Knowledge-based automation and new workforce implementation at a financial institution

by

Catherine Elsworth

Submitted in fulfilment of the requirements for the degree

MPhil (Information Management)

in the

Department of Information and Knowledge Management

School of Consumer Intelligence and Information Systems

in the

College of Business and Economics

at the

UNIVERSITY OF JOHANNESBURG

Supervisor: Prof Tanya du Plessis

OCTOBER 2018

DECLARATION

I hereby certify that the **RESEARCH** submitted by me for the degree
[underline relevant programme]

- *BCom Hons (Information Management)*
- *MPhil (Information Management)*
- *MCom (Business Management) specialising in Information and Knowledge Management*
- *PhD (Information Management)*

at the University of Johannesburg is my independent work and has not been submitted by me for application and assessment at another university.

TURN-IT-IN REPORT similarity index: 4%

RESEARCH ETHICS CLEARANCE: IKM2018_028_DUPLESSIS_ELSWORTH

Catherine Elsworth
(Name in block letters)

30 November 2018
(Date)

Please underline YES | NO:

- Signed copy of DECLARATION available on file: YES | NO
- Signed copy of ETHICS CLEARANCE available on file: YES | NO

Abstract

Intelligent Automation (IA) entails advanced knowledge-based technologies associated with the so-called Fourth Industrial Revolution (4IR). In this study, the phrase “IA journey” refers to the processes of knowledge-based automation and new workforce implementation. The study’s unit of analysis is not as much the IA journey itself, rather it is an analysis of what constitutes a balanced approach to IA implementation and adoption within an organisation. For example, employees’ feelings of uncertainty during an organisation’s IA journey could cause an imbalance in staff morale and resistance from employees to adapt to the changes. Therefore, the main research question of this study is: *What are the components of a balanced approach to knowledge-based automation and new workforce implementation of a financial institution*?

The research question aligns to the world of service delivery that is changing at an alarming rate, with customers expecting fast, personalised, digital service. The landscape for financial institutions is changing, for example, traditional competitors are taking steps to meet customer demands and non-traditional competitors are entering the market place, threatening the existence of traditional financial institutions, commonly referred to as banks.

The literature reveals that the evolution of Internet usage and the influence of social media and smart phones have increased the significance of technology and digital service in the financial services industry. Adoptions of these technologies is vital if traditional banks want to remain relevant in the market where financial technologies companies (Fintechs), and small, digitally nimble start-ups can provide the quick, personalised service that customers expect. Already many financial institutions have started to investigate the opportunities that technologies such as IA and chatbots provide. The potential of chatbot technology to improve customer experience and reduce operational costs make it an attractive option for organisations to consider. Literature reveals that the cost of implementation of this technology is a fraction of the cost of legacy system re-writes. The ability of this technology to integrate with existing systems and improve turnaround time and service to customers makes the IA journey a favourable choice.

The IA journey of one South African Financial Institution (SAFI) formed the focus of this study. Research was conducted within the SAFI into the application of this technology across the organisation to understand the impact that the changes experienced had on the employees of the organisation. Understanding how these changes impact employees helps in determining the best ways to manage the changes in order to develop a balanced approach to implementation and adaption of IA within an organisation.

The empirical study followed a qualitative research design, featuring qualitative data collection and analysis techniques. Secondary data were collected and displayed in order to show case

hoe IA project were implemented into the organisation. The philosophical paradigm that suited a study of this nature was interpretivism as the research was socially constructed in its aim to understand the adoption processes of the organisation implementing an IA programme. The research followed an inductive approach as the study's conceptual framework was developed based on data collected and conclusions drawn through the analysis of this data. The study involved the collection of data through the use of interviews conducted across junior and senior management levels within the business units impacted by the changes associated with the IA journey. The aim of these interviews was to gain an understanding of employees' perceptions of the IA journey across the organisation as well as understand the experiences of those involved in the IA programme. Secondary data was also collected from five SAFI use cases, which provided a rich source for quantitative data. The presentation of results regarding the outcomes of use cases implemented across the organisation is in accordance to the University of Johannesburg Code of Academic and Research Ethics.

The research findings informed the development of a conceptual framework, which can be used to encourage a balanced approach towards IA implementation and adoption throughout an organisation that is experiencing major changes. This study reveals that employees' fears of the changes need to be identified and managed early in order to avoid resistance to the changes and negative perceptions of the technology being created. The conceptual framework identifies the components that a financial institution can use in its balanced approach to increase adoption and reduce fears. Moreover, the study revealed the need for organisations to invest in technologies of the future and the benefits that this technology can have for the organisation. Customer experience and expectations form a vital part of any organisation and the lessons learnt in the value this technology can provide in creating a great customer experience are invaluable. The study revealed that there is a difference between digitisation and automation and that knowledge-based automation technology plays a key role in enabling a digital customer experience.

In conclusion, in order for financial institutions to remain relevant in the future world of banking, they need to invest in IA technology now. A successful IA journey is linked to an organisation's proactive awareness of the impact the IA journey will have on employees. Correct management will reveal the value of knowledge-based automation. This means that a financial institution should adopt a balanced approach for its new workforce implementation in order to remain relevant in the Fourth Industrial Revolution.

Keywords: Intelligent Automation; knowledge-based automation; chatbots; Fourth Industrial Revolution; financial institutions; new workforce implementation; change management

Table of Content

List of figures

List of tables

List of abbreviations

4IR .....Fourth Industrial Revolution

AI .....Artificial Intelligence

ATM.....Automatic Teller Machine

BoA.....Bank of America

BPO.....Business Process Outsourcing

BU.....business unit

BUs .....business units

cf.....compare further

CIT .....Cash in Transit

COE ..... Confirmation of Employment

COI ..... Confirmation of Income

COL ..... Confirmation of License

et al .....and others

FCR .....First Call Resolution

Fintech.....financial technology (company)

Fintechs.....financial technologies (companies)

IA .....Intelligent Automation

IRPAAI.....Institute for Robotic Process Automation and Artificial Intelligence

IT.....Information Technology

KZN .....KwaZulu Natal

NWow .....new ways of work

OCR ..... Optical Character Recognition

POC.....proof of concept

RFP .....Request for Proposal

RPA.....Robotic Process Automation

RTE .....Release Train Engineer

SAFe.....Scaled Agile Framework

SAFI.....South African Financial Institution (case organisation)

SARB.....South African Reserve Bank

SIT …… System Integration Testing

SLA.....service level agreement

STP.....straight through processing

TAT .....turnaround time

VAF .....Vehicle and Asset Finance

viz .....that is

Chapter 1

Contextualisation and problem statement

1.1 Introduction

The financial services industry in South Africa and around the world is facing a huge transition between their traditional, legacy banking practices and their ability to adapt to the rapidly changing needs of their customers. One of the major challenges that traditional financial institutions face is their ability to adapt as quickly as their non-traditional, nimble, digitally native Fintech competitors (Adams, 2016:3; Kenny, 2017:8). When it comes to banking, consumer demands are changing at an alarming rate with customer expectations being set by companies such as Google, Apple, Facebook and Amazon (Marous, 2016a:13). Financial institutions may recognise the need to act quickly to ensure that they do not lose their customers to these non-traditional banking competitors, however the complex, legacy IT infrastructure that exists in most of these large, traditional financial institutions makes this shift to digital banking somewhat of a challenge (Kenny, 2017:8).

Intelligent Automation (IA) is the latest automation revolution that is taking the world by storm. Organisations, across a variety of industries, around the world have started to consider how the application of this new technology can improve their operations and provide benefit to their businesses and customers. According to Lacity, Willcocks and Craig (2015:3), this revolution in automation technology will change the way people live, work and interact with each other. In the traditional sense we consider automation in terms of manufacturing assembly lines or mechanised toll booths, but IA refers to smart software and the application of this software to perform high-volume, routine, repeatable tasks that are typically time-consuming for humans to perform (Casale, 2015:5).

This study focuses on a specific South African financial institution that is making significant strides in the adoption of IA technology in its Shared Services and customer facing channel environments. As with Makhubela and Ngoepe's (2017) study, this organisation also requested to remain anonymous for this study and will therefore be referred to as *SAFI* (South African Financial Institution) going forward. The research investigates how IA is being applied in SAFI to create new value for its banking clients by means of knowledge-based technologies associated with the Fourth Industrial Revolution (4IR). In this study, the phrase "IA journey" is used throughout the research to refer to the many processes related to knowledge-based automation and new workforce implementation. The unit of analysis is not the IA journey itself, rather it is an analysis of what constitutes a **balanced approach** to IA implementation and

adoption. In order to investigate a balanced approach to IA implementation and adoption, it is necessary to understand the driving forces and potential driving themes (*cf* Figure 1.1)

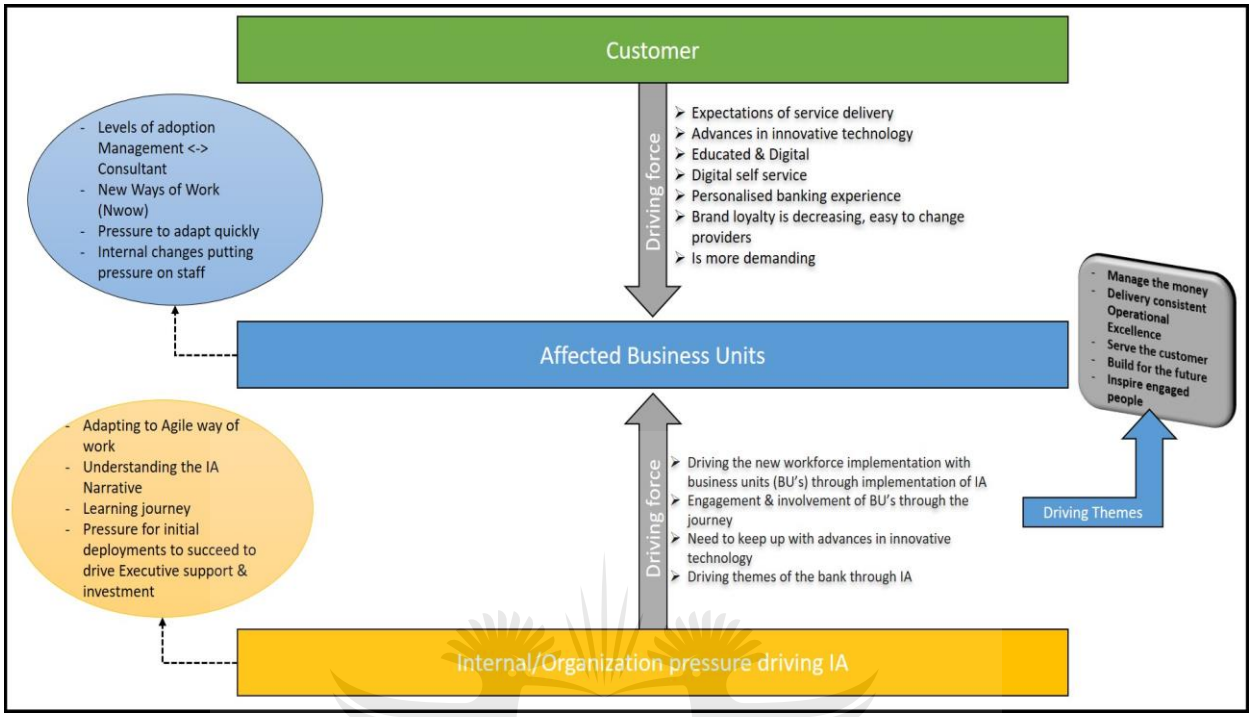


Figure 1.1: Driving forces and potential driving themes (Own source developed for this study, 2017)

The figure above depicts the driving forces and themes that drive the need for the organisation to embark on the IA journey. According to Wirtz (2016), there are a number of forces that are transforming the service market. These include government policies, social changes, business trends, globalisation and advances in information technology and communications. These forces relate to the forces identified in Figure 1.1 above from a customer and organisational perspective. Demand, supply and the competitive landscape, as well as the way in which customers purchase and utilise services are reshaped through these forces (Wirtz, 2016). Figure 1.1 depicts that from a customer perspective, the driving forces include high expectations of service delivery from organisations. In a world of instant gratification and digital technologies customers expect fast, accurate and efficient delivery of services. The development of innovative technologies means that customers expect to be able to perform simple tasks on their mobile devices, at their own convenience. Organisations need to be able to deliver to these expectations in order to retain their customer base. Brand loyalty in many industries is something that is reducing as competitors are making it really simple for consumers to switch. According to Fraß (2015), greater emphasis should be placed on after-sales services. This is due to the potential for greater financial gain as well as softer aspects

such as improved customer relations, increased customer satisfaction and customer retention and loyalty.

The second driving force comes from within the organisation and is in response to the external, customer forces that are placed on the organisation. A persistent focus on pursuing business efficiencies and the arrival of IA promises to fundamentally transform the value that is being demanded by businesses in this economy (Sheth, 2017). In order for the SAFI to remain relevant and competitive an IA programme was started within the organisation to implement projects across the business units that meet growing customer demands. As a result of these customer demands the organisation was compelled to drive the implementation of a new workforce within the organisation. This new workforce includes the implementation of IA processes into the business units. This is done through engagement and involvement of business units in the IA journey in order to ensure that the organisation is able to keep up with the advances in innovation technology.

These driving forces place pressure on the affected business units to change the way in which they operate. These business units are primarily made up of the back office, shared services environments. According to Hodge (2019b) "digitisation, demand for real-time data and more recently, automation, are combining to pressurize Shared Services to react and adapt". The pressure placed on business units to adapt quickly to these changes results in some levels of uncertainty amongst the staff within these business units. High levels of change management are required in these areas to ensure that staff are comfortable with the changes that will be experienced. The IA Programme itself feels pressure to adapt to new ways of work in the sense of Agile project management, understanding IA and the narrative that is being spread across the organisation. There is also pressure on the IA programme to deliver successful IA projects in order to show the benefits and drive executive sponsorship and investment in the programme. The driving themes depicted in the model refer to the organisational drivers within the SAFI that drive the direction of the organisation. The IA programme helps the organisation to achieve these goals through the implementation of strategically aligned projects.

In Chapter 2, the literature review describes the driving forces illustrated in Figure 1.1. For example, the pressure to adopt quickly could lead to feelings of instability, which could cause an imbalance in an organisation's IA journey. Thus, a significant part of the research focused on the approach taken by SAFI towards the change management practices followed to ensure adoption of the changes brought by the technology and new ways of work with the employees that were directly affected by the changes.

1.2 Background and rationale

According to Toureille (2016), “today’s demanding customers are the driving force behind the latest technological advancements”. It is for this reason that financial institutions must gain an in depth understanding of their customers’ desires and ambitions. It is no longer acceptable to design processes centred on banking requirements and legislations, without taking the customer requirements and demands into account. While the financial services sector is a highly regulated sector, there are ways to design smart processes that meet customer demands without breaking legislative requirements. Regelman, Hayes, Mobre, Lingel, and Reshef (2016), discuss the concept of financial institutions adopting a mind-set of a “customer journey” rather than that of a “process journey”. The days of financial institutions making decisions based on analysing generic data such as customer demographics, race and gender buying patterns, needs to be a thing of the past. Customers in this technology driven world want to be understood at an individual level, which will provide a personalised banking experience (Regelman *et al*, 2016).

Financial institutions around the world are moving towards digital banking platforms that will fulfil the customer need for banking anytime, anywhere. One such bank is the Bank of America (BoA). In an interview with Retail Banker International (2016), Michelle Moore, Head of Digital Banking at BoA explains that they realise that smartphones are a crucial part of their customers’ daily lives and have therefore dramatically restructured their digital strategy to cater for mobile first customers. Every banking task that a customer needs to perform, can be done on their digital and mobile platforms, from opening a new account to applying for a loan and making payments to beneficiaries.

One of the problems however that organisations currently face is the gap between a great digital front-end experience and a back-office system that is still predominantly manual and paper-based. According to Regelman *et al* (2016) only about one in five financial services institutions offers consistent digitisation for any given process. This means that a customer could apply for a Home Loan through a slick, easy to use online channel in a few minutes. However, what they would experience after submitting the application is that the subsequent credit checks, loan approval and customer verification processes are manual, time consuming and often require the customer to submit additional documents to their branch. All of which does not make a great digital experience for the customer.

This is where the real value of process automation becomes vital in creating a smooth, digital customer experience. One of the main reasons why IA is becoming the preferred solution for business process improvements is that IA utilises the company’s existing IT infrastructure and enterprise applications (Subramanian, 2014:4). The integration of IA software requires far less complex back-end configuration than traditional system integration (Subramanian, 2014:4).

This allows an organisation to quickly and efficiently deploy the technology into their business operations, without having to make significant changes to their existing IT platforms (Willcocks, Lacity & Craig, 2015a:7-8).

The tough economic environment in which financial institutions and many other industries are operating brings huge challenges to reduce costs and increase revenue, while still delivering excellent customer service (Marous, 2016a:13). The benefits of implementing IA are obvious as the cost for implementation is much less than an entire IT infrastructure overhaul and return on investment is visible in less than a year. Subramanian (2014:4), Group Enterprise Architect from Xchanging Asia, explains that many of their customers in the insurance industry have implemented IA and the results are phenomenal. The software robots process more than 30000 cases a month and the time to process a case has reduced from five minutes to less than 10 seconds. There is an immediate reduction in the number of employees required to perform the tasks that the robots can, in a fraction of the time, freeing up these employees to focus on much more valuable, challenging tasks which focus more on engagement with their customers (Willcocks *et al*, 2015a:6).

Customer expectations in the level of service they receive and the way they wish to perform their banking, insurance and purchasing transactions are changing rapidly. Surveys show that customers are showing more interest in the possibilities that IA and artificial intelligence present. For example, a digital banking survey conducted by Accenture (2016a) on customers in North America revealed that 46% of customers will be willing to bank using robo-advice in the future. Robo-advice is defined as using smart automation and digital banking techniques to perform analytics on customer data and assist customers with financial needs and decisions (Accenture, 2016a). Robo-advice is not a futuristic concept, in fact BoA has already released their smart chatbot, Erica (Business Insider, 2016). Erica is available to customers through the company's mobile banking app and is utilised to analyse customers' financial data and spending patterns and produce recommendations for customers based on their own data (Business Insider, 2016). Customers can ask Erica questions using voice or text if they wish to find basic information related to the financial institution or its products. Erica also uses predictive analytics to proactively make suggestions in terms of customers' spending, saving and investing habits, rather than only reactively responding to questions posed by the customer.

Chatbots such as Erica have the potential to increase customer service greatly because the conversation happens within a secure environment where all the customers' relevant personal information resides (Brusnahan, 2017:11). The platform is incredibly convenient to the customer as almost 2.5 billion people have access to at least one instant messaging application (Brusnahan, 2017:11). Chatbots can be programmed to assist with anything from

basic banking enquiries such as “what is the current interest rate”, to more complicated service requests like asking for information about a suspicious debit on your account. This frees up staff in the call centre to be able to deal with more complex customer queries and enables them to have longer, more meaningful conversations with the customer.

1.3 Definition of concepts

It is necessary to define some key concepts and terminologies that will be used throughout this study in order to ensure clear understanding of these terms as they relate to the study and each other. This study focuses on the use of smart technology to automate processes within one of the leading South African banks. According to Bryum (2018:29), smart technology “refers to any system or device that uses a combination of technologies that include machine learning, artificial intelligence, robotics and data analytics to accomplish more with fewer resources”. Some of these terms are defined below.

- **IA** – is the combination of artificial intelligence and automation (Laurent, Chollet & Herzbeg, 2015) and refers to the automation of standardised and rule-driven, system-based activities (Sheth, 2017). This is done through the use of scripts and is used specifically in processes where it is too expensive and inefficient for humans to execute the task or process (Sheth, 2017).
- **Machine Learning (ML) –** this refers to systems that are able to learn through handling variations. These systems learn on the go by assimilating learnings from input data and decisions (Sheth, 2017). They are able to handle simple decisions and make predictions or classifications based on algorithms (Sheth, 2017).
- **Artificial Intelligence (AI) –** this technology leverages the capability of ML in order to incorporate unstructured input to perform specific tasks (Hodge, 2017b). Although this technology is a step beyond RPA, it does not depend on, or is it necessarily related to IA. AI technology allows a machine to learn and adapt to a task without the need for custom coding for each specific task. (Byrum, 2018:31). AI has the ability to train itself from the environment which allows for endless prospects for optimisation within an organisation (Byrum, 2018:31).
- **Chatbots or Virtual Assistants –** these are systems that are able to interpret voice or text input and respond with typical, predefined answers (Sheth, 2017). These systems are able to build their vocabulary and learn from unstructured data input in order to learn and respond better each time (Sheth, 2017). An example of this is the use of a chatbot for customer service queries. The chatbot can be created to respond to simple queries such as requests for contact details, operating times and quick links to areas of the organisations website.

