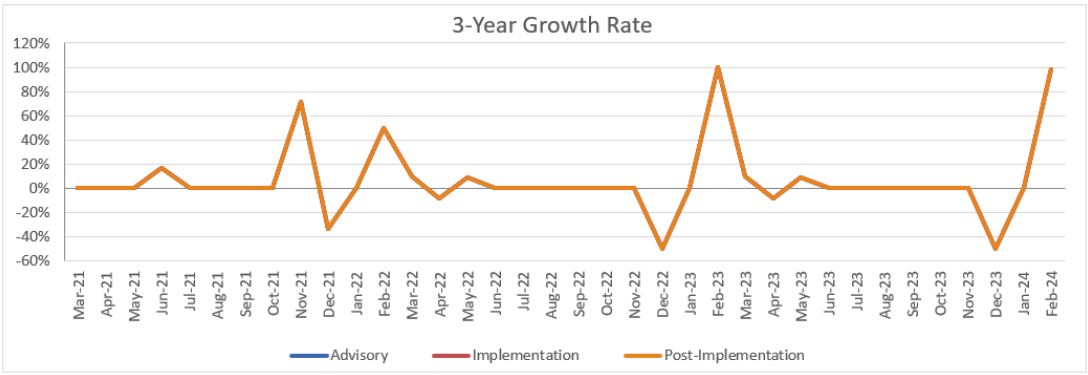


Figure 4.1-9: 3-year Growth rate