- **Blockchain –** this is a peer to peer distributed ledger which streamlines business processes and legal constraints across inter and intra-organisational platforms, supporting real-time clearance of transactions (Hodge, 2019a). The technology derives its name from blocks which are formed based on a sequence of transactions, and a chain comprising of a consecutive set of transaction records in the order in which they occur. All of these transactions are processed over a network, allowing seamless processing of transactions based on pre-agreed data nodes (Hodge, 2019a).
- **4IR -** this revolution is building on the last revolution, which was known as the computer or digital revolution, identified by the development of mainframe and personal computing as well as the internet (Schwab, 2016). The 4IR is about smart and connected machines as well as major breakthroughs in areas such as gene sequencing, nontechnology, renewables and quantum computing (Schwab, 2016).

1.4 Research aim and objectives

This research aims to inform new business model development which caters for the integration of the traditional human workforce and IA systems. For this to happen it is important to identify and develop a resilient balanced implementation and adoption plan that can be applied within the business to encourage willingness among the employees to adapt to the new ways of work brought about by the implementation of IA within the Shared Services and customer facing channel environments. Change management and the way in which the implementation and adoption around IA is managed plays a vital role in the adoption of this technology across the organisation (Russell-Jones, 2011; Beebe, 2016; Van Velden, Roopnarain & Stonebridge, 2016a). Analysis of how employees experience, interpret and respond to the implementation and adoption around IA in South Africa is important in order to get the right balance (Van Velden, Roopnarain, Stonebridge, Kana, Hutchinson & Veerasamy, 2016b).

With this aim in mind, the research had four objectives:

1. Determine the reasons why financial institutions need to implement IA.
2. Describe a financial institution's IA implementation phases.
3. Determine how IA and new workforce implementation change the way in which a financial institution operates.
4. Explore techniques that can be applied within the financial institution through the development of a conceptual framework to encourage a balanced approach to IA implementation and ensure adoption of the changes in ways of work brought about by the implementation of IA and new ways of work.

This research studied a South African financial institution (case) that had already implemented IA in order to understand the process that was followed and change management approach that was adopted in order to develop a conceptual framework for a balanced approach to IA implementation and adoption.

1.5 Problem statement

The imbalance and uncertainty caused by how IA and the resulting new workforce implementation at financial institutions change the ways of work for banks and deliver new value to their customers is the research problem. Technological advancements have contributed to the way in which financial institutions perform certain functions such as banking transactions primarily taking place at a branch or ATM to many people adopting the use of mobile and Internet banking platforms. With the advancements in IA and the fact that this technology will be implemented in organisations across many industries, changing the way that customers will interact with their service providers, necessitates an investigation of how IA will change the ways of work and deliver new value to customers. Once an organisation embarks on the IA journey of experimentation and adoption of knowledge-based automation and new workforce implementation, an imbalance in its implementation and adoption strategy could affect the success of its IA journey. For example, employees' feelings of uncertainty during an organisation's IA journey could result in an imbalance in staff morale and resistance from employees' in accepting and adapting to the changes.

In order to address the problem of imbalance, the main research question of this study is:

> *What are the components of a balanced approach to knowledge-based automation and new workforce implementation of a financial institution*?

To answer the research question, the following sub problems must be addressed:

- Why is IA required in the financial services industry?
- What are the implementation phases of introducing IA into a financial institution?
- How does IA and new workforce implementation change the way in which financial institutions operate?
- What change management techniques can be applied within the business to encourage adoption of the changes in ways of work brought about by the implementation of IA and new ways of work?
- How does IA create new value for banking customers?

The above sub problems were identified to define the context of the research as well as guide the collection of data for this study.

1.6 Research design and methodology

The philosophical paradigm that best suited this study was interpretivism as the research was "socially constructed" in its aim to understand the new ways of work for a financial institution adapting to the use of IA and chatbot technology (Flick, 2011). Since the research aimed to inform new business model development, the methodology for business research suggested by Greener and Martelli (2015:42), served as a guide to conduct an inductive approach. In this study, theory was developed based on data collected and conclusions drawn through analysis of the data (Saunders, Lewis & Thornhill, 2009:124).

A preliminary literature review was necessary to conceptualise the complex landscape as illustrated in Figure 1.1. A comprehensive literature review was necessary to elaborate on the driving forces which brought about the changes and pressures experienced by the business amid changing customer demands and changing business strategies (cf Chapter 2). The literature review steered the development of a conceptual framework depicting feelings about organisational transition in response to internal and external pressure components (Figure 2.2). Data about these "feelings" were collected in order to identify the components that would contribute to a resilient balanced approach to IA implementation and adoption.

The time horizon of this research was guided by the collection of data at a single point in time, i.e. collected once, over a few weeks, rather than at different points in time for comparison purposes. A cross sectional study was therefore conducted as it examined employee perceptions to changes experienced through the implementation of IA within the organisation at a point in time. Data collected over an extended period, such as at the start of the programme and then again, some months later, would have been required for a longitudinal study with an intervention research design (Saunders *et al*, 2009:155). An intervention research design was not called for in order to study the components of a balanced approach to knowledge-based automation and new workforce implementation of a financial institution (*cf* Chapter 3).

1.7 Research scope

The topic "knowledge-based automation and new workforce implementation", could be widely interpreted, therefore it is necessary to delineate the study and mention some potential units of observation not included within the research scope. In this study, Section 1.1 introduced the unit of analysis *viz* the components of a **balanced approach** to IA implementation and adoption. The analysis was specifically in relation to a financial institution's employees' feelings about organisational transition in response to internal and external pressure components as a result of the organisation's IA programme. Many aspects of knowledge-based automation may have had relevance to the topic but only those aspects of relevance to

this case study have been included. Thus, the research scope does not include all the elements of the "perfect social storm" caused by robots that will bring about the "informatization of work" and "cascades of innovations", as described by Johannessen (2018). The scope of this study includes the components of a balanced approach to knowledge-based automation and new workforce implementation of a financial institution in South Africa. The study does not aim to describe the perfect intelligent enterprise because the technical aspects of IA enterprise architecture and natural language processing applications to transactions were not part of the research scope.

1.8 Chapter outline

The study is comprised of five chapters. This chapter, Chapter 1, outlined the background and rationale to the research, emphasising and identifying the driving forces and potential driving themes that had to be covered in the literature review (*cf* Figure 1.1). This chapter also covered the problem statement and sub problems to be answered through this research. It gave a brief description of the research design and methodology which is covered in more detail in Chapter 3. Below is a summary of the remaining four chapters of the dissertation:

- **Chapter 2: Literature review**

  This chapter provides a review of the literature available in the field of IA, chatbots and the ever-changing demands of customers. The chapter discusses the changing landscape of the financial services industry as well as the move of many organisations towards digital strategies supported by IA as enablers of this strategy. The role of the dialog used in discussing and approaching change around IA was imperative in driving adoption across an organisation and this was discussed in detail along with what this means for a new digital workforce, supported and enabled by IA and digital platforms.

- **Chapter 3: Research design and methodology**

  This chapter provides a detailed discussion on the reason for selecting a qualitative research design with exploratory data collection. The chapter also discusses ethical considerations that had to be maintained in investigating the components of a balanced approach to knowledge-based automation and new workforce implementation of a financial institution in South Africa.

- **Chapter 4: Analysis and discussion**

  This chapter presents the research findings based on data collected through semi-structured interviews as well as quantitative data collected from the specific business units in which IA was implemented. This was done through an analysis and discussion of the interview findings conducted with various role players across the IA programme.

The role players included Change Agents in the various business units, the project team responsible for implementation of identified IA projects and team leaders and senior management across the impacted business units. The second part of this chapter focuses on the quantitative data analysis of five use cases implemented within the organisation. The insights and perspectives gained from the SAFI use case statistics were used to outline the interpretation of the findings in order to maintain the highest levels of validity and reliability throughout the research.

- **Chapter 5: Conclusion and recommendation**

  Empirical findings from the data collected and analysed informed conclusions and recommendations for the study. Various themes were identified through the collection of data and these were grouped, and key recommendations derived from them. A conceptual framework was developed to depict the components that are necessary to achieve a balanced approach to IA implementation and adoption amid the complex landscape of the financial institution that was studied. The conceptual framework could also be used by other organisations to assist with managing the changes and pressures that can be expected through the implementation of an IA programme.

1.9 Summary

The future of traditional banking practices is under pressure to evolve with the changing times, advances in technology and demands from customers who expect individualised and quick service from their financial institutions. These traditional financial institutions are also facing challenges from their competitors who are investing in technologies of the future, as well as non-traditional competitors in the form of small, nimble start-ups that are able to provide the types of services that customers are looking for. Investing in technologies such as IA and chatbots to improve process efficiencies as well as service to customers is imperative if traditional financial institutions wish to remain relevant in the marketplace. This reality informed the development of the research problem and sub problems presented in this chapter. It also informed the empirical approach to the study as a way of addressing this problem. The process followed a review of the literature available, validation for the chosen research design, methods of data collection and presentation of the findings of the data collected. It further justifies discussion of the research findings, conclusion and recommendation of the study. The study is concluded with the presentation and discussion of a conceptual framework that can be applied to organisations embarking on a journey of change, in order to maintain a balanced approach to managing and ensuring effective adoption of the changes that will be experienced within the organisation.

Chapter 2

Literature review

2.1 Introduction

The literature review describes the driving forces associated with the IA journey as described in the background to the study, which necessitates a balanced approach to the implementation and adoption of IA. Throughout many industries across the world, organisations are exploring new ways to gain a competitive edge, not only over their traditional competitors but now over non-traditional competitors as well. The financial industry has a variety of new competitors such as mobile and insurance providers as well as Fintech companies that are all starting to compete in the financial services domain (Flynt, 2016; Karlsson Lundström, 2016). According to Schweistal (n.d), and Lawrence (2014), Fintech is a term that is commonly used to describe businesses that provide financial services using technology and innovation. These companies are able to compete directly with financial institutions in many sectors of the financial industry, offering services and solutions to the tech savvy customers of today (Schweistal, n.d; Norton, 2016).

The challenge that financial institutions have with these new competitors is that they are nimbler and more adaptable than traditional financial institutions because they do not have the legacy IT infrastructure issues that face most large financial institutions today (Hawes & Chitra, 2016:103). According to a white paper published by the Institute for Robotic Process Automation and Artificial Intelligence (IRPAAI), in order to gain a sustainable competitive advantage in this landscape, organisations need to do more than just simple process optimisation or finding cheaper labour options (IRPAAI, 2017). Many organisations are adopting process automation, using software robotic technology as a new, more radical approach to gaining advantage over competitors. By doing this, many of the repetitive but essential functions that have been performed by humans are now being taken over by IA. This is a crucial step that many organisations are taking, because according to the IRPAAI (2017), “the implications of continuing to rely on manual process in financial, operational, service and other functions is proving to be expensive and prone to errors”.

This chapter provides a theoretical background to IA and chatbot technology implementation into an organisation using a conceptual framework to demonstrate the complexities and interdependencies of such an initiative. It seeks to understand why this is an important next step for a financial institution in the current economy and what steps need to be taken to set up and run an IA programme across a large organisation. The chapter also focuses on how to address this type of change with the business units and employees affected by the change to ensure maximum adoption rates in the new ways of work and how, in turn this technology can

add new value to banking clients. This chapter elaborates on Figure 1.1, the driving forces associated with the IA journey, from the literature describing the changing landscape of the financial services industry.

2.2 The changing landscape of the financial services industry

Due to the changing expectations customers have of their financial institutions and the service and experience that they expect; financial institutions are being forced to rethink several strategies. These expectations that customers have are not being shaped by competing financial institutions but rather by companies like Google, Apple and other small, nimble Fintechs that provide digital products which are reshaping what customers want (Murphy & Seitzinger, 2015:4; Hawes & Chitra, 2016:102). In his article, "Top 10 Strategic Priorities for Banking in 2017", Marous (2016b:7), reports that a global survey of over 500 financial institutions found that the top three strategic priorities for financial institutions in 2017 were as follows; improve the digital customer experience (71%), enhance data analytics capabilities (50%), and reduce operating costs (41%). While cost saving and increasing business revenue are always important factors, the benefits of IA are much wider than this (Laurent & Chollet, 2015). These include better use of skilled resources, quicker response times, more effective decision making and product and service innovation (Laurent, Chollet & Herzberg, 2015). The literature informed Figure 1.1, which depicts customers as one of the driving forces, as discussed in detail in the next sections.

2.2.1 Improve the digital customer experience

Digitisation, according to Hawes and Chitra, (2016:103), is the process of converting information into digital format. Increasingly, customers make decisions about their banking transactions based on the ease with which they can interact and engage with their financial institution (Marous, 2016b:7). It is for this reason that financial institutions need to find new, digital access points to enable customers to interact with their financial institutions. This makes streamlining and digitisation of internal processes a top priority, one that requires financial institutions to realise that the customer, not the product, is at the centre of their universe. The shift to digitisation stems from two changes in the industry. Firstly, customers, more than ever, want to be able to use digital channels for self-service, rather than calling a call centre or visiting a branch for simple tasks like changing an electronic payment limit (Schupmann, 2017). The second change is the emergence of Fintech companies with very specific business models, offering "digital-only services to select demographics in a fraction of the time" (Hawes & Chitra, 2016:103).

2.2.2 Enhance data analytics

According to Marous (2017a:16), "big data analytics refers to the ability for an organisation to source, aggregate and analyse large amounts of structured and unstructured data". With the move to digitisation, the conversion of information into digital format, and the increased use of social media platforms by customers, comes a huge amount of data about customers that financial institutions need to learn to leverage to create unique, personalised customer experiences. According to Marous (2016b:7), transforming customer insight and data analytics into valuable information that can be used to better understand customers is one of the top priorities for many financial institutions, and data is the fuel that will drive such initiatives. Data analytics provides the ability for financial institutions to better understand their customers and enable them to predict their behaviour. As the industry anticipates the changes that will impact the future of banking, many are looking at ways to use technology to solve customer requests or inquiries before they even occur (Teller Vision, 2016). Data analytics can take the customer experience to a whole new level. The BoA have launched their IA chatbot, Erica, to assist customers in performing banking transactions such as making payments, checking balances and providing advice on savings opportunities and debt repayment (Taylor, 2016). This is done through applying IA, predictive analytics and cognitive messaging to the vast amount of customer data, or as Srinivasan (2017) puts it, the "big data" the financial institution has available to use.

2.2.3 Reduce operating costs

A banking analysis report published by PwC in 2016 states that the international business landscape has not fully recovered to the state it was in prior to the global financial crisis (Van Velden *et al*, 2016a). A comparison of the figures in the two reports published in March and September 2016 by PwC, reflect the truth in this statement (Van Velden *et al*, 2016a; Van Velden *et al*, 2016b). In March 2016 the report revealed that across the six major South African financial institutions' bad debt expenses were 10.8% and in September of the same year these bad debt expenses were up to 26.8%. Similarly, operating expenses went from 6.8% in March to almost double, 12.6% in September and average return on equity went from 17.9% in March and dropped by 0.3% to 17.6% in September. These figures reflect not only the difficult times that consumers are facing, but also the difficult times financial institutions are facing. Expenses are increasing while returns are decreasing. It is for this reason that one of the key focus areas for financial institutions is reducing operating costs. The implementation of digitised processes as well as IA not only adds accuracy and speed at which work can be completed, but also presents an opportunity to reduce operating costs from between 25 to 40 percent (Casale, 2015).

Given the top strategic focus areas across many of the world's leading financial institutions as understood from Marous (2016b:7), there are several opportunities that financial institutions

can take advantage of to ensure that they stay ahead of their competitors and improve their customer experience ratings.

2.3 The transition to digitisation and IA

The need for financial institutions to deliver more digital, innovative solutions to customers is becoming a crucial part of many financial institutions' strategies, making it clear that financial institutions recognise the urgency to act for them to compete with Fintechs that threaten the core of their business (Tandulwadikar, 2016). In a study conducted by SAP and Bain & Company, reported by Kenny (2017:8), it was found that digital adoption by lenders is currently very low. The study found that a low 14% of loan applications are submitted through digital channels and even less, around 7% are processed digitally. Further, it was found that only 7% of financial institutions can digitally handle lending products end-to-end with between 14% and 36% of simple to complex loans requiring reworks. This brings to light the degree to which financial institutions are struggling to adapt to new digital expectations and realities of customers and competitors (Kenny, 2017:8). According to Skinner (2017:59), the transition from traditional processes to digital processes in the financial services industry is one that typically involves four main pillars, namely simplicity, design, analytics and experience:

- **Simplicity** refers to removing the complexity that has been built into banking over the years. Financial institutions that have been established for many years have to contend with the problem of outdated legacy systems that create unnecessary complexity in processes (Skinner, 2017:59). According to Hawes and Chitra (2016:104), one of the ways financial institutions are getting around this challenge is by launching a digital bank as a branch of their main business, offering new products, automated processes and modern technology solutions. This strategy provides a good way for traditional financial institutions to learn to become more agile and less complex. In financial institutions where a digital bank has been successfully launched, the "parent bank" is starting to see a loss of market share to their digital branch, proving that this is the direction that customers want to see their financial institutions going (Hawes & Chitra, 2016:104).
- **Design** is crucial in the quest for digital transition, says Skinner (2017:59), stating that design thinking in the context of banking is a relatively new point of discussion. The purpose of design thinking is to drive simplicity in processes from the user's perspective, which is not a new concept to remaining competitive in a changing business environment (Porter, 1998; Porter, 2000; Wylant, 2008). To achieve simplicity from the user's perspective, financial institutions need to start to think in terms of a digital operating model (Kenny, 2017:8). It is vital that financial institutions design processes in such a way that there are no system limitations and boundaries

across front, middle and back end processes. Only then will financial institutions be able to create a better customer experience.

- **Analytics** links to the data financial institutions have access to, including the large amount of customer data that has traditionally not been effectively used in order to understand the individual customer and provide added value to their banking experience (Srinivasan, 2017). Very few financial institutions have a single view of the customer and this can be largely attributed to the way their legacy systems have been designed, which according to Hawes and Chitra (2016:103) is very much around lines of business, product lines and channels. Data is simply stored in these antiquated legacy systems and presented back to the customer in the form of a list of transactions performed in the month (Skinner, 2017:59). Data analytics refers to more than just static analysis of internal data and it is therefore vital that analytics be applied in the financial services industry (Kenny, 2017:8), to make more valuable use of the data available to tailor individual customer experiences and solutions so that customers feel known, valued and remembered (Skinner, 2017:59).
- **Experience** is the final pillar that Skinner (2017:59) mentions. Experience is a culmination of the three pillars already mentioned that will ensure that every customer experience is a great one. The literature abounds with evidence of the driving force of customer experience (Murphy & Seitzinger, 2015; Hawes & Chitra, 2016; Taylor, 2016; Brusnahan, 2017; Guibaud, 2017; Marous, 2017a; Marous, 2017b; Schupmann, 2017; Srinivasan, 2017; Johannessen, 2018), which relate customer experience to among other; expectations of service delivery, educated and digital driving forces, digital self-service, personalised banking experience, brand loyalty, the ease to change service providers, and the demanding nature of the customer, as illustrated in Figure 2.1 (*cf* Figure 1.1).

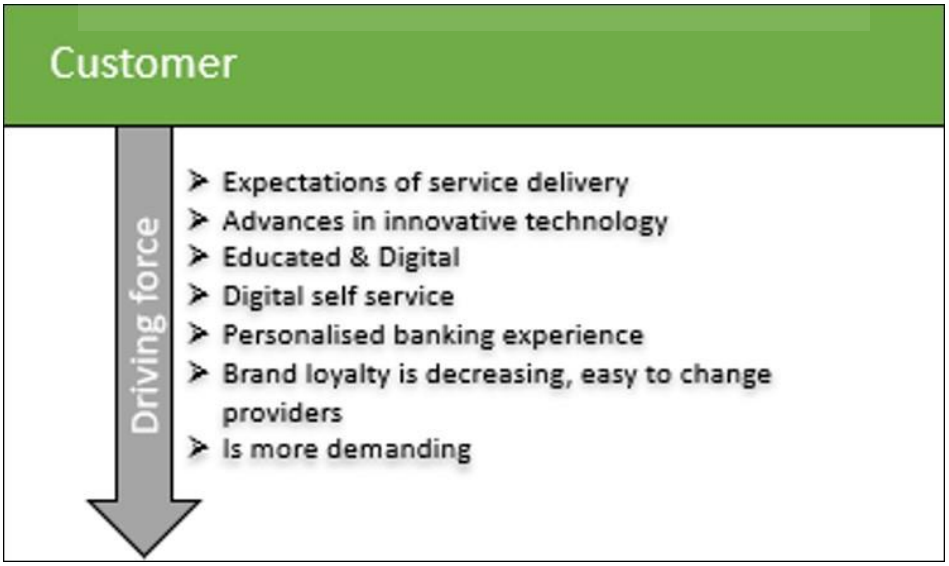


Figure 2.1: Customer as a driving force (Own source developed for this study, 2017)

Thus, the researcher infers that for financial institutions to really remain competitive they need to do more than just digitise or add new application channels and access points, because if the processes that remain in the backend are still manual then the point of digitisation is defeated. Too often this approach is taken without any consideration for smart automation of back office processes or as quantified by Hawes and Chitra (2016:104), there is no consideration for taking an application process from two to five days' turnaround time to minutes. Yet this is the type of change that customers are really looking for in their banking experiences. Therefore, a digitisation strategy must go hand in hand with an automation strategy in a balanced approach.

The basic process for any organisation to follow when starting on an IA journey has been defined by Shah (2016) in three basic steps. Firstly, an assessment of the current business to identify possible automation opportunities needs to be conducted. Secondly, the organisation needs to decide on the ideal operating model by assessing the different IA providers and selecting the one that best suits the needs of the organisation. There are many service providers offering IA technology and solutions, but not every provider will meet the needs of every type of organisation. To demonstrate this in a practical way, insurance company Xchanging discussed their approach to embarking on their automation journey. The first thing that the company did was to evaluate potential suppliers based on the products and solutions they offered and the needs of the company, while identifying potential processes to be automated (Willcocks, Lacity & Craig, 2015b:9). Some of the criteria considered when examining potential processes was volume of the processes, repetitive nature of the process, sources for data extraction to complete the process or transaction, and generation of reports from disparate systems.

The final aspect of implementation, according to Shah (2016) is to plan the automation roadmap in terms of pilot processes, duration and final roll out to the business units. This also entails getting key project resources such as IT on board and approval of the business case (Willcocks *et al*, 2015b:9-10). IT forms a key player in any digital and automation journey as without them building the correct environments and securing architecture and infrastructure, the implementation of solutions into the organisation would not be possible. According to Behrens (2015), it is vital to build in enough time for extensive testing of the software to ensure the IA solution does meet the needs of the customer through the execution of the process as well as for training of employees who will need to adopt and interact with the technology daily. In this last phase of an IA journey according to Willcocks *et al* (2015b:10) it is important to improve on what has been done by introducing full scale disaster recovery for the automated

processes and continuously identifying improvement opportunities for future processes to automate as well as processes that are already automated.

Another aspect of IA that many organisations are considering is the implementation of chatbots or virtual assistants into various channels. With many financial institutions already having built their digital banking platforms, chatbots add a new take to customer service that allow customers to interact with their financial institution in a completely different and convenient way (Marous, 2017b). According to Guibaud (2017), chatbots that can resolve queries and requests will become the new norm for many banking customers around the world, as the effectiveness of this customer facing artificial intelligence (AI) is revealed, when applied to everyday customer service. According to Schwab (2016), Srinivasan (2017), and Johannessen (2018), the advancements in voice recognition are happening so quickly that communicating with computers *viz* talking to an intelligent assistant that is always available to reply to queries immediately, will soon become the norm.

The development of chatbots is more complex and data intensive compared to the development and implementation of IA. As explained by Brusnahan (2017:11), there is no one-stop-shop when it comes to creating a chatbot as every instance of a chatbot is different and takes a large amount of data and testing to make the robot respond and interact like a human intelligent assistant would. Chatbots need to be constantly learning and evolving in order to interact on different levels and handle different customer requests and scenarios, and this comes with large amounts of data that the bot can use to learn from and adapt.

While it is obvious that the implementation of IA and chatbots is inevitable for many organisations, including financial institutions around the world, the key to the success of these projects' rests on the change strategy that is adopted within the organisation. The size and impact of such a change on the staff within the organisation is not to be underestimated as this could be the one thing that is the difference between the success or failure of the solutions. Therefore, it was said in Chapter 1, that it is necessary to follow a balanced approach to knowledge-based automation and new workforce implementation. For example, employees' feelings of instability during the IA journey could possibly derail or pause an organisation's IA journey if attention is not given to the dialog around IA.

2.4 Digitisation versus intelligent automation

Digitisation and automation are two emerging trends which are fast becoming the preferred solution for process improvement and optimisation across many industries (Subramanian, 2014). Although the terms are often used interchangeably, the success of one goes hand in hand with the success of the other (Hawes & Chitra, 2016: 103). While having a strategy that focuses on improving the digital customer experience is important, this can only be successful

if there is focus on improving the internal processes to ensure a seamless customer experience (Hawes & Chitra, 2016: 103). New, innovative digital customer access points mean very little if the processes that run in the background to support these digital front ends are still manual, paper based and inefficient (Hawes & Chitra, 2016:103). Therefore, a strategy that goes hand in hand with digitisation is process automation, using IA software. According to Shah (2016), Chief Marketing Officer at Redwood Software, there is no doubt that banking Shared Services Centres across the world are experiencing significant changes. In a survey commissioned by the company between 2015 and 2016, 67% of the surveyed centres intend to be using IA technology in the next 12 months (Redwood Software, 2016).

IA is the "application of software and algorithms to perform routine tasks and operations that have been previously performed by humans" (Casale, 2014). The technology can capture and interpret existing applications to enable processing of simple transactions, handling large amounts of data and prompting responses from other systems through digital communication between these systems (Casale, 2014). There have been major advances in the application of IA technology in back office functions as well as customer contact functions that will allow organisations to expand the capabilities of many workers and leverage off innovation and data analytics to drive operational change (Casale, 2014).

The benefits of IA have been widely discussed since the emergence of this strategy in many organisations. Such benefits include accuracy and quality in execution of processes that would typically have high error rates when performed by humans, substantially reducing the amount of rework in these processes to almost nothing. This in turn will reduce the overall cycle time of the process, delivering value to the customer in a much shorter time frame than before. (Konopka, 2015). This reduction in cycle time, according to Konopka (2015), is also due to the fact IA can perform processes at a much quicker rate than humans can, reducing processing time by up to 90% in some processes.

IA is best suited for processes that are high volume and typically have a longer processing time because these are normally the types of transactions that are routine and repetitive in nature. It is also easier to justify the application of IA to these high volumes transactions as the benefits will be visible much sooner than if applied to low volume transactions that typically have a short processing time (Fung, 2014). Another benefit to the implementation of IA is that it is a far more affordable option for many organisations than trying to change long established system architecture and infrastructure, a problem that many well-established financial institutions face. Many financial institutions are hindered by a diverse set of outdated IT systems that were developed and organised around banking models that did not put the customer requirements at the heart of their business (Hawes & Chitra, 2016:103). IA technology provides the ability to integrate these systems, allowing systems that do not normally integrate well to be able to work together, and presents outcomes and customer

information in a single view (Konopka, 2015). Therefore, processes that require access to multiple systems to complete the task are good candidates for this as it reduces the manual effort required to transfer information from one system to another, thereby also reducing the chance of errors on the human side (Fung, 2014:2).

The above are just some of the benefits of the implementation of IA into an organisation. However, the real customer and organisational benefit will be realised when an effective IA strategy is coupled with an effective digital strategy, to come together in one technologically innovative solution (Johannessen, 2018). Digitisation of front-end applications as well as self-service channels that trigger slick back end automated processes, that require minimal input from consultants will enable the creation of a streamlined, seamless customer experience (Srinivasan, 2017).

According to a report by consulting house Accenture (2016b), the advancements in digital technologies are shifting the financial services industry to a consumer-to-business model. The technological developments in digital front-end interaction points, such as banking applications for smart phones, online application processes that require minimal input of information from customers and virtual assistants such as chatbots are just some of the ways organisations are combining digital and IA strategies.

2.5 Managing the changes that IA brings

Every organisation, no matter the size, type or industry, will undergo some form of change. Change can either be incremental, meaning that it is slow and gradual, or it can be widespread and sudden (Russell-Jones, 2011:13). It can be enforced onto the organisation or something that is sought after. No matter the type of change, the way it is managed and our response to the change should be proportionate to the extent and complexity of the change (Russell-Jones, 2011:13).

In early 2016 at a news conference in Geneva, founder of the World Economic Forum, Klaus Schwab said in presenting his new book, The Fourth Industrial Revolution, that the world is not ready to take on the 4IR which will appear like a tsunami (Beebe, 2016:29; Schwab, 2016). Schwab (2016) explained that the speed at which this revolution would approach us would make it difficult for policy makers to ensure that the necessary legislative and regulatory frameworks are in place. The other critical concern that Schwab (2016) had was that this revolution is unlike any other before it and the forces that shape consumer behaviour are not the same as before. Those that are in decision making positions need to be able to adapt to the volatility and unpredictability to be effective at managing the changes to come (Beebe, 2016:29).

An important consideration amid the hype about the 4IR and how these IA and chatbot solutions will be taking over the workplace and possibly completely replacing humans, is how the hype is obscuring the benefit of the solutions (Lowes & Cannata, 2015:4). In the urgency with which companies are trying to adapt and go digital, the people that are often the most affected by the change are the ones that are forgotten. These changes that are required for a company to implement an IA strategy are not just about the changes to back office process but require a completely different mindset change by the consultants who will need to interact with the technology and adapt and acquire new skills (Hodge, 2019b). According to Hodge (2019b), there needs to be a shift from a culture of command and control to one of empowering employees to identify problems and be involved in solving them, supporting of the notion of a balanced approach to IA implementation and adoption. When employees feel included in the change, they are more likely to be accepting of it (Hodge, 2019b).

One of the concerns that Schwab (2016:20) mentions in relation to the 4IR is the lack of regular, optimistic and constructive narrative about the opportunities and challenges that it brings and how to handle the changes. Schwab (2016:20) goes on to say that "a narrative is essential if we are to empower a diverse set of individuals and communities and avoid a backlash against the fundamental changes underway" (Schwab, 2016:20). The role of the IA narrative and the theme of an inspired staff is illustrated in Figure 1.1, supported by Mayville (2018) who shares the concerns that were first raised by Schwab (2016:18-24). Their concerns are that too many digital transformation initiatives have a top-down approach in which employees are not involved in decisions or conversations, but they will ultimately be the people in the organisation that have to adapt the most to the changes to come.

If a financial institution's employees expect, whether it is correct or not, that the changes will result in more, or more difficult work for them, they could be more reluctant to accept and adapt to the technology (Mayville, 2018). It is therefore vital to consider the effect that negative rumours can have on the successful implementation of an IA programme and to manage this with effective open communication across all levels of employees from the start. A change as big as IA is bound to cause tension, rumours and uneasiness for the teams where the technology will be implemented (Behrens, 2015). Managing this uneasiness early on is key to the adoption of the changes to come.

The research aim was to inform new business model development which caters for the integration of the traditional human workforce and IA systems, which required an investigation of the new ways of work as a result of the implementation of an IA programme within one of the leading financial organisations in South Africa. After initiating the programme, the project team quickly realised that the way in which the message around IA was being understood across the organisation was somewhat negative and that there was a lot of fear surrounding the thought of "robots" taking over the jobs of humans. This allowed the scope of the research

to be further narrowed down to understanding the right message about “new ways of work” (Nwow) and how to send this message to the people affected in such a way that adoption of IA solutions increases internally, to drive new value to the clients of the financial institution.

2.6 New ways of work with a digital workforce

In the early 1990s, the concept of outsourcing gained popularity in the business industry and became an important strategy that many organisations began to consider (Casale, 2014:1). At the time this growing trend in business was seen as being rather contentious, impacting the labour pool both in local economies as well as globally (Casale, 2014; Swan, 2015). Twenty years later and Casale (2014), who founded the Outsourcing Institute, is now the founder of IRPAAI and predicts that Robotic Process Automation (RPA) will be the next significant game changer in the business world. Casale’s (2014) view of how IA threatens the outsourcing business model is focused on digital transformation. Surdak (2017), agrees that digital transformation will dramatically change the Business Process Outsourcing (BPO) model. Start-up and Fintech type companies will use digital solutions to provide value to their clients, doing things entirely differently as opposed to doing the same old thing cheaper, which is the case for BPOs and organisations that still apply this business model (Wattenhofer, 2016; Surdak, 2017). The impact of this on BPOs is that consumers of their solutions will increasingly demand processes that are performed offshore to be automated in order to reduce costs (Everett, 2015). The reality is that most processes that are outsourced can be automated (Srinivasan, 2017; Johannessen, 2018), which means for BPOs to remain relevant they will begin to play the role of consultants rather than process execution.

Process execution and automation have a symbiotic nature, meaning that new technology has the potential to free up time and its applications could help humans to develop new competencies and apply their skills in new areas. For example, automation has traditionally been applied in the manufacturing and supply chain industries, taking away repetitive, labour intensive jobs from humans, speeding up the delivery time and increasing accuracy of execution (Casale, 2014:1). However, as IA is increasingly being applied in the service industry, organisations are being forced to examine the way in which they perform their business processes. According to Casale (2014:1), “service providers who are striving for differentiation in a crowded marketplace will be able to offer vast improvements in their service offerings and cycle time”.

To achieve this, organisations need to learn to adapt to the changing times and work with technology, rather than against it. As mentioned above, there has been an increasing shift in BPOs rethinking their business models to stay relevant (Everett, 2015). Shared services centres are in an advantageous position to leverage new technology solutions and according to S&P Dow Jones CFO Manny Korakis, quoted by Hodge (2017a), “AI is now encouraging a

radical pace of change". Shared service consultants will face a huge change in the way that they operate as they will have to learn to work alongside these IA solutions and adapt to new ways of work, which involves artificial intelligence.

Artificial intelligence, explain Horton (2015), optimise internal processes in real time which means a robot can replicate a process that is performed by humans with a defect rate of 0.2 percent. The defect rate decreases as machine learning increases (Srinivasan, 2017; Johannessen, 2018), The process presented in Horton's (2015) example could be performed by a consultant in about 15 minutes. When a software robot was applied to the same process it took about 4 minutes. The defect rate of 0.2 percent was because of missing information, resulting in the robot not being able to complete the process. In this case the work would be pushed by the robot to a consultant who will pick up the case and complete it (Horton, 2015). The researcher is of the opinion that this is a typical example of how the shared services environment of a digital organisation would operate – consultants would be freed of mundane, repetitive tasks such as reconciliations and retrieval of statements, allowing them to perform tasks that add value to the customer experience, like having a constructive conversation with SAFI's customer around what matters to them.

However, the type of work that these consultants would be required to do is significantly different to the work they are used to doing (Hodge, 2019b). The challenge for organisations is to ensure that their staff are empowered and have the necessary skills and competencies to cope with this new type of work (Hodge, 2019b). According to Hodge (2019b), in a recent industry survey performed by the Shared Services & Outsourcing Network (SSON), leaders of shared services environments report that the new skills required, and current skills gap among staff are data analytics, understanding automation technology and innovative thinking. Possessing these skills would mean that an employee would be able to utilise the data that is generated from the automated processes in order to further improve on the process or identify issues early on and act upon them.

The responsibility to provide employees with the necessary skills lies with management to allow capacity for these employees to learn the skills they need and understand how their work can add value to the organisation (Hodge, 2019b). It is not merely about replacing their work with machines. Empowering employees with opportunities to learn and be involved in the changes allows for staff that are engaged and driven to be a part of the change (Hodge, 2019b). The traditional top-down approach to changes would result in employees pushing back against the changes (Hodge, 2019b). A change of this nature requires a massive shift in culture, moving away from command and control to an employee driven and empowered problem-solving mindset (Hodge, 2019b).

Added to the changes to the Shared Services environment, the IA project team had to go through some changes in terms of the way in which they implemented projects. For SAFI's

customers to get the most benefit out of an IA programme, the organisation realised that it would be necessary to relook at its approach to project management and implementation that was used to execute projects. Traditionally, many areas within the organisation would follow the Waterfall and Lean Six Sigma (LSS) project methodologies (SAFI, 2018). According to Wrike (n.d), the Waterfall methodology follows a sequential set of tasks with clearly defined goals and timelines. The project team will work on tasks sequentially until the project is complete, with little room for changes once the project has started. In LSS projects, two methodologies are combined; Lean and Six Sigma. “Six Sigma is a statistics-based quality improvement process which is aimed at reducing the number of defects in a business process” (Wrike, n.d). Lean project management focuses on the reduction of waste in a process and aims to eliminate any delays or bottlenecks. Both Lean and Six Sigma projects aim to deliver the final product or service to the customer in the quickest way, with the least number of defects along the way (Wrike, n.d).

While these, and all project management methodologies have their benefits, the organisation realised that to deliver maximum value in the shortest amount of time, a different approach would need to be followed (SAFI, 2017). The organisation introduced the Scaled Agile Framework (SAFe), which assists organisations to synchronise alignment, collaboration and delivery across multiple teams (Scaled Agile Inc, 2016). Agile project management is based on shorter timescales, allowing continuous delivery of valuable software every couple of weeks or months. As Figure 1.1 depicts, Agile is included as one of the forces driving internal pressures as it welcomes changing requirements throughout the development of solutions to cater for changing business and customer requirements (Scaled Agile Inc, 2016).

The SAFe project management methodology was introduced in conjunction with LSS. In order to ensure back-office functions are future-ready, it is important to cut down on process inefficiencies and complexities (Sheth, 2017). Figure 2.2 below, depicts how LSS can be used in order to ready the business for the application of automation technologies. Centralisation and standardisation can take place across the business functions, followed by process optimisation through the use of LSS. Once processes are streamlined and free of wastes, the SAFe methodology can be applied to automate these processes.

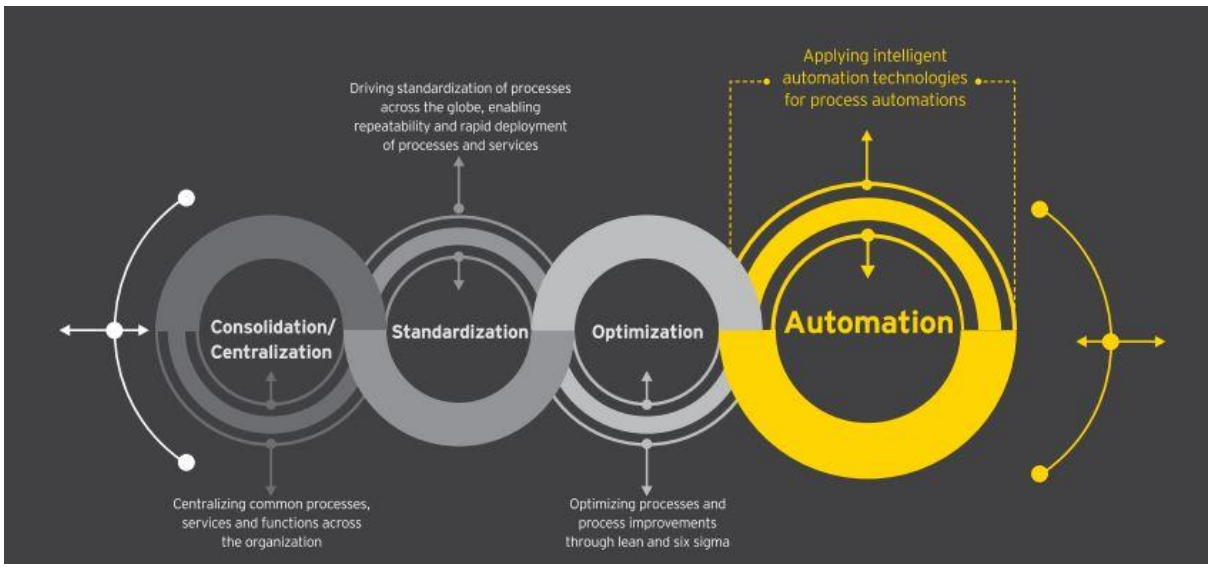


Figure 2.2: Application of LSS in an IA Journey (Sheth, 2017)

The discussion above has covered most of the literature review of driving forces in relation to internal and external pressure components associated with IA and Nwow. The literature review provides the study's theoretical background and Figure 1.1 was utilised as a tool to keep the discussion within the research scope (*cf* Section 1.6). Since the research aim was to inform new business model development, it was necessary to develop a theoretical understanding of Nwow prior to developing a conceptual framework specifically in relation to a financial institution's employees' feelings about Nwow.

Figure 2.2: Application of LSS in an IA Journey (Sheth, 2017)

2.7 Summary

The rapid growth of Internet usage over the years and the development of social media and smart phones has made technology more significant in the financial industry. Adoption of this technology is crucial if financial institutions want to remain relevant in a world where Fintechs and small, nimble start-ups can provide more valuable, tailor made, technological solutions to customers compared to financial institutions. There has been an increase in interest in this technology and many financial institutions have started to investigate the benefits and some are even running proof of concept projects to demonstrate the benefits to shareholders and customers. BPOs have started to realise the threat to their industry and are adapting their business models to cater for this. After all, a customer is not interested in the process but rather the outcome that will provide value to their banking experience. All of these pressures can cause a level of uneasiness and instability within the organisation, as is depicted by the conceptual framework in Figure 2.2. It is crucial that the right steps are taken to ensure that

the impacted parties are able to adapt to the changes that are necessary for the organisation's success.

Chapter 3

Research methodology

3.1 Introduction

According to Saunders *et al* (2009:106), it is not uncommon for many researchers to start their research journey by thinking about the way in which they will collect data to answer their research question and sub problems. It is however vital as a researcher to first understand the outer layers of the research onion to recognise the belief system, or world view of the researcher, that will guide the path of the research project. This chapter describes in detail the process that was followed in determining the data that needed to be collected, and how this data would be analysed, and the results interpreted and presented.

The starting point of the research project was to establish a research design that would expand and elaborate on theory and facts applicable to World 1, the world of everyday life while contributing to World 2, the world of scientific research using scientific, methodological tools, as well as the reflections and critical reasoning through meta-science in World 3. In using Mouton's (2008:138-139) world view theory the following view point was developed for this research project:

- **World 1:** the world of everyday life and lay knowledge. In the case of this research, the financial institution's implementation of an IA programme into the organisation with the intention of driving new value for banking clients.
- **World 2:** the world of science and scientific research. In this research this formed the study of a resilient balanced IA implementation and adoption plan to managing the changes expected in implementing the IA programme to ensure adoption and support of the solutions throughout the organisation.
- **World 3:** the world of meta-science. This entails the development of a conceptual framework depicting the complexities across the organisation when embarking on such an IA journey. This is based on the philosophical views of the researcher with consideration for the research conducted.

The following sections discuss the theoretical process that was followed in selecting the research approach, design and methodology, as well as the specific paradigms that shaped the epistemological, ontological and axiological position of the researcher.

3.2 Research design

The research design describes the way in which the answers to research questions will be found (Kumar, 2011:41). This research design was determined based on the assumptions and beliefs of the researcher, which in turn reflected the research philosophy that was followed by the researcher (Saunders, Lewis & Thornhill, 2012:128). The aim of the research was to inform new business model development which caters for the integration of the traditional human workforce and IA systems. The objective of this research was to investigate the components of a balanced IA implementation and adoption plan that could be applied within the business of a South African Financial Institution to encourage the adoption of NWow and how this can then drive new value for banking clients.

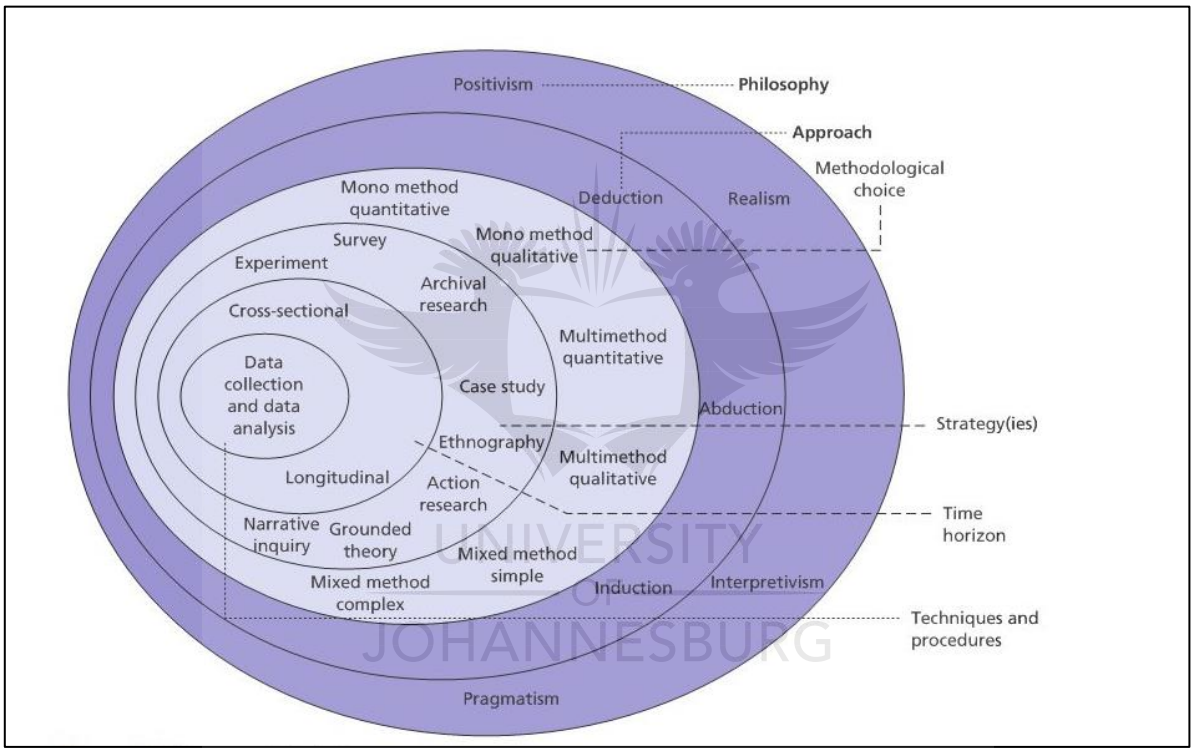


Figure 3.1: The research onion (Saunders et al, 2012:128)

The discussion of research methodology is guided by Figure 3.1, which illustrates the "research onion" of Saunders *et al* (2012:128). Below, the first two layers of the onion *viz* philosophy and approach, are discussed with specific reference to this research.

3.2.1 Philosophy and approach

This research was conducted within a specific financial institution and very early in the institution's journey of the deployment of its IA programme. As a result, it became apparent to the researcher that there was still a large amount of uncertainty within the organisation around not only the journey that had been embarked on, but also uncertainty in terms of what the end result of this journey would mean for the organisation and its employees. It became critical for

the researcher to carefully scan the literature available on philosophy and approach before deciding on the philosophical views for this research paper. This is discussed below in terms of ontology, epistemology and axiology.

Ontology refers to different views on the nature of reality (Creswell & Plano Clark, 2007:23), and is concerned with two aspects, objectivism and subjectivism. This research follows a view of subjectivism as the success or failure of the IA journey that the financial institution is on is very much dependant on the way in which the messages about IA are directed across the organisation and the resulting perceptions that staff have. According to Saunders *et al* (2012:132) this is known as social constructionism and is associated with the different interpretations of the situations that the subjects being studied find themselves in. If these interpretations of reality are not effectively managed, then the different interpretations are likely to affect their actions. Their actions can then be viewed by others as being significant in the context of their own situations. In respect of the IA journey that the financial institution is on, a negative perception of the intention and benefit of the programme to the organisation and its customers could result in this perception spreading across the organisation and impact the adoption rates, thereby impacting the overall success of the IA programme.

Epistemology according to Creswell and Plano Clark (2007:23) refers to the way in which we gain knowledge. This research lends itself to an interpretivist viewpoint with some elements of realism being obvious as well. According to Saunders *et al* (2012:137), "interpretivism advocates that it is necessary for the researcher to understand differences between humans in our role as social actors". This is particularly true in the case of this research as there are many different role players involved in the deployment of the IA programme, and each of these roles has a different perception and understanding of the changes that are to be expected. The population to this study was the Shared Services environments in which the IA technology has been implemented. The project team was made up of analysts and technical resources responsible for shaping the solutions for the specific business units. The managers, change agents and team leaders in the affected business units were responsible for driving the correct message within the teams and ensuring adoption among the team. Senior management across the business units were also responsible for driving the right message to increase adoption but they looked at the IA journey from a more strategic point of view, whereas the researcher had an interpretivist point of view.

One of the most important aspects of the interpretivist viewpoint is that the researcher is empathetic to the subjects being studied and must understand their view of the world from their specific point of view (Saunders *et al*, 2012:137). In this case the researcher was very aware of the fact that there would be many different perceptions about the IA programme from all the relevant levels and roles across the organisation involved in the programme. The

researcher wanted to ensure that each of these perceptions could be understood from their perspectives.

This also links directly to the realism perspective, specifically to the critical realist perspective as described by Saunders *et al* (2012:136-137) as "what we experience are sensations, the images of the things in the real world, not the things directly". It was also important to note that the critical realist viewpoint was one of the capacities of the research to be able to change the world that it studies by understanding subjects from an individual, organisational and group level. According to Saunders *et al* (2012:137), "each of these levels has the ability to change the researcher's understanding of what is being studied". The importance in understanding the perceptions across the various roles of the IA programme becomes very clear when looking at this research from this perspective.

Axiology, according to Creswell and Plano Clark (2007:23), is the role that values play in research. As a researcher it is critical to realise that personal values play a key role in the credibility of the outcomes of the research (Saunders *et al*, 2012:137). The researcher of this study works for the financial institution that is the subject of the study, and in the project department responsible for rolling out the IA programme across the organisation. It could therefore be said that the researcher was directly part of what was being researched and could have very subjective views. It is for this reason that an inductive approach to the research was followed in which data would be collected and analysed and interpretations presented based on the findings of empirical study.

The approach followed for this research, as stated above was an inductive approach. This was the most suitable approach for investigating the gap identified between what the literature said about an IA journey's benefits and the realities and uncertainties that the organisation would experience when embarking on a journey of this nature. Given that only one financial institution is being studied and only a portion of that particular organisation formed part of the study, it was considered appropriate to study a specific group of subjects as the research sample rather than to study a very large sample, as is required with a deductive approach (Saunders *et al*, 2012:146).

3.2.2 Research strategy

The research methodology focused on the process of conducting the research project and the tools and procedures that needed to be followed to complete the project (Goddard & Melville, 2004; Mouton, 2008:55-56; Flick, 2011). The research approach chosen for this study was a qualitative research approach with the collection and analysis of qualitive data to develop theory (Sauders *et al,* 2009:480). According to Merriam and Tisdell (2016:2), a qualitative inquiry requires a data collection tool that is sensitive to the underlying meaning of the context when collecting and analysing the data. Qualitative research is concerned with how people

make sense of their world through the meaning they have constructed based on their experiences (Merriam and Tisdell, 2016:16). The most effective way to conduct a qualitative study is therefore through people, using interviews or observation to collect data (Merriam and Tisdell, 2016:2). According to Saunders *et al* (2009:151), qualitative research refers to collection techniques and analysis procedures that generate non-numerical data.

As discussed in Section 3.2.1, the epistemological position of this research requires an individual and empathetic understanding of the perceptions and beliefs of each role player in the IA programme as well as how each role player's viewpoint had the potential of changing the researcher's viewpoint of what was being studied. For the purposes of this study, qualitative data was collected through semi-structured interviews in order to understand the perceptions and beliefs of each role player in the IA programme and to inform the development of a conceptual framework. In the case of this research this strategy was necessary for the exploration of the phenomenon of IA implementation and adoption strategies that can be applied within the business and how these will encourage adoption of the NWow brought about by the implementation of IA to develop a guiding theory or framework to support this

An exploratory study was applicable in this research because the researcher wanted to gain valuable insights about the pressure components in Figure 2.2 in relation to IA implementation and adoption. Exploratory research enabled the use of open-ended questions in relatively unstructured, in-depth, individual interviews which relied on the quality of the contributions from each participant in the interview. Flexibility and adaptability were required in this research because the IA journey within the financial institution was still in its infancy stages. Exploratory research is extremely beneficial as it allows for flexibility and adaptability during the research as new insights occur because of data collected and observations made (Saunders *et al*, 2012:171).

The strategy used in this research was a case study strategy. According to Saunders *et al* (2012:179) "a case study explores a research topic within its context", in the case of this research, the implementation of an IA programme within a South African Financial Institution. The aim of the research was to inform new business model development, which called for an exploration of the components of IA implementation and adoption to determine employees' feelings amid internal and external pressure components as a result of the organisation's IA programme. According to Saunders *et al* (2012:179), this strategy is often used in exploratory research as it helps to answer the what, why and how questions in the research.

The time horizon of this research was guided by the collection of data at a single point in time, in other words, data was collected once over a few weeks. This type of study is referred to as a cross sectional study as it examined employee perceptions to changes experienced through the implementation of IA within the organisation at a point in time. A longitudinal study would not have been appropriate in this research as it requires the study to be conducted over an

extended period, often comparing research results from the different data sets collected (Saunders *et al*, 2009:155).

This empirical study involved qualitative data collection, using semi-structured interviews, which aimed to provide a representative sample of a larger population (Mouton, 2008). The population in the case of this study was the Shared Services environments in which the IA technology has been implemented. That is, any team or department which was directly impacted by the implementation of IA technology. The project teams involved in the implementation of IA were also interviewed to understand their views and experiences of the process. The choice of semi-structured interviews was made because it gave the researcher the ability to follow a list of key questions to be answered yet allows for room to explore themes and topics further, which may emerge in individual interviews (Saunders *et al*, 2012:374). Semi-structured interviews also gave the researcher the freedom to ask different, appropriate questions to the different role players within the context of the IA programme at the financial institution.

Each of the semi-structured interviews were recorded, with the consent of the interviewee to ensure that all responses could be transcribed at a later stage. Each of the recorded interviews was given to a third-party who was responsible for transcribing them in as much detail as possible (*cf* Appendix A, Appendix B, and Appendix D). The interviews were then analysed using a software tool called NVivo to assist in drawing conclusions and developing insights based on the data collected.

In cross sectional research, additional data analysis can be done with secondary data to provide interpretations and conclusion for a different purpose (Saunders *et al*, 2012:304). Secondary, quantitative data was collected to support findings of the research and display some success stories. The nature of SAFI's IA programme means that the various business units were closely tracking the automated processes for successful processing, failures resulting in exceptions, technical issues, turn-around time, and scalability. As a result, there were approximately 15 to 20 reports that were available within the organisation that could be used as part of the quantitative data for this research (*cf* Section 4.4; SAFI, 2018). Where it was applicable, the quantitative data that was collected was captured into MS Excel and graphs and other graphic tools were used to draw conclusions from the data. In other instance the data was presented as it was provided. This secondary data was not manipulated in any way.

3.2.3 Sampling method and sample size

Data collection for this study was based upon the setup of the Feature Teams in the SAFe methodology followed by the IA programme. SAFe Feature Teams are made up of a Scrum Master, Product Owner, and Agile Team. The Scrum Master runs team meetings, drives Agile

behaviour, protects the team from outside influences, and removes blockers (Scaled Agile Inc, 2016). The Product Owner represents the business and can make decisions on behalf of the business unit (BU). They will define and accept stories to be developed for the solution. The Agile team is made up of Feature Analysts and Developers who create and refine the stories that are to be developed for the solution and define, build, test and deliver stories throughout the project cycle. The Release Train Engineer (RTE) is responsible for owning and controlling the programme backlog and managing the different releases across the Feature Teams to ensure controlled delivery of solutions into the production environment (Scaled Agile Inc, 2016).

To understand the impact that IA had on the way that BUs in the Shared Services environments operate, a very specific group of heads, managers and team leaders were selected for the interviews from the impacted BUs across the organisation. Non-probability sampling was used to select people from the areas specifically impacted in the case of this study and no statistical inferences were made with the sample.

This sampling decision followed the path described by Saunders *et al* (2012:271):

- Can data be collected from the entire population? – No
- Is a sampling frame available? – No
- Therefore, use non-probability sampling

The sampling technique is illustrated in Figure 3.2 on the next page.

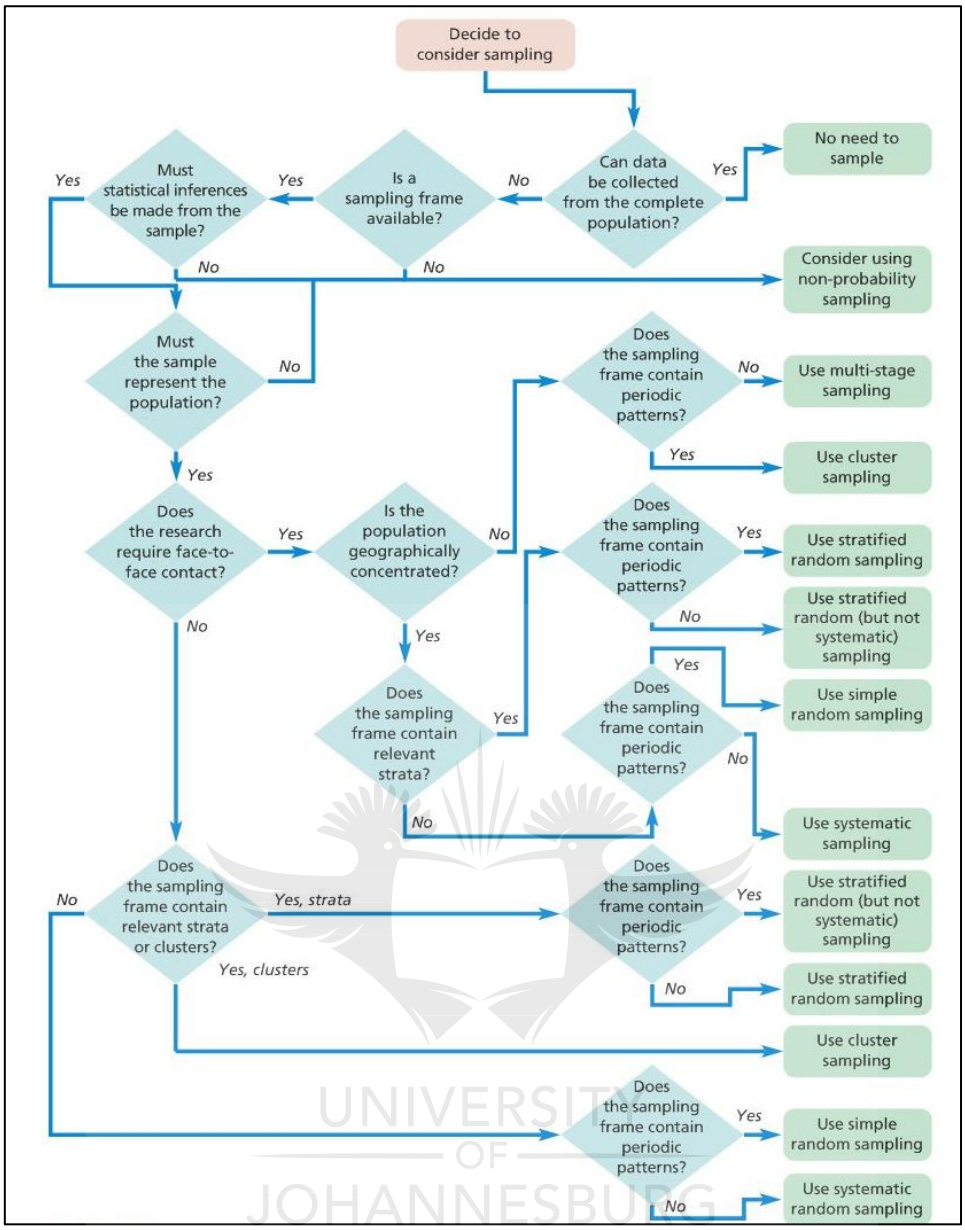


Figure 3.2: Selecting a sampling technique (Saunders et al, 2012:271)

Based on this decision tree in Figure 3.2, for the purposes of this study non-probability sampling was used. According to Saunders *et al* (2012:283), the question of sample size in non-probability sampling is vague and unlike in probability sampling, there are no strict rules. The decision is governed by the relationship between the sample selection technique and the focus of the study, with generalisations being made about the theory as opposed to the population. According to Figure 3.3 below, taken from Saunders *et al* (2012:283), the ideal number of semi-structured interview to conduct is between 5 and 25. For the purposes of this research 29 interview candidates were identified and interviewed.

Nature of study	Minimum sample size
Semi structure/in-depth Interviews	5–25
Ethnographic	35–36
Grounded theory	20–35
Considering a homogeneous population	4–12
Considering a heterogeneous population	12–30

Figure 3.3: Selecting appropriate sample size for non-probability sampling (Saunders et al, 2012:283)

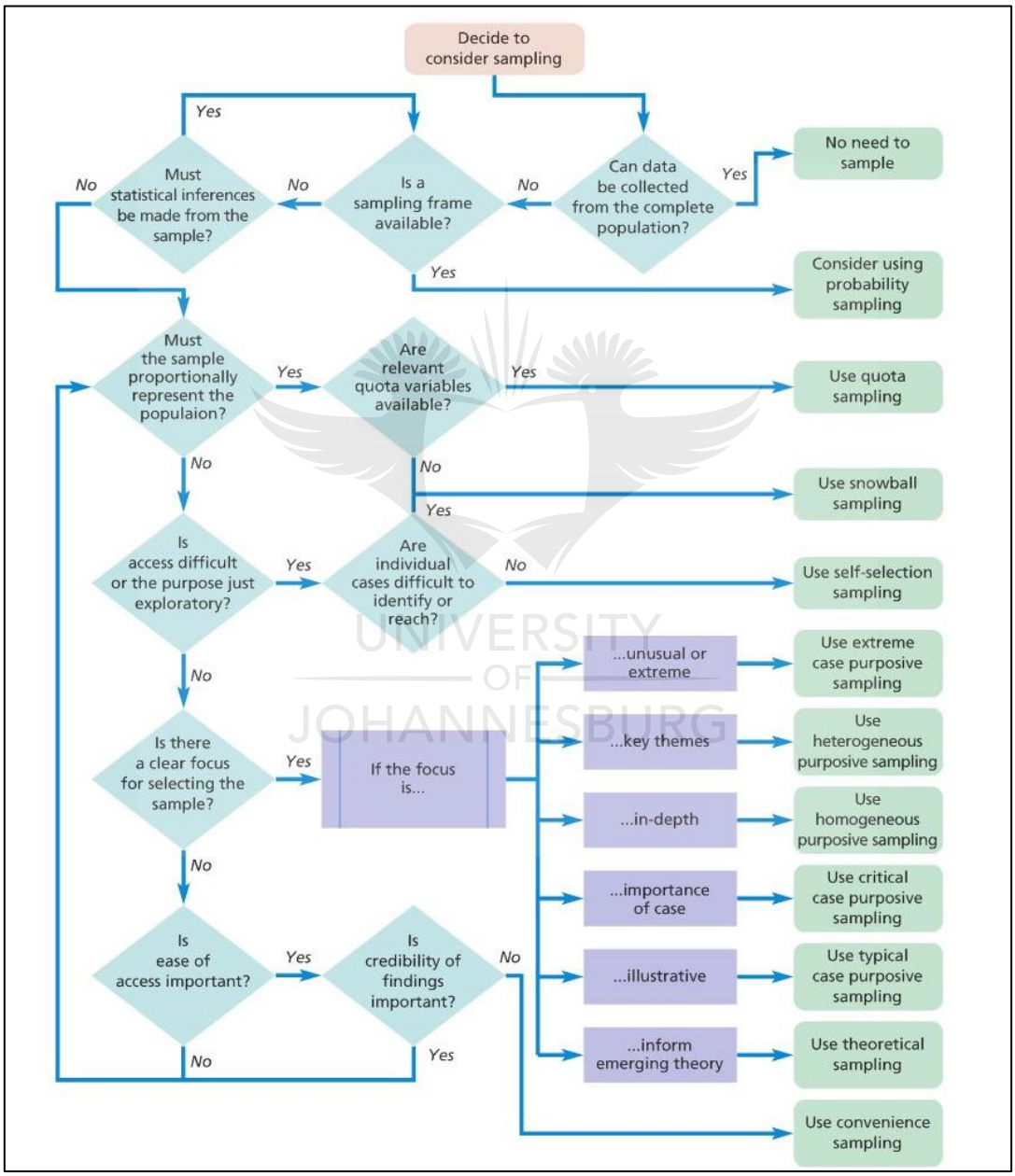


Figure 3.4: Selecting non-probability sampling technique (Saunders et al, 2012:282)

Figure 3.4 provides a roadmap for selecting the sampling technique to use in non-probability sampling:

- Can data be collected from the entire population? – No
- Is a sampling frame available – No
- Must statistical inferences be made from the sample? – No
- Must the sample proportionally represent the population? – No
- Is access difficult or the purpose just exploratory? – Yes
- Are individual cases difficult to identify or reach? - No
- Therefore, use self-selection sampling

Based on the above decision tree, self-selection was used to identify samples to interview for this study. According to Saunders *et al* (2012:289), self-selection sampling allows each identified case to choose to take part in the research. These individuals identified had vested interest in the research, as their specific departments were a part of the changes happening in the organisation. Invitations were sent to individuals inviting them to take part in the interview, and be a part of the research project (*cf* Appendix C). Participant involvement was completely voluntary and there were cases where invitations were sent out and candidates declined to take part in the interview. During each interview, a consent form was given to each candidate for them to sign (*cf* Appendix D). This ensured that each participant agreed to be a part of the research and agreed to their responses being used as part of the research.

3.3 Reliability and validity

It is important in any research project to be mindful of data quality issues that can occur when collecting data which can affect the reliability and validity of data. According to Saunders *et al* (2012:381), "in relation to qualitative research, reliability is concerned with whether alternative researchers would reveal similar information". However, it is important to note that the very nature of this research approach implied that the flexibility for exploration of ideas and themes that the semi-structured interviews revealed is very specific to the situation and attempting to replicate this to other situations or settings would undermine the strength of this type of research. Keeping notes regarding the choices of specific research design and data collection choices would ensure that anyone who wanted to, would be able to understand the reasons behind the choices for methods used (Saunders *et al*, 2012:382). Reliability in semi-structured interview is largely related to issues of bias, which are discussed below:

- **Interviewer bias:** is concerned with the way in which interviewees respond to questions asked based on the tone, non-verbal behaviour and comments made by the interviewer (Saunders *et al*, 2012:381). To avoid this the interviewer (researcher), maintained a neutral tone and body posture throughout interviews, listening to the

responses and the merit of each one in every interview conducted. The interviewer avoided leading the interviewees into answering questions in a certain way and did not impose views or opinions on the interviewees. The interviewer also tried to demonstrate understanding of participant responses by repeating their responses back to them, where applicable. This helped to avoid misinterpretation of participant responses.

- **Interviewee bias:** this type of bias occurs when a perception about the interviewer is formed prior to the interview or when the interviewee feels uncomfortable being interviewed due to the information that is required to be shared. This may result in the interviewee only providing partial information about the situation (Saunders *et al*, 2012:381). The interviewer tried to avoid this type of bias by interviewing more senior members of the organisation, rather than junior employees who might feel uncomfortable revealing information about their feelings towards the IA programme. The researcher also ensured, before every interview started that each interviewee understood the purpose of the interviews and the nature of the research being conducted and assured each participant that confidentiality would be maintained.
- **Participant bias:** this type of bias can come from the type of participants required to, and who agree to take part in the interviews. The requirements of the interview process may result in some participants opting not to take part, which can bias the sample from whom data are collected (Saunders *et al*, 2012:381). To avoid this bias each interview was only scheduled for 30 minutes to reduce the number of possible declines based on invites sent for a longer duration. Interview invites were sent at least two days in advance to give participants enough time to accept or decline the invitation. Where possible, scheduling an interview directly after another meeting was avoided to reduce cancellations due to prior meetings over running. Interviews were also arranged in locations that were convenient to each participant to avoid them not arriving due to having to travel excessive distance (Johnson, 2006:58).

Generalisability and validity issues need to be considered when collecting qualitative data. According to Saunders *et al* (2012:382), and Kendal (2015), generalisability refers to the ability of the research findings to be applied to other situations. In this research a wide range of participants were selected to be a part of the research including participants from various management levels as well as across different departments, thereby ensuring fair representation across the organisation. Validity refers to the degree to which the researcher has obtained insights into a participant's knowledge and experience and presents an ability to deduce meanings intended by the participant (Saunders *et al*, 2012:384). This was achieved in the interviews conducted by ensuring that questions were clear and asked in a clear and concise manner (*cf* Appendix E to Appendix I). The researcher also displayed the ability to

probe and explore responses from different angles with interviewees where clarification was required or to show an understanding of the interviewees' position on questions or topics.

The method of collecting data at source as a measure to assess the authority and reputation of data (Saunders *et al*, 2012:324), was the method to establish the reliability and validity of secondary quantitative data of this study (*cf* Section 4.4). This study's source of secondary quantitative data was SAFI's own use case statistics. The criterion for including a use case in this study's quantitative data analysis was the availability of a reporting dashboard that was developed by one of SAFI's dashboard development teams. Dashboards were designed to show certain statistics around the solution and its performance. Due to resource constraints and the resulting backlog in dashboard development team, these dashboards were not all completed at the time that this study was conducted. In the case where dashboards were not available, data was collected directly from the Scrum Master of the Feature Team. This data had to be verified and signed off by the particular BU, validating that the information being reported by the Feature Team was correct and valid.

3.4 Research ethics

Access and ethics are a critical part of any study that is conducted, especially when humans are involved in the collection and analysis of data that forms the foundation of the study (Saunders *et al*, 2009:169-172). To maintain the integrity of the research, ethical principles were followed to ensure there was no compromising of the study. The following ethical considerations were considered when conducting this research:

3.4.1 Access

A request to conduct the study within the Shared Services environment, as well as project management teams was obtained from the Head of Human Capital of the Group Shared Services area. This allowed the researcher to conduct interviews within the required areas.

3.4.2 Informed consent

According to Saunders *et al* (2009:169-172), "consent to participate in a research project is not a straightforward matter". The scope of any consent that is given is an important aspect to be aware of. While someone may consent to participate in a specific data collection method, it does not automatically suggest that they consent to the way in which the data that is collected will be applied and used. It is therefore important to ensure anonymity and confidentiality when obtaining consent which will help to develop a clearer understanding about the nature of the research and the use of data obtained (Saunders *et al*, 2009:69-172).

Based on this, everyone that was selected to be involved in the research was required to sign a consent form (*cf* Appendix D). By signing this form, they confirmed that they understood why

the study was being conducted and that they were willingly participating and agreed to have their responses used in the analysis of the data collected.

3.4.3 Use cases

The University of Johannesburg Code of Academic and Research Ethics (2007), was used as a guide in order to present the findings from the quantitative data analysis of actual use cases. This meant that every use case included in this study had to be presented in an anonymised manner. Use cases were given generic names and any other potential aspects which might have identified the case organisation were removed from the presentation. For example, the presentation of each use case's statistics was preceded by an anonymised review of use case background, business need, and IA solution (*cf* Section 4.4.1).

3.5 Limitation of study in terms of research design

The implementation of IA technology in the case study financial institution, SAFI, is still in its very early stages, therefore time could be perceived as a potential limitation to the study. For instance, due to unforeseen issues in an IA programme of this magnitude there would be delays to the planned role out of certain projects. If this would happen, it would limit the number of actual use cases that would have been implemented and tracking benefits and results within the time of the study.

The above leads to another potential limitation, namely the impact. As the SAFI is still in the early adoption phase, the impact of the technology to the business as well as the customers may not be as significant as when more areas of the business are using the IA technology.

3.6 Summary

To achieve the research aim, the empirical study followed a qualitative research design collection and analysis techniques of qualitative data. The philosophical paradigm that suited a study of this nature was interpretivism as the research was socially constructed in its aim to understand the adoption processes of the organisation implementing an IA programme. The research followed an inductive approach as the conceptual framework was developed based on data collected and conclusions drawn through the analysis of this data. The study involved the collection of data through the use of an interview conducted across junior and senior management levels within the business units impacted by the changes associated with the IA journey. The purpose of the interview was to gain an understanding of employees' perceptions of the IA journey across the organisation as well as understand the experiences of those involved in the IA programme. Secondary quantitative data was also collected from five SAFI

use cases, which provided a rich source for quantitative data analysis. The next chapter presents the analysis and discussion of the research findings.

Chapter 4

Analysis and discussion

4.1 Introduction

The research design of this study was a qualitative research design featuring qualtitative data collection and analysis. Secondary quantitative data was collected and presented from actual use cases to display the way in which IA projects have been applied within the organisation. This chapter presents and interprets the results of the data collected through semi-structured interviews as well as the secondary quantitative data collected from actual use cases. Chapter 1 stated the research problem, that is, the imbalance and uncertainty associated with IA implementation. For example, as explained in Section 1.4, if employees' harboured feelings of instability during an organisation's IA journey, it could cause an imbalance in staff morale and resistance from employees to adapt to the changes.

In order to address the problem of imbalance, the main research question of this study was:

> *What are the components of a balanced approach to knowledge-based automation and new workforce implementation of a financial institution*?

The sub problems identified in the beginning of the research shaped the organisation of the interview questions that were asked of each participant in the interview process. The sub problems were:

- Why is IA required in the financial services industry?
- What are the implementation phases of introducing IA into a financial institution?
- How does IA and new workforce implementation change the way in which financial institutions operate?
- What change management techniques can be applied within the business to encourage adoption of the changes in ways of work brought about by the implementation of IA and new ways of work?
- How does IA create new value for banking customers?

The main themes of the research were identified as follows, based on the research problem and sub problems; 1) The need for IA in the banking industry, 2) How the changes were managed within the organisation and effectiveness of the change management initiatives with the impacted employees, 3) The new ways of work within the organisation as a result of IA, and 4) The process that was followed to implement IA into the organisation. The themes covered the perceptions and understanding of IA by the employees involved in the various

projects being deployed across the organisation at the time that the research was conducted. The qualitative analysis tool used to organise and analyse the interview responses was NVivo 11.

Interviews were conducted with junior to senior management levels across a variety of roles within the organisation, specific to the key role players within the IA programme. There were three components that formed the core of the IA programme namely; the IA project team, Business, and IT team. The IA project team were responsible for the implementation of the various automation projects across the organisation. Business referred specifically to the BUs where IA projects were being implemented and were made of roles including Change Agents, Team Leaders and Product Owners. Lastly, the IT team who formed a crucial role in development of the solutions and assisted in the navigation of the complex system architecture and infrastructure that exists within the organisation. As mentioned in Section 2.6 and Section 3.2.3, the project management methodology that was followed throughout SAFI's IA journey was the Scaled Agile Framework (SAFe) and the roles defined within the organisation's IA programme are based on this methodology. The interview questions were therefore shaped according to each role and the level of involvement from a people, IT, and strategic perspective.

It is imperative to note that the IT component refers to the IT team that was specifically chosen to support the IA programme and reported directly into the programme. There are multiple IT teams across the SAFI that support, maintain, and develop the various systems that make up the complex IT infrastructure and architecture of the organisation. IT support that may have been required from teams outside of the IA programme did not form part of the interview participants.

Table 4.1, which continues on the next page, provides a breakdown of the various participants, their role within the organisation as well the IA programme and the interview schedule that was used to interview them. The interview schedules can be found in Appendix E through Appendix I. Where applicable, when referring to specific interview responses from participants, the participant number was used.

Table 4.1: List of interview participants

Participant number	Role in IA programme	Role in Organisation	Area	Interview schedule
P1	Change Agent	Change Manager	Business	A
P2	Change Agent	Change Manager	Business	A
P3	Change Agent	Change Manager	Business	A
P4	Product Owner	Head of BU	Business	C
P5	Change Agent	Change Manager	Business	A
P6	Change Agent	Change Manager	Business	A
P7	Change Agent	Change Manager	Business	A
P8	Team Leader	Team Leader	Business	D

Participant number	Role in IA programme	Role in Organisation	Area	Interview schedule
P9	Product Owner	Business Analyst	Business	D
P10	Product Owner	Portfolio Manager	Business	D
P11	Product Owner	Head of BU	Business	C
P12	Scrum Master	Client Lead	IA Project Team	C
P13	Client Lead	Client Lead	IA Project Team	C
P14	Client Lead	Head of Feature Analyst Department	IA Project Team	C
P15	Scrum Master	Feature Analyst	IA Project Team	D
P16	Feature Analyst	Feature Analyst	IA Project Team	D
P17	Feature Analyst	Feature Analyst	IA Project Team	D
P18	Developer	Developer	IA Project Team	B
P19	Head of IA programme (2017)	Director	IA Project Team	E
P20	Scrum Master	Feature Analyst	IA Project Team	D
P21	Feature Analyst	Feature Analyst	IA Project Team	D
P22	Scrum Master	Scrum Master	IA Project Team	D
P23	Change Agent	Change Manager	IA Project Team	A
P24	Change Agent	Head of Operational Excellence	IA Project Team	A
P25	Client Lead	Client Lead	IA Project Team	C
P26	Change Agent	Change Manager	IA Project Team	A
P27	Release Train Engineer (RTE)	Release Train Engineer	IT	B
P28	IT Architect	Solution Architect	IT	B
P29	Head of IA programme (2018)	Director	IA Project Team & Business	E

There were five different interview schedules that were used to interview the various participants. The creation of different schedules was based on the role that the participants played within the organisation as well as the IA programme. For example, participants from IT had very little to do with the implementation and adoption initiatives of the programme and more to do with developing and supporting the solutions from a technical perspective. They would not have been aware of change management initiatives that were run in the areas or the effectiveness of these initiatives with the impacted staff, therefore a separate interview schedule was created for the IT participants.

A completely unique interview schedule was created for the Head of the IA programme as their involvement in the programme was a more strategic role. During the course of this study, the Head of the IA programme, who headed up the IA project team and started the programme at the end of 2016 resigned and moved to a different company at the end of 2017. A new Head of the IA programme was appointed to take over the role at the beginning of 2018. As such, both Heads of the programme were interviewed in order to do a comparison between their

approaches to the IA programme. The same interview schedule was therefore used for both interviews. It is important to note that the new Head of the IA Programme is also the Head of the Operations Shared Services environment, and therefore played a dual role as Head of IA as well as Head of one of the BUs impacted by the changes. The interview schedules were set up according to Table 4.2.

Table 4.2: List of interview schedules

Programme role	Interview Schedule
Change Agent	A
IT	B
Senior Management	C
Feature Analyst & Scrum Master	D
Head of IA (2017 & 2018)	E

The quantitative analysis was based on the various IA projects that were being implemented across the organisation to show the specific impact that the projects had on the BU, customer experience, and organisation overall. The interview discovered some of the BUs involved in the IA programme conducted surveys within the departments to gauge the perceptions of the staff about IA. Participants proffered survey results as part of their responses to the interview and it is subsequently discussed as part of the research findings.

4.2 Research findings

As explained above, the research objectives shaped the interview schedules (*cf* Appendix E-Appendix I), which shaped the organisation of this section.

4.2.1 IA and the future of banking

A key objective of this research was to establish the most effective way in which to ensure high levels of adoption of IA across the organisation. Therefore, it was important to establish upfront what perceptions each of the interview participants held about IA, especially in the context of this financial institution. As all the interview participants were in management positions, their opinions and perceptions of the programme were key in shaping the adoption rates of the people within their BUs. If those in management positions within the organisation did not believe that IA was a crucial component for the future of the SAFI, then expecting high adoption rates within the BUs would be unrealistic.

All interviewees where asked to give their opinion on whether they thought IA was the right direction for the organisation to be heading in and to elaborate on their response. It was interesting to see that all 29 participants agreed that IA was the right direction for the SAFI to be heading. Using a word frequency query, the five words used most frequently by the interviewees in answering this question were;

- Think

- Definitely
- Right
- Direction, and
- Yes

Some of the participants expressed their opinions in a much stronger manner than others. For example, one participant from the IA project team said, “any company that does not pursue IA or robotics will not exist in the very near future”. These responses were very positive in terms of supporting the aim of the research. All respondents agreed with the notion that driving adoption of the impending changes within the organisation becomes an easier task when employees can see that their leaders believe in the changes that are to be expected.

While most of the participants agreed that IA is the right direction, four of the participants said that IA is definitely part of the right direction but is not the only direction for the organisation to be heading in. At the time that this research was conducted, there was a definite drive towards developing digital banking solutions within the SAFI, and these participants believed that IA would support and enable the organisation in reaching this objective. One participant responded by saying; “I think it is a component which can assist us in our digital journey. It doesn’t solve all the problems, but it assists with automating some things”. Two other participants confirmed this opinion by saying that “it’s important to distinguish between digitisation and automation” and that “in order to digitise there needs to be automation, making robotics a key driver for digitisation”.

P5 had an interesting and different view to the others. While they agreed that IA was the right direction for the financial institution to be heading in, P5 was the only participant to mention the divide in South African demographics. The response given was; “it’s dependant on the market segment, not everyone has access to a smart phone. It will benefit a percentage of the population and will actually leave a percentage of the population behind”. However, several of the IA projects that were implemented into the organisation could still be triggered through the traditional channels such as the call centre or branches and did not rely on the customer having access to a smart phone or the Internet. This refers to the difference between digitisation and automation, as discussed in Section 2.3, and highlights the fact that many people still think of these as one and the same thing. The automation of the back-end processes which result in quicker turnaround time in response to customer request is a benefit to any customer, regardless of their demographics, access to digital platforms and how they choose to interact with their financial institution.

The second aspect of this question was for each participant to elaborate on why they thought that IA was the right direction for the organisation to be heading in. There were a variety of responses to this particular question across the interview participants, but ultimately all the

responses could be grouped into six specific themes, namely; customer experience, IA as a digital enabler, system integration, embracing technology of the future, process improvement, and staff upliftment. In answering this question some of the responses from participants contributed to more than one of the identified themes. The following section will discuss the responses to this question from 26 of the participants. The views provided from the Heads of the IA programme are discussed separately in Section 4.3 and P5 did not directly answer this question.

4.2.1.1 Customer experience

The participants identified customer experience as a major contributor to the need for IA in the organisation. The theme of customer experience encompasses any response by interview participants related to improving service delivery and reducing the turnaround time of resolving customer queries and requests. There were a variety of answers provided on the theme of customer experience such as; people are looking for things a lot faster and IA would help to reduce the time it takes to process requests or transactions. P7, P16 and P21 all said that IA would help to reduce turnaround time, and thereby improve customer service. P6 and P11 referred specifically to IA assisting in the regulatory environment of the financial institution. They said IA can help to improve the quality of customer data retention, thereby improving the ability to ensure that customer accounts meet the necessary regulatory requirements and avoid inconveniencing customers with account compliance issues that arise because of a manual process that is prone to human error.

Two of the interview participants thought that as we are embracing a new age in customer experience, the organisation has no choice but to be on the front foot as far as possible. There is a lot of pressure from new kinds of enterprises that are entering the market, along with a new generation of customers that are used to being able to do everything they need to on their smart phones and other portable devices. These customers are used to instant gratification and expect service delivery at the click of a button. IA would assist in servicing the needs of the younger generation of customer through a fast, digital experience.

4.2.1.2 IA as a digital enabler

The theme of IA as a digital enabler relates closely to the previous theme of customer experience. P24 who said that IA "provides a digital experience and that customers are going digital, so we either align or fall behind the curve". This response corresponds with the literature review that customer expectations are changing drastically as technology advances and leaner companies enter the market with a digital footprint already established (*cf* Section 2.3 and Section 2.6). All participants said a major part of the SAFI's strategy is to go digital and to enable a completely new way for customers to interact with the organisation. P20 and P27 said that there are two components that are working together; automation and digitisation.

These two components work hand in hand to achieve this goal. IA helps to automate complicated processes as a tactical solution before digitisation comes in as the strategic solution. Both participants said that automation is a catalyst for digitisation. P12 said that IA has an important role to play in the digital world and that it can have a significant impact when the right use cases are selected and implemented. P14 and P28 said that the way that we deliver the experience that the new generation of customer is looking for is by creating a digital experience that satisfies all their needs.

4.2.1.3 System integration

Five of the participants recognised that IA offers an opportunity to help integrate legacy systems. P14, who said that IA helps in achieving the digital experience for the customer also said that IA will assist in achieving this by bringing all those systems together. P9 said that system integration in an organisation of this size is a painful exercise. The opportunity that IA presents is to bridge the gap between multiple systems and processes without having to pay for very costly integration exercises and core system changes. P6 mentioned that over the years different systems are created to solve a specific problem at a point in time. This ultimately ends up overcomplicating processes and creating inefficiencies through the web of systems that need to be navigated to perform tasks that are often simple in nature. Both P4 and P25 said that IA provides the ability to stitch together the current disparate core banking systems seamlessly so that the customer does not experience the handover delays that currently exist.

4.2.1.4 Embracing technology of the future

Four of the interview participants felt exceptionally strong about IA being important to keep the organisation relevant in the marketplace for customers. P13 said that any organisation that does not pursue these new ways of doing things and investing in technology that is part of the 4IR will not exist in the near future. Two participants said that IA is about investing in the future and that it would be imprudent of the organisation not to embrace the technology and explore the possibilities and opportunities that it provides.

4.2.1.5 Process improvement

The last two themes identified, namely; process improvement and staff upliftment, are closely related. In many instances the interview participants associated IA with replacing the mundane, repetitive tasks that consultants are expected to perform, thereby allowing them to focus on more complex, meaningful tasks. Responses from participants contributed second highest to this theme with most of the responses coming from the Operations managers. All the responses in this theme related specifically to IA improving process efficiency and productivity. Comments provided by the participants included; reducing errors and rework in manual processes, reducing the amount of repetition that is currently experienced in

processes and automating tedious, mundane tasks. The last point links closely to the last theme identified in this question.

4.2.1.6 Staff Upliftment

This theme highlights any response that had to do with enhancing the type of work consultants perform and developing the skills of the consultants. One of the thoughts around this relates very closely to the last point in the previous theme, reducing the number of mundane, repetitive tasks. This in turn frees up the staff capacity and allows them to focus on more complex, meaningful, customer centric tasks that add value to the organisation, staff and customers. Another thought that several participants had was that by removing these mundane tasks and freeing up staff capacity, IA would allow the time for staff to be multi skilled and drive the strategy of a universal financial institution in which each consultant could be trained to perform in a one-stop-shop role. This would remove the handoffs in the processes and allow customers to be serviced by one person, rather than handed off to multiple different consultants.

The above findings regarding the perceptions of IA at the junior to senior management levels in the organisation can be considered positive in terms of the focus for this research. Every participant interviewed agreed that IA was the right direction and logical next step for the organisation to take. Their responses to the question suggest that they understand what IA can offer the BUs, the employees and the organisation. This indicates that the right message is being filtered to the management levels of the BUs that are impacted by the change and is an encouraging start to ensuring that the right message reaches the impacted employees.

Another question that ties into the theme of why IA is required in the financial services industry and is closely related to the above question, was “will IA improve the banking experience of the customer?” This question was asked of every interview participant, regardless of their position, level or role within the organisation and IA Programme and was done so to answer the research question identified in Chapter 1; “how does IA create new value for banking customers?” each participant was also asked to elaborate on their response. The outcomes of this question are discussed below.

4.2.2 The use of IA to create new value for banking clients

Twenty-five interview participants agreed that IA would definitely improve the banking experience of the customer. P12 said that the technology and functionality will help to improve the customer experience but that the lessons learnt so far by the different feature teams involved in the programme illustrate that the environment is very complex and challenging, especially from a technical perspective. They further went on to say that solving some of the basic issues, such as reducing response times to customer requests from days to hours, would significantly improve the customer experience.

Fourteen of the participants, including P5, said that IA would allow much quicker response times and that customers who are willing to leverage the experience of fast banking would feel the benefits. P4 felt the use of IA such as Chatbots and interactive user interfaces on the customer channels would allow more accurate predictability about clients and give them a more real-time banking experience. P21 echoed the same sentiments saying that IA provides the opportunity for more self-service banking, suited to the individual ways' customers want to conduct their banking. At least three of the participants also mentioned the opportunity that IA provides in sourcing data and documents directly from third-party sources, with customer consent. This means that customers no longer need to bring in compliance documents and can apply online for accounts or loans any time and have the approval within minutes.

4.2.3 Change management initiatives

This section discusses the findings of a question specifically asked of interview participants in non-IT related roles. A programme of this nature can cause fear about job security if the intentions of the programme are not managed correctly. Therefore, the objective of this question was to learn what change management initiatives had been run in the different areas. The second part of the question was to understand the effectiveness of these initiatives in ensuring adoption of the changes amongst the impacted staff. This question was asked to answer the second research question; to identify the most effective implementation and adoption strategies that could be used to help increase adoption rates across the organisation. All interview participants that represented the business, as well as all participants that represented the IA project team were asked this question. A total of 25 participants provided responses to this question. IT representatives were not asked this question due to their limited exposure to the staff in the BUs that were impacted by the IA projects.

The responses to the effectiveness of the change management initiatives is discussed first, followed by the discussion of the actual change management initiatives that were implemented across the different BUs.

Fourteen of the participants felt that the change management initiatives in their BUs had been effective and successful. It was encouraging to see that the staff appreciated the communication and were more comfortable after being informed. This was supported by P8 who said that after engagements with the team the "whispering and rumours" in the BU stopped. People were informed and felt comfortable that their jobs were not going to be replaced. P1 said that once the right conversations had taken place people could start to see the possibilities that the changes brought. According to P25, people started to understand that IA would take over the boring, mundane work and allow the staff to take part in more exciting, valuable work. This sentiment was echoed by P11 who said that the younger generations in the department were excited for IA to do the mundane repetitive work and allow them to grow and develop more skills.

P3 reflected on the most effective type of change management for their area, stating that face to face communication was far more effective than electronic communication. All participants said that people prefer the opportunity to engage in a conversation and ask questions, something that is not as easy with electronic communication. P20 said that change was positive but slow. They felt that the right message was being shared and people were less apprehensive. P14 and P20 both said that there was a change in perception and attitude by the team once an IA project had been deployed in the BU. Once the team were able to understand and conceptualise what the solution does it was easier for them to get excited and get involved. They were much more willing to jump in and help when issues needed to be resolved.

At the time that this research was conducted, a few use cases were still in the start-up and investigation phases of the solution, with nothing yet being implemented. As a result, six of the interview participants said that change management could be seen as effective but that it was still too early to really feel the impact. P23 said that without something tangible that the staff could see in action, it was difficult to gauge the impact. P4, P12 and P13 said that change management was effective in terms of creating awareness, but that it was too early to fully understand the impact. There may still be an element of fear and uncertainty until the full impact is understood. P13 also said that the people in operations environments have an element of change fatigue. There are ongoing initiatives trying to make their processes simpler, remove the waste and reduce costs. Until the full impact of IA could be understood, for many, IA was just another attempt by the organisation to cut costs.

P24 said that success is a component of a measurement of the intention of the change management journey at a point in time. In terms of this particular journey, the aim was to start creating awareness, align the iconography and get the right people on board. In this sense P24 said that the programme was on track. The real turning point would be when volumes started to increase on the platform and the configuration of jobs started to change.

One of the change agents from a BU felt that the area that they support had been left out of the programme from the beginning and therefore felt that changes were being done to the team, instead of with the team. This participant felt that they had not had enough time to run many change initiatives with the staff. They felt that any communications that the team had been exposed to had only helped in starting to create an awareness of what IA is, but had not helped to ease any fears. This was a critical learning for the programme because it highlights the need to involve the change representatives from the BU early on. In this way, a change management plan for the BU can be developed from the start of engagements with that unit. Having said this, one representative from the IA project team said that change management should ideally sit with the BU. If there is noise in the system and issues of apprehension and negativity that need to be dealt, they should be handled within the specific BU. This further

highlights the need to involve the change management representatives from the BU as early as possible.

Overall, the change management initiatives that were run across the organisation were considered effective. It is important to remember though, as pointed out by P9, that a blanket approach cannot be taken when it comes to change management. It is vital to understand the specific area, how that area is impacted and to formulate a change plan accordingly. The specific change management initiatives that were implemented are discussed in the following section.

Six interview participants mentioned that it became clear that a resilient implementation and adoption plan was needed to help shape an adoptive and responsive people side of the IA journey. P24 said that people need to be taken on a change journey. They cannot be expected to simply accept change. An implementation and adoption framework was developed by the Change and Enablement team in collaboration with the Client Leads and Scrum Masters from the IA Feature Teams. According to P24, there were two goals for this exercise; firstly, the IA Programme wanted implementation and adoption, and secondly, it was important to understand how people were dealing with the changes. The framework tried to understand the skill requirements from all aspects of the IA programme including systems and business analysis, IT and systems development, data analytics, design thinking, process acumen and digital literacy. Based on these, some key adoptive actions were recommended. These included stakeholder engagement, impact assessment, communication, skills development and measurement. The framework also tried to establish ways in which the right message about IA was being communicated across the group, in a standard manner in order to avoid confusion and aid in adoption across the group.

These findings reflect some of the elements or groups of elements that are present in the initial illustration of the driving forces and potential driving themes in Figure 1.1, as well as elements or groups of elements present in the initial conceptual framework depicting the feelings or pressure components that demonstrate the complexities and interdependencies of an organisation's IA programme in Figure 2.2. These elements are discussed below using the same terminology as it appeared in the findings. Five elements came through strongly in the interviews with members of the IA team as well as members from the BUs. However, it must be noted that these five elements do not cover the entire framework, it covers only elements of change management in relation to IA implementation phases, IA narrative and iconography, NWow, showcasing, building support and feedback, developing skills, and communication as some of the potential elements of a balanced IA implementation and adoption framework.

4.2.3.1 Communication

A strong theme that was evident across the interviews was that communication was a vitally important element of the change management process. From a framework perspective, communication referred to how communication was targeted towards the different audiences across the organisation, what channels would be used, how often, and how feedback would be obtained. P16 said that a survey that was run in the business area they were working with revealed that the main question people had was about their jobs being replaced by automation. Having this information enabled the Head of that area to structure their communication campaign and target conversations towards dealing with this fear. Another participant mentioned that understanding a BU's readiness to accept the change will help to shape and drive the communication strategy in that area.

This was a common theme which emerged through the interviews as seventeen of the interviewees felt that open, honest communication was key to ensuring high adoption rates among the staff. Communication to the staff included group sessions run by the change agents in the BUs as well as department or team connect sessions in which the BU heads would explain the purpose and need for IA in the particular areas in relation to the overall strategy of the organisation. P26 mentioned that personalised communication directly from senior management was very effective in easing fears. People appreciated hearing information from their senior management and being given the opportunity to ask questions directly. Other sessions included focus groups, question and answer sessions as well as change agents having one-on-one discussions with individual staff members who felt more comfortable to ask questions and share feelings than in larger group sessions.

The SAFe methodology that was applied to the IA programme prescribes specific roles. One of these roles is that of the Product Owner. As mentioned previously, this person represents the BU but works closely with the IA Feature Team in identifying appropriate projects and shaping requirements. P12 said that leveraging this relationship and having someone internal to the BUs to engage the teams proved to be useful in shaping the image of the programme.

An important element of communication, according to P24, is not only to inform people about what is happening in their immediate environment, but also to educate them about what is happening globally from a digitisation and automation perspective. Educating and empowering people through awareness is the key to effective adoption of a programme of this nature.

As part of communication and creating awareness of IA across the organisation, the Head of the IA programme, P19, ran several open meetings called "Insights Sessions". The point of these sessions was to invite general staff members from each of the affected areas to learn about IA and the specific projects that were being implemented across the organisation. These sessions were specifically targeted towards the junior members of staff to create more

exposure to the programme and give them the opportunity to ask questions and explore the various projects that were being run.

4.2.3.2 Developing skills

The various sessions that were held with the staff presented an opportunity to share specific messages with them. One of the key massages that was shared was that they needed to start thinking about how to remain relevant in a world that is constantly changing. P23 said that the sessions were not just about IA but about everything that is happening in the world of rapidly changing technology. They went on to say that the message that was delivered to staff was that jobs won't become redundant, but they will change, and individuals need to think about what they want to do to remain relevant and reskill themselves to be ready for the changes. P1 also said that a key message they shared with staff was that the jobs that people perform today may not be required in the future, but this opens new and different opportunities. It is not something to be afraid of.

P11, a Head in one of the BUs implementing IA, said that there are different generations working within the organisation who understand the technology and its benefits and implications differently. The older generations who have been in the organisation for longer tend to feel more threatened by the changes, but the younger generations who are more in-tune with the technology see themselves becoming enablers of the technology, rather than being afraid of it.

P14 and P22 said that a key message that was shared across the teams in the areas they support is that the world of work will change, but it will not go away. Repurposing of people and reskilling these people becomes key. P14 said that there needs to be an academy where people in the line are trained in the basics of automation in order to allow them to be a part of the journey and the change. Harvesting the knowledge and skills from the line of business can help in the rollout of solutions as well as long term support and management of the solutions.

4.2.3.3 Building support and feedback

Three of the Change Agents from the BUs and the IA project team mentioned the IA adoption board meeting that was set up in which change agents from across the different operations sites would meet. The purpose of these meeting was to discuss the different approaches that had been taken in their teams, what worked, what didn't work, challenges and successes. This allowed the different areas to share stories and ideas with each other to improve adoption in areas where it could have been lacking. One such initiative, as mentioned by P2 was the "gamification" of learning about IA that was implemented in their BU. Trading cards were created which consultants could collect through completing challenges and answering questions. Prizes were awarded to those staff members who managed to collect all the cards.

This proved to be a fun way for staff to learn about IA and get involved in the programme and was an idea that was shared across the different teams through the IA adoption meetings.

Some participants mentioned staff surveys which they perceived as a successful initiative shared across the teams in the adoption meetings. Participants shared the findings of staff surveys that was used in two BUs to gauge understanding about what IA is and what fears there could be within the teams. One of the two staff surveys that was shared with the researcher, asked the following questions:

1. Do you understand what IA means, and what it aims to accomplish?
2. Please give a brief explanation of what you believe IA is about?
3. How do you feel about IA in the business?

The first question received 87 responses from 100 respondents; 36% of respondents said that they did understand what IA means, 46% said that they did not really understand what it means and 19% said that they did not know what it means and what it aimed to accomplish. Some of the responses to question number two included (*sic*): "I think it's about enabling us to resolve some requests quicker and improving the TAT [turnaround time] for the clients", "The automation of simplex requests in order that we may provide a quicker, more efficient service", "automating a lot of our manual client requests, e.g. statement requests, to smoothen the process and make it seamless, efficient and banking friendly and convenient", and "automated processing on repetitive service requests/processes". The third question received 31 responses with the options being afraid, hesitant, excited, curious and happy. The responses were as follows; afraid received 0%, hesitant received 6.45%, excited received 38.7%, curious received 51.6% and happy received 12.9%. As mentioned above, these results are not primary data from this study, it is secondary data the interview participants shared with the researcher. It is mentioned here because the interview participants regarded the survey as an extremely useful tool as it allowed the Change Team, as well as the Management Team the opportunity to understand what the feelings were among their staff and to address these directly within the teams. The participants who mentioned the staff surveys were of the opinion that it allowed SAFI's change and leadership teams to shape communications that directly targeted the areas of concern within BUs. P26 specifically stressed the importance of using the results of the survey and ensuring that the teams received feedback regarding their concerns. This would ensure a level of trust and send the message that fears had been heard and were being addressed appropriately.

4.2.3.4 Iconography and Narrative

Another change initiative mentioned by six of the interview participants was the realignment of the iconography and narrative used across the IA programme. This refers to the images, symbols and language that were being used, and how these could support and communicate

the vision of a digital, online experience. In the early stages of the journey the images used in many presentations and communications to BUs were pictures of robots, which created some of the confusion around the intention of IA in the organisation. P13 also said that the term “Robotics” became very loosely used across the organisation with many people using it in the incorrect context, causing unnecessary fears and concerns. Both P12 and P13 mentioned how the media hype about the 4IR as well as movies about robots have influenced how people relate to the concept of robots, seeing it as a threat, not something positive.

P24 said that it was agreed across all teams that a neutral image and voice was needed which could address the intention and the vision of IA in the organisation. The iconography chosen supported the vision of an organisation in which people and machines work together to deliver a digital customer experience. The interview participants also agreed that referring to the programme and projects as “Robotics” was causing the staff to feel nervous as they felt that they would be replaced by robots. P12 said that by changing the terminology as well as the iconography helped to change the negative perceptions that were being experienced. According to P13, changing the iconography and narrative around IA was used as a marketing tool to try and drive the correct conversations throughout the organisation.

4.2.3.5 Showcasing

A concept such as IA can be difficult to understand or envisage when it is new, and people have limited exposure to it. An effective initiative that was used in some areas was to showcase a proof of concept (POC) of a use case running in production. This gives people the opportunity to see it running in real life and helps them understand how it works. For example, P25 from the IA programme, mentioned that they were struggling to get buy in from the management and decision makers of an area, simply because they did not understand the technology and how it could be applied in their business. A POC was created and shown to the BU which helped them to understand it more clearly and opened the doors for business in that area.

P24 explained that exhibitions and displays were an effective way to get people from across the organisation to take an interest and to learn about the programme. Some of the other participants mentioned that the organisation regularly holds events where different BUs can showcase what is happening in their respective departments. These events offered the IA programme the opportunity to get people involved and showcase what is happening by showing videos and demonstrations of what IA is about in the context of the organisation, making it more accessible and tangible to the staff.

4.2.4 New ways of work

At the time that these interviews were conducted the IA programme was in its infancy stages with very few use cases having been implemented. Some of those that were implemented had

not been running for more than 6 months and had not yet been fully implemented. Therefore, the impact to the operations environments in terms of their ways of work was limited. A common theme emerged in the interviews with Business representatives around how they perceived roles within the areas changing as a result of IA implementation. P1 said that the message that was being shared with consultants was that the current jobs and roles that they have may not exist in a few years, but that this opens new and different opportunities. This approach was about getting staff to understand that the world around them is changing and they need to adapt and change with the times in order to remain relevant. P11 said that in connect sessions with the staff they would talk about IA taking over the mundane, repetitive processes which they perform on a daily basis, allowing the staff to do more exciting, stimulating work. They went on to say that they saw roles evolving in the area to that of staff performing a support role for IA, allowing them to get to other tasks that they do not ordinarily have the time or capacity to do.

In the IA programme's infancy stages four of the Business representatives said that IA would help to automate repetitive, mundane tasks that took the consultants a long time to complete. P8 mentioned that in their area, there are time sensitive processes and on peak days volumes can escalate to over 1000 records. This puts immense pressure on the team to complete the processes in the required time, often meaning that they do not manage to complete the work in time, missing out on essential revenue recovery for the organisation. This participant said that IA would assist the team by taking on a large majority of the volumes, allowing the team to work on any exceptions that IA failed to process, increasing their chances of completing the work in the required time.

The IA programme also presented the IA project team with new ways of work. The team was primarily made up of Business Analysist who had been used to running projects using the Lean Six Sigma methodology. These projects by nature are run on a very individual basis, not with a team. The IA programme required that these resources take on new roles such as Feature Analysts and Scrum Masters and to work closely in a team alongside IT resources as well. The teams had to adopt the SAFe Agile project management methodology to execute projects, something with which many of the team were not familiar.

The Scrum Masters, Feature Analysts and IT resources on the IA Programme were asked how their world of work had changed since the IA Programme was launched. P15 explained that they had worked for many years using the Waterfall methodology for project and programme management. The change to using the Agile methodology therefore meant that they had to adapt quite quickly to the role of facilitating and implementing projects using this methodology. P16 said that the biggest change and learning they had to get used to, was the need to expand ones' knowledge of new and different spheres such as IT. The traditional projects delivered in the area often didn't touch on the technical side of business processes.

If IT changes were required on a Six Sigma project these would be handed over to the specific IT department responsible for the changes with the necessary requirements documentation.

P21 said that the Agile way of working has brought a new dimension of collaboration to the area. They said that it was a culture and mindset change for everyone in the team. There was a sense of accountability in the teams because if one person fails to deliver their piece of work, the whole team fails. This participant felt that this gave people a chance to develop their maturity and take pride in what they delivered, which encourages a healthier team dynamic where everyone is pulling their weight, learning and developing as a team.

P22 echoed similar sentiments to the previous participant in terms of the team dynamic that IA brought. They said if there is good teamwork, you can achieve better results than only one or two people doing the work. They said that in the previous way of working there were very clear, delineated responsibilities, but in the new ways of work there are pockets of expertise and a lot of reskilling of people that would be required.

A Developer on the programme, P18, said that the type of work required on the IA programme brings the analysis and development closer to the smaller components of a process that can be changed, improved and made quicker through automation. In the past, the type of work they were involved in was purely end-to-end system design and development. The RTE on the programme, P27, said that their role hadn't changed much on the IA Programme. They said that it had just become a different specialist focus from the work they had done before the programme. The IT architect on the programme, P28, had a similar response to the RTE. They said that from the normal architecture perspective the same process and principles applied. A POC had to be run and the results logged. A Request for Proposal (RFP) had to be set up with the specific selection criteria. The difference was realised in the fact that there weren't many IA programmes that had been run in the country to leverage off of, so the potential vendors had to provide a lot of information and support when it came to selection of the vendor.

Although the programme was still in the very early phases at the time of the interviews being conducted, it was still obvious that the introduction of IA across the organisation had an impact on the way in which people worked. This was true for both the operations environments as well as the IA project team. Some of the examples discussed in the quantitative analysis section further below will depict how IA changed the way that some areas operated and the benefits this had for the area and organisation (*cf* Section 4.4).

4.2.5 Implementation phases

The second research question to answer was to understand the steps that were followed to implement IA into the different BUs. This question was asked to all the interview participants in the IA project team, the IT representatives as well as the managers within the BUs where

IA projects were being implemented. This question was not asked to the change agents within the IA project team and BUs as they were not involved in the implementation of IA projects but rather support for the teams in providing understanding of the changes that were to be expected. Section 4.2.3 above explains in detail the role that change agents from both the IA project team and BUs played in the role out of projects. The two Heads of the IA programme were also asked this question to understand what steps need to be followed from a strategic perspective to start up and implement a programme of this nature. Their responses are discussed in Section 4.3 where their interviews are compared.

4.2.5.1 IT implementation phases

From an IT perspective there were a few different responses provided in answering this question. The programme RTE, who is responsible for managing releases across the programme, answered this question from a team and project governance perspective. Participants' take on the approach for implementing IA into the organisation was based around the establishment of coding methodologies and standards and the overall execution methodology. They said that it is vital to establish these standards around development, testing and the final release of a solution into production. They also said that getting to know the immediate team that they would be working closely with over the duration of the programme, particularly the Scrum Masters is an important aspect when embarking on a journey of this nature.

A lead developer in one of the feature teams, P18, said that the main steps that were followed in their Feature Team were as follows; firstly, there was engagement with the BU to showcase the technology and determine their appetite for IA solutions in their business. Once agreed with the BU to go ahead with IA the next phase was process analysis, requirements gathering and process design. This is where the processes that will be automated are selected against specific criteria, analysed and optimised to allow for the most efficient automated process. Once requirements and process analysis are complete, the solution design is handed off to the developers where the cycle of development and testing will begin. It is vital that the Feature Analyst and Developer work closely together in this phase to ensure that the solution is being developed according to the correct requirements. The final phase is the deployment of completed solutions into the production environment where monitoring and maintenance of the solution will take place.

P28, the Architect for the IA programme was involved in the RFP process and played a key role in the selection of the IA vendor that the organisation decided to use. The implementation phases according the Architect included first running a POC in which the potential, value and opportunities of IA can be presented to the relevant stakeholders of the programme. The next step was to send out an RFP so that potential suppliers of IA could provide their proposals in terms of the solutions they offered. Once the proposals were received there was a long

process of reviewing all the proposals received and deciding which vendor provided the product that best suited the needs of the business.

The next step was to select specific use cases from across the BUs which could be tested on the platform. The platform was also tested to ensure that it was working correctly, had been installed correctly and to ensure all the infrastructure requirements were met in terms of service and memory. Finally, from a testing perspective, the selected use cases were checked from an architecture perspective to ensure that the solutions would work effectively on the platform.

The final stage in the implementation, according to the Architect on the programme was to ensure that the development lifecycle for the programme was in place and working correctly. To ensure all developers had the correct training and understood the methods and standards in place for coding. To ensure that the integration and testing environment was set up and stable as well as to make sure the production environment was ready and able to function as expected. It was also important at this stage to start setting up a disaster recovery environment to ensure continuation of business in the event of the normal environments being impacted by anything.

4.2.5.2 Business implementation phases

The responses from Business representatives, Product Owners and area Heads were also considered to understand how the different BUs approached implementing IA into the BUs. P9, Product owner for one of the BUs, explained that once it was decided that IA would be implemented into the BU, the first thing that needed to happen was some process analysis. This would allow the Feature Team to understand the processes in the area and select the most appropriate processes to automate. This is done based on a feasibility study which will look at the types of processes, volumes on the processes, complexity of the business process and how many systems are used in order to action the process. Projects are then prioritised on the Feature Team's backlog where work can then be pulled as needed. Feature Analysts would then begin understanding the processes in detail, conducting requirements gathering and solution design which is handed over to the developers who will start to develop the solutions. The Feature Analyst and Developer then get into a cycle of develop, test and change until the solution is ready to be deployed into production. Once a solution is in production there will be continuous support from the Feature Team to ensure that it remains running correctly.

P10, Product Owner for a different BU, said that the main process that was followed was to align the BU in terms of IA by ensuring that they understood what was going to be rolled out into the area. It was then important for the Product Owner to align with the Feature Team in terms of expectations, role clarity and identification of solutions for the area. Once solutions

were deployed into the area it was important to identify and deal with any issues or challenges that were raised to ensure continued support and adoption of the solutions in the BU.

The Head of one of the areas involved in the IA Programme, P4, said that the process that was followed in their space was to firstly to obtain budget approval from the executives of the area to go ahead with the projects in the space. Once budget was approved a team needed to be formalised between the area and the IA project team according to the SAFe methodology. The next step was to begin with an analysis of the area and the various processes in order to identify a book of work or a list of possible projects that could be prioritised and put on the Feature Team's backlog. Once the projects were identified it was important to track delivery against set goals and then deploy projects into the area. Change management with the teams formed part of the deployment stage.

P11 who was the Head of another BU involved in the IA Programme spoke about the approach from more of a people perspective. They said that it was important to get staff from within the BU involved so that there was information and feedback being given to the team from the ground. These staff members were embedded into the team which helped in making them feel more a part of the change and ensuring that the change was working for them. This participant also took an active role in keeping the team informed about what was happening in the area, what projects were being implemented and how these may change or impact the way they work.

4.2.5.3 IA programme implementation phases

Participants from the IA programme that answered this question ranged from Client Leads to Scrum Masters to Feature Analysts. These different roles presented different findings in terms of the steps followed in setting up IA in the specific BUs. P13 and P25, both Client Leads in the programme said that the first thing that had to be done was some sales and marketing to the respective business they supported. Both participants mentioned that a POC was run in order to prove that the technology can work in the organisation which allowed them to showcase demonstrations to the BU and obtain buy in to the programme.

The next steps were to begin running assessments across the areas to identify the best candidates for IA projects. P13 said that once the processes that would be automated were selected it is vital to reengineer the processes using Lean and Six Sigma principles. This will help to ensure that all waste is removed from the process and clean, efficient processes are automated. Once this is done requirements gathering and solution design can begin, followed by technical design and development. There is stringent governance associated with releasing solutions and this needs to be adhered to.

P15, P16, P17 and P22 said that initial engagements with the BU would result in an approval to go ahead with the projects in the area as well as a list of potential projects. Once this is

agreed to, investigations and process analysis can begin, resulting in requirements being signed off and agreed to by the BU. P22 also mentioned the governance committees and requirements that need to be satisfied in order to be able to release any solutions into production. Depending on the type of solution and the number of systems impacted, will depend on the level of governance required, not just internal to the IA Programme but across the organisation as well. P16 said that business value and customer value also need to be considered when selecting processes to automated. P17 went into more detail regarding the analysis of processes. They explained that in order to ensure that processes are automated correctly, it is important to understand every step that is followed on the systems. This is done by taking screenshots of each step in the process and documenting each key stroke. This document is then handed over to the developer who will develop the solution based on the solution design, screenshots and key strokes provided by the analyst.

P12 and P20, both Scrum Masters in the IA programme, mentioned similar steps as already discussed in detail above. An initial analysis and understanding of the BU and the potential process candidates is followed by requirements gathering, solution design, and sign off with business. This documentation is then handed over for development where the Feature Analysts and Developers work closely together to ensure the solution is developed according to requirements. The development and testing cycle will take place before a solution is signed off for release into production.

The implementation phases discussed above highlight that each key area within the IA programme goes through slightly different steps, depending on their roles in the IA programme and organisation. The findings in Section 4.2 show that it is vital to ensure that each role within the IA programme understands the phases they need to go through, in order to ensure successful integration between business, IT and the IA project team.

Next, Section 4.3 concludes the qualitative data analysis of this study with a comparison of the interviews conducted with the two different Heads of the IA programme. The comparison is done using a table format representing their responses to each question. This is followed by a brief interpretation of the responses to each question. The qualitative data analysis represents the perceptions and understandings of the IA programme across the group. The purpose was to understand how the impact of the programme was being felt across the organisation from the perspective of the BUs, IA project team and IT. After the findings of qualitative data analysis have been completed in Section 4.3, Section 4.4 follows with the quantitative analysis of this study. The statistics of five use cases that were implemented across the SAFI, mentioned above, were included in the quantitative data analysis. Quantitative data analysis was required to depict the impact that these use cases had on the organisation, specific BUs and the customers.

4.3 Comparison of IA Heads Interviews

Table 4.3 and consecutive tables summarise the key points of each response to each question asked to the two Heads. It is important to remember that the Head of the IA Programme from the beginning of 2018, P29, represents both the IA programme as well as Business. This dual role is evident in some of the responses to questions where P29 was able to give insight to some things from a Business point of view as well as an IA programme point of view.

Table 4.3: IA Programme Heads' views on why IA is important for the organisation to pursue

Question	P19 – Head 2017	P29 – Head 2018
1. Why is IA the next big thing for the bank?	• IA is a transformative technology because it can integrate across multiple systems • It is exponentially faster than the average human being by a factor of 3 to 4 and can be quickly deployed once it is set up • IA is accurate and can deal with variation in inputs to standardise processes • It can provide a digital experience and a far superior customer experience through increased speed • IA is far more accurate than a human being, which will improve the data that the organisation maintains • The cost of implementing IA is relative to systems, allowing an extension in the life of legacy systems by providing the integration • IA will never provide the functionality of core legacy systems but will complement the legacy systems and not conflict with the overall IT strategy of the organisation	• There are many automations that the bank can do. One would be large ERP (Enterprise Resource Planning) systems, but the reality is that there will always be exceptions, there will always be processes that involve humans • The reason for IA is it actually takes away the mundane tasks and, in the future, we know there is going to be more complex tasks such as; support for online systems, engaging with customers on advisory services • Banks are all about services so there is always going to be backend • On the more complex side, customers are looking for advice and feedback from banks and if banks can use their big data smartly, we can offer customers proper solutions • In future IA will build new products that we can offer customers

In Table 4.3, the question was about why IA is the next big thing for the organisation to pursue. This question was asked in order to satisfy the research objective identified in Chapter 1 *viz* to determine the reasons why financial institutions need to implement IA (*cf* Section 1.3). Some common themes that emerged in the two Heads' responses were that IA offers the ability for speed and accuracy in process execution which enables the organisation to deliver exceptional service to customers. P29 referred to the organisation as a service provider to customers and said that it allows consultants to have more time to focus on providing the

service that customers expect, while IA takes care of the mundane tasks. P19 also said that due to the improved accuracy of process execution through the use of IA, the quality of data maintained by the organisation would be improved, thereby allowing the organisation to use this data more effectively. This was echoed by P29 as they saw the ability to use customer data more effectively to provide more suitable solutions to customers.

Table 4.4: IA Heads' views of the chosen vendor for the SAFI

Question	P19 – Head 2017	P29 – Head 2018
2. Why was the particular IA vendor chosen as the vendor for this organisation?	• One is that this vendor comes out of Six Sigma stable • Their competence is in machine learning and machine learning should give you an extra 20 to 30% automation rates on the base level which should be somewhere around 40 to 60%, that base level can then take you up to 80 to 90% so the impact of using cognitive and RPA improves your yield • The second issue is on the commercials, they were significantly more cost effective than anyone else. • The third issue is around the competence to support the technology, so they've got the expertise and they've brought that to bear because it's a new technology that requires support and you need quite deep engineering skills to do it	• When we looked at the market at the time there were many and we got certain vendors in and we saw that in the POCs, there were things that we couldn't get such as; proper data extraction, there was no machine learning ability and there was no cognitive growth • When we went out on an RFP, we actually found a vendor which had their roots in crowd sourcing, but also their roots in AI and they offered machine learning and Robotic Process Automation and a platform for building different AI • And the way we understand AI is that there's not one specific solution, you can build different solutions, different algorithms for different problems. And to have a platform like this allows you to build those solutions • RPA also allows you not just to have the process automation and the cognitive ability on machine learning and beyond, but also the fact that not all processes are going to be fully automated and you needed human in the loop or you needed exception processes that humans could deal • And none of the vendors at the time could actually do machine learning or anything cognitive, they were all just on the RPA and none of the

		vendors had a platform solution which had the human in the loop capability

Table 4.4 represents the reason for the organisation choosing the specific vendor that would provide and support IA in the organisation. This question was asked from a strategic perspective to understand the reasons for selecting a specific vendor out of the multitude of vendors available to the market. Both of the Heads mentioned that the fact that the particular vendor provided Machine Learning as a product played an important part in the choice of vendor. This is because Machine Learning would allow for cognitive growth of solutions and improved processing yields. Another important factor that was mentioned by P29 was the ability of the chosen vendor's platform to allow for human in the loop processing. This allows for any process to easily be handed over to a consultant if an exception occurs or if there needs to be human involvement in the process.

Table 4.5: IA Heads' views on how to start up an IA Programme

Question	P19 – Head 2017	P29 – Head 2018
3. From your role, what was the process followed in setting off on the IA journey?	• The first step was to create awareness with senior executives and process owners around the potential of the technology • The next process you go into is the licence negotiation • Post that you in with a POC. The POCs also have videos which are then cut to share with others • Post the POC you get an installation • Post the installation you get into a production and set up teams and that installation also has to be done properly so that you have the right environments in terms of SIT (System Integration Testing) and production • And then, there is a phase beyond that and that's industrialisation and in terms of industrialisation you have to be able to do this at scale and then you go through a number of iterations to optimise solutions to get them to what they should be	• The journey started with a POC driven by a process improvement area using some vendors • If you are going to buy a platform you need to have architects, you need to have solution design capability, you need to have infrastructure, you need to eventually, as you adopted the SAFe methodology with DevOps, you needed to not just build, but also maintain. So, with that all in mind, it had to become a business and IT solution • We started small but, in our start, we were deliberate to not just start with small simple cases, we actually took small simple cases and more complex ones. And the idea was to learn, but also deliver value • In reflection in the last 2 years, the first year was all about understanding the technology understanding the bugs, understanding really everyone getting familiar with the SAFe methodology, everyone getting

Question	P19 – Head 2017	P29 – Head 2018
		familiar with what the technology can do. Even the vendor changing multiple versions and improving it, to a state now where its general adoption on the platform. • More teams working on it, we've got a centre of excellence, both on a technical and a business side that is looking at not just the competence, looking at the competence, looking at the tools, looking at the methods, looking at the ceremonies, looking at the processes to make sure that governance, the execution, and the delivery to business actually happens

There is a clear contrast between the two responses in Table 4.5. The reason for this is due to the time difference in when the two interviews were conducted and where the organisation was in the journey at the time of the interviews being conducted. When P19 was interviewed the IA programme was still in its infancy stages and the main aim was to grow the number of use cases on the platform by exposing the technology and its possibilities to senior executives across the group. The other aim at that stage of the journey was to stabilise the existing solutions and increase the volumes on the platform for the use cases that were already running. For P29, having been a part of the programme for two years, the first year being from a Business perspective and the second being a part of both Business and the IA programme, the focus of their response to this question was based more on the where the IA programme was at that stage. This was evident in their response considering both the early stages of setting up the IA programme as well as the later stages of ensuring adoption across the organisation and the creation of a Centre of Excellence for ensuring the correct governance and standards are adhered to.

Table 4.6: IA Heads' views on Business challenges

Question	P19 – Head 2017	P29 – Head 2018
4. In your view, what have the biggest challenges been from an adoption perspective when it comes	• Different challenges at different phases • The first challenge is around awareness so that people understand what it is • The next challenge is your IT. You've got to have your	• One is the word Robotics is quite scary and people thought that it would be a bot coming to replace their job and sitting next to them • One of the biggest challenges facing staff is that if leaders are not transparent right up front on

Question	P19 – Head 2017	P29 – Head 2018
to Business and users?	engineering skills • You've also got to have your commitments to budgets to fund this • You've then effectively got to have the development standards, or you've got to mature the model, which then goes to how you do requirements	what this is, people are always going to be suspect and live in fear • And early on to actually say, the mundane, the routine tasks in 3 – 5 years won't exist anymore. And so, if you are doing the routine mundane task, you have to reskill yourself. • Staff have to reskill to roles that will exist, customer facing roles, roles to automate, roles to deal exceptions, roles to run the projects to automate so these are the roles that are going to come. There is a huge repurposing of staff • Underestimated what are the ideal use cases and the understanding of business and what could be automated. If business had a problem, they though it could just be automated through robotics

In Table 4.6, both P19 and P29 mentioned that one of the challenges with business was ensuring that awareness of the IA programme was managed so that people understood the intention of the IA programme and how it affected them. P19 also mentioned the importance of having strong IT engineering skills to ensure effective development and the ability to mature and scale a programme of this nature. Another important aspect of business challenges that was mentioned by P29 was the importance of managing expectations around the types of use cases that could be automated. This would allow the correct type of processes to be automated that would deliver the best value to the BU.

Table 4.7: IA Heads' views on increasing adoption across the organisation

Question	P19 – Head 2017	P29 – Head 2018
5. How can we increase adoption going forward?	• First, you've got to get delivery • you've to get volume on platform and that also means that these solutions need to be stable • Once you've got that out you need further programs which we are rolling out to start to get people used to the roles	• The role out of the Power User initiative although it was only 20 users to start, that created interest. We had a second role out, there was huge interest. Our third role out we have over 100 people again interested • The number of people who want to now start coding, the number of people who want to be involved in projects, the number

Question	P19 – Head 2017	P29 – Head 2018
	• The adoption is also going to be the definition of future roles and as that starts to happen it means the retraining and reskilling of certain individuals and repurposing of others • Better understanding of data and solutions between RPA and cognitive and it's going to drive better understanding and management of data to get your STP [straight through processing] rates to where they should be	of people who want to find out how to do small automations. there's a huge interest in that. So, I think as staff become interested, the adoption is happening • Staff who initially thought that this was just going to take their jobs, they actually realising, this makes their jobs easier. As they get involved in Power User and these various initiatives, they are doing their own change management, because change starts with someone accepting it. They also understating that the bots can help them. Humans and bots can work together • And in one of our use cases although there's more automation, because we are now responding quicker to the market, we're actually getting more business, so the volumes are growing, so there's actually more need for people but the routine task of logging into a system and going to fetch data, or logging into the system to go and fetch a document, those things are not there anymore • There's a huge challenge for leaders, for leaders to have the right narrative, for leaders to be transparent, for leaders to be confident and for leaders to realise that the future workforce is going to be a workforce of people and bots and so you may have been a good people leader, now you need to be a good people leader and manage a control tower and DevOps environments that maybe is a totally new environment

In Table 4.7, the response to the question of how adoption can be increased across the BUs, both P19 and P29 referred to staff in the affected BUs getting involved in additional initiatives that were being rolled out across the organisation. These initiatives, such as the Power User

Programme mentioned by P29, were introduced to create interest in the programme and possibilities of automation and were specifically targeted towards consultants from the line of business. P29, having been involved in the later of stages of these programmes was able to provide more insight into the effectiveness of these programmes and the interest they generated across the business areas. P19 also referred to the future of roles in the organisation and the focus that would be placed on reskilling and repurposing of staff for the new ways of work, as was mentioned by P29 in Table 4.6.

Table 4.8: IA Heads' views on organisational challenges

Question	P19 – Head 2017	P29 – Head 2018
6. What have been the biggest challenges from an organisational perspective?	• The organisational challenges are first of all how do you create your own delivery excellence and then how do you spread that excellence elsewhere • You've got to follow the business strategy of the organisation which would be centralisation • In a centralised model it's a lot easier to do, in a decentralised model you can't go around boundaries • Which means you've got to create a centre of excellence from an IT point of view. Which is how you set this up, how you configure it, how you run it and then it's a question of documenting methods and sharing day-to-day cultural practices with other entities • In order to do that you've got to go and teach delivery and from those learning start to export it out and it becomes a function of knowledge management • This information needs to be housed in certain places and you need to get people to contribute and then incentivise them to	• One is managing expectations. We don't have one enterprise system like SAP and there's exception processes and we just putting bots on the exception process • One of the challenges we had was that as we did some of our projects, we had underlying systems that was not supporting the programme • So, the platform might be fine, the RPA technology might be fine, the coding might be fine, the business case might make sense, the use case might make sense, but your underlying systems are not where it should be • Another challenge is existing IT budget and infrastructure. To actually start a robotics journey, you can't just add cost to the business. So, the businesses who could repurpose their IT spend could actually start doing Robotics

Question	P19 – Head 2017	P29 – Head 2018
	contribute to build the knowledge through Communities of Practice across the organisation	

In Table 4.8, answering the question about challenges faced across the organisation, P19 said that creating delivery excellence within the programme team and then spreading that excellence across the organisation by aligning to the organisational strategy was one of the key challenges from an organisational perspective. P29 however focused more on, firstly, the underlying system issues that had been faced by some feature teams in delivering use cases. The second challenge as mentioned by P29 was the challenge of some BUs to acquire the budget in order to fund the Programme. Some BUs were either unwilling or unable to be able to provide the required budget, which in turn meant that they were not able to acquire IA solutions in the BU.

Table 4.9: IA Heads' views on the departmental challenges faced

Question	P19 – Head 2017	P29 – Head 2018
7. What have the challenges been from a departmental and programme level?	• These teams go through massive transformations as well because they are new skills • There's a need to also understand the performance of the process so six sigma skill are absolutely critical • Things like the data quality, the speed, those things become important to frame what you are dealing with and also to provide new lenses on whether it's RPA or cognitive • The cultural challenges are massive because the business world and the IT world are not the same. • There are new roles between both the teams that need to be worked out, that creates friction as to who is the line and who is the support • You need to run in one team, so the Feature Team needs to be based on autonomy, within those teams you need to drive mastery, the mastery has got to be driven through standards	• In our Environment with the platform we needed some backend skills, so we needed some existing IT • Because it was new technology nobody actually knew how it was, we needed to invest in new IT Grads, so you'd find a lot of the younger, newer grads, newer people in IT • Then we had to rely on some external vendors who had experience on the platform where we used their experience with the platform and with automation to actually complement our normal JAVA and Python skills • We had traditionally people with process skills or business analysis skills and now in this new Feature Team construct we have a we have feature analysts • With Feature Analysts you need to hold both hats, you need to have a process, solution design hat and you need to have a requirements IT in one person

Question	P19 – Head 2017	P29 – Head 2018
		• Some of our Feature Analysts can easily take on that and some might not be able to

In response to the above question, it is clear from Table 4.9 that both P19 and P29 thought that the biggest challenges that were faced from a departmental level were the skills across the IT and Analyst resources. Due to the new technology and the demands of the IA programme, both IT and Analyst resources were under pressure to be able to adapt to the demands of the new roles.

Table 4.10: IA Heads' views on the next phases of the Programme

Question	P19 – Head 2017	P29 – Head 2018
8. What is next in the journey?	• Well step number one is to get industrialisation • You've got to get the cadence up in terms of delivery, so you've got to build business confidence • Once we've got that right, the other aspect is to spread the capability across the group • we've got to have the ability to push these things out at a rapid rate and to run day-to-day production • Until you've got that right, talking about future project, future tools are not even an option. So that's the focus for this year but then beyond that the next move is into chatbots • Chatbots are going to not only drive the conversations but will put in value to value added services so the next step is then predictive analytics • Once you've got that right it'll then move into text to voice and voice to text • So, I think that is effectively the road map but for now I think it's around scaling wide and depth of delivery	• As we define the role of the COE, we've actually understood that even established capabilities, how we use it in the organisation is going to be important • For example, OCR (Optical Character Recognition) is an old technology, but image enhancement, OCR combined with machine learning is not something that is common place • we are taking the technologies like OCR, we're taking the technology like machine learning and we are saying how do we make it easily usable in the organisation • The next chapter is how do we use it and how do we demystify it and how do we actually land significant use cases in machine learning • There is so many documents in the bank, how do we take OCR, enrich it with Machine Learning and use the data in a more structured format for different outcomes. • The challenge with Chatbots also is that Chatbots is a totally new capability and you can take learnings from other organisations, but you have to bring it into your own domain.

Question	P19 – Head 2017	P29 – Head 2018
		• The disappointment with us with the vendor is that they are not building chatbots as their primary • But in a way that's a blessing also because there's a whole array of open source technology, Google, Microsoft and even IBM Watson that we can look at and we are testing now with Microsoft and Google on some of the chatbots • In Chatbot there's going to be new roles like conversational analysts, a combination of a Feature analysts and a conversational analyst

Based on findings in Table 4.10, it is clear to see the contrast in responses from P19 and P29 based on when the interviews were conducted and how the IA programme had advanced within the organisation. P19 was interviewed when the IA programme was still very new and there were very few use cases that had been fully implemented. The focus of the IA programme at that time was to stabilise what was in production, increase the volume and load on the platform and land new use cases to increase business value. However, at the time that P29 was interviewed there were many more use cases that were running smoothly in production. The focus of the IA programme by then was directed more towards exploring the technologies available and new technologies in order to drive greater value for the organisation and its customers.

Table 4.11: IA Heads' views on the perceived benefits of IA in the organisation

Question	P19 – Head 2017	P29 – Head 2018
9. What are the perceived benefits of IA and what benefits have already been shown?	• From a business perspective it should be speed and delivery • It should be substitution of work • It should be accuracy • It should be improving data • It should deal with variation • The productivity of work • From a customer point of view, we will be able to give them what they want, when they want it and how they want it	• The benefits have been on all fronts • We've seen significant customer experience improvement in some of the automations • There are so many use cases where the turnaround times or the customer experience has been improved dramatically • we've had a change in people, the roles that people did a few years back, the roles that people are doing now and the roles that people will do in 2

Question	P19 – Head 2017	P29 – Head 2018
		years' time is going to be different • Lots of new roles will emerge and that will be the benefit for staff because staff who had done a certain job, they can now use more of their skills and more of their skills will be required as they take on bigger roles • Our various stakeholders; feedback from SARB is that [SAFI] is the only bank that reports on a specific regulatory requirement very quickly and accurately and that's because it's automated in our environment through automation technology

The difference in the time of the interviews being conducted plays a role in the responses to the question in Table 4.11 above. P19 answered this question at the very early stages of the Programme when actual benefits had not yet been realised, this is clear from the way in which the question was answered. The interview with P29 was conducted after the IA programme had been running for more than a year and this is reflected in their response. P29 was able to give specific examples of benefits that had been felt across the organisation, as well as customer and stakeholder benefits.

Table 4.12: IA Heads' views on what they would have done differently

Question	P19 – Head 2017	P29 – Head 2018
10. If you knew then what you know now, what would you do differently in setting off on this journey?	• Got help sooner in terms of environments • We probably needed to temper the enthusiasm of the business until we had real use cases at scale which we're only getting now • You can never focus enough on the skills so it's about getting the right resourcing at the right places • If I had the capability, I would have outsourced production completely. I would have put it in a cloud which is what we will do for Africa	• manage expectations better do much more business education, have business understand the technology, have them understand the benefits • Right now, with my lenses in two worlds, I actually think exec and senior managers, or decision makers' education is actually critical • As we educate decision makers, they will make the right calls in their businesses

Question	P19 – Head 2017	P29 – Head 2018
	• Setting up this production is problematic. We would've probably brought IT security to the party a whole lot sooner. We would've done more on the cultural integration between the two teams about how to get them to work together	

The final question was asked to each of the Heads to understand if there was anything they would have done differently, given the lessons they had learnt along the journey. From the responses presented in Table 4.12, P19 listed a number of lessons learnt through the journey that could be approached differently to drive the success of the IA programme from early on. Both P19 and P29 mentioned that managing business expectations earlier in the Programme would assist in ensuring that the right use cases are selected once some lessons had been learnt.

The above section presented the interview responses from the two Heads of the IA programme. The variation in responses was largely due to time difference when each interview was conducted. A number of lessons were learnt in the first year of the IA programme. There was also a significant amount of progress in terms of the number of use cases in production and the volumes on the platform between each interview. Another factor that contributed to the differences in responses was that P29 was also the Head of the Operations environment and so approached the IA programme with a view from Business as well as a view from the IA Project Team.

This then concludes the qualitative data analysis. These findings together with the quantitative data analysis next in Section 4.4, will be interpreted against the study's theoretical framework in order to develop a conceptual framework for balanced IA implementation in Chapter 5.

4.4 Quantitative data analysis

This section presents the findings from the content analysis of use case statistics as part of the investigation of IA implementation and adoption. Section 3.2.2 (para 8), described the method of quantitative data analysis of secondary data of five SAFI use cases. The use case statistics provided a rich source for quantitative data analysis. As mentioned in Chapter 3, this study only included those use cases that either had dashboards designed to show the use case statistics or use cases that had data available directly from the Scrum Master of the Feature Team, which had to be verified and signed off by the particular BU, validating that the information being reported was correct and valid. In the subsequent sections, an anonymised background discussion of the business need precedes the presentation of each use case's

statistics. This was done in accordance to the University of Johannesburg Code of Academic and Research Ethics (2015).

4.4.1 Use Case 1: Automated Billing in Channel

The analysis of Use Case 1 is organised into three sections; 1) Background and business need, 2) IA solution, and 3) Results realised.

4.4.1.1 Background and business need

Traditionally, the strategy of the customer facing channel environments has been to turn customers around as quickly as possible, by logging the customer's service requests to the back office for fulfilment. However, through various initiatives to understand their customers, the SAFI realised that customers want to have their requests fulfilled at the point of contact. Various projects were implemented over time to turn some of the service requests into FCR (First Call Resolution) requests. This meant that channel consultants were given access to some of the systems that allowed them to fulfil certain customer requests immediately. One of these FCR requests that was implemented was the ability for channel consultants to retrieve and provide customers with historical statements, those older than 6 months and therefore not available on the Internet Banking platform or ATMs.

However, it was subsequently discovered that the organisation was losing revenue due to customers not being charged for the fulfilment of these service requests. This was largely due to the high volume of demand in the customer facing environments and the time-consuming process of charging customers for the service request. The IA Feature Team was asked to come up with a solution that would automate the billing process without adding additional steps onto the process.

4.4.1.2 IA Solution

The Feature Team designed an IA solution that integrated with the statement retrieval portal as well as the billing system. A pop up was added onto the statement retrieval portal that would appear once a consultant had selected and confirmed the number of statements to provide the customer. The pop up was used to determine if the customer should be charged for the specific request. It contained three buttons; "yes" indicating that the customer should be charged for the statements provided, "no" indicated that the customer is not to be charged for the request and "cancel", which meant that the request was not completed, i.e. the statements were not provided to the customer.

A file is then generated twice a day, at eleven am (11h00) and at three pm (15h00), containing all the selections across all the branches and call centres for that period of time. The file was then passed automatically through a server into the IA process where all the entries that were marked with a "yes" indicator would be automatically charged by the IA solution.

4.4.1.3 Results realised

The use case statistics in Figure 4.1 and Table 4.13 show a detailed breakdown of the roll out of the IA solution into the various branches and call centres across the group. This view is important to understand the increase in volumes processed month on month and the increase in the different selections on the platform month on month.

Figure 4.1: Solution roll out breakdown (Own source developed for this study, 2018)

The solution was released in phases to ensure stability of the systems as well as buy in from the channel environments. The main outcome that was expected for this solution was the ability to curb the potential revenue losses that were being experienced. The solution provided the ability to understand how many customers were not being charged for the service request, something which was previously not able to be tracked. There are many reasons why customers would not be charged for a statement request, some of these include; the customer never receiving the statement in the first place, poor printing quality by the ATM or a previous service request that was not completed, or not completed correctly. This provided valuable insight into understanding possible areas of improvement as well as understanding potential revenue leakage that was being experienced.

Table 4.13: Volumes processed, and revenue recovered

IA Production Volumes Processed	18-Apr	18-May	18-Jun	18-Jul	18-Aug	Total
Volumes Received	**31**	**431**	**2056**	**3873**	**5233**	**11624**
Volumes Porcessed by IA STP	28	353	1751	3023	4365	9520
STP%	90.30%	81.90%	85.20%	78.10%	83.41%	81.90%
Volumes Unable to Process by IA	3	78	291	850	770	1992
Unable to Process %	9.70%	18.10%	14.20%	21.90%	14.71%	17.14%
Total Business Accounts	16	363	1580	2670	3476	8105
Total Personal Accounts	15	68	476	1203	1757	3519
Revenue Recovered	**R 8 465.86**	**R 139 558.82**	**R 720 264.81**	**R 1 162 023.12**	**R 1 592 813.02**	**R 3 623 125.63**
Total Statements	**185**	**3551**	**5747**	**35597**	**44857**	**89937**

Table 4.13 represents the volumes received and processed via the solution from inception in April 2018 up to the end of August 2018. It shows the total volumes received month on month,

the volume processed successfully by the automation and the STP (straight through processing) percentage. It also shows the revenue that was recovered per month.

The use case statistics in Figure 4.2 indicate the percentage split, across the regions, of the selection of Yes or No on the portal.

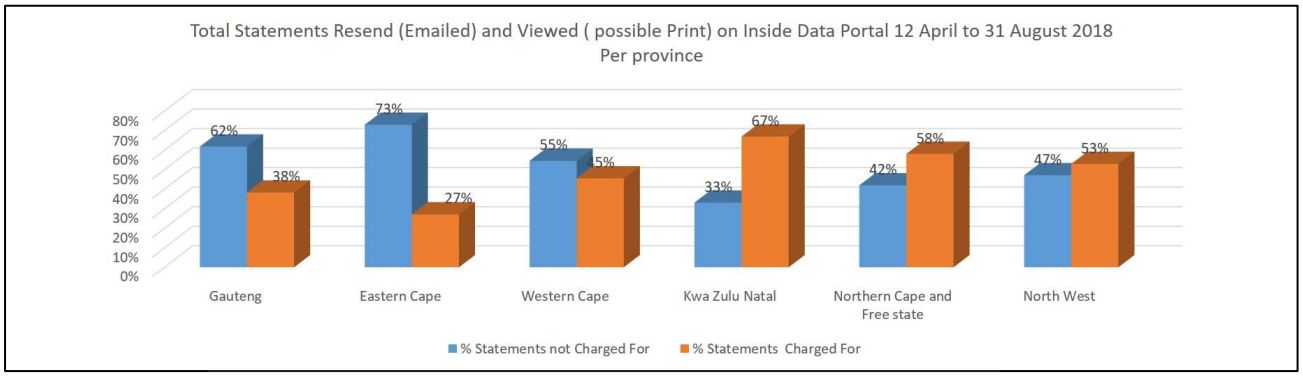


Figure 4.2: Split of Yes or No indicator selected on the platform

Figure 4.2 presents data collected between April 2018 and August 2018 and indicates which regions are charging customers for statement requests and those that are not. This view enables the regional managers to have a view of the requests that were not billed and to understand why so many requests are not being billed for in some regions.

The final figure, Figure 4.3, shows the combined increase across the regions of the volume of statements sent and the breakdown of which of those where selected as Yes and No. The increase between July and August shows the increase in the roll out of the solution to branches. However, the graph also shows the increase in the number of users selecting No on the portal.

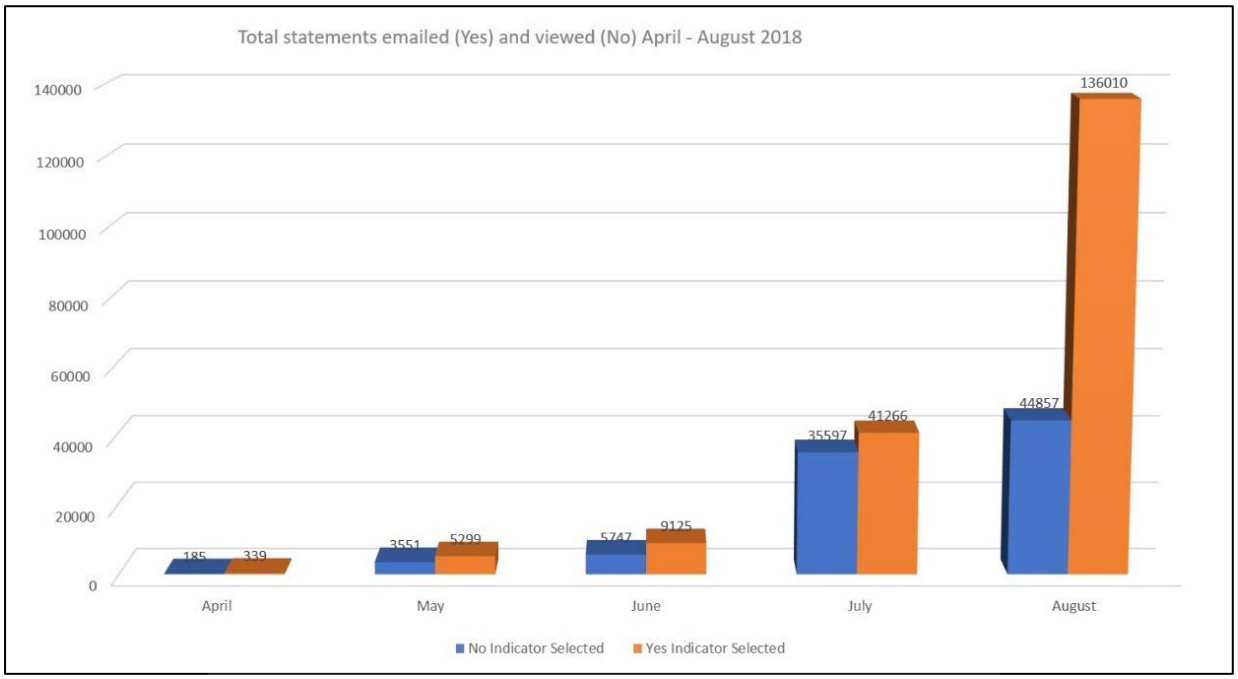


Figure 4.3: Increase in users vs indicator selected

Not only did this IA solution help to reduce the risk of customer facing consultants not charging customers for this service request it also helped to highlight the potential revenue loss as a result of customers not being charged. This data allows further investigation to be done into the reasons for customers not being charged and provides the opportunity to start necessary corrective measures to curb the revenue losses.

4.4.2 Use Case 2: Set-offs

The analysis of Use Case 2 is organised into three sections; 1) Background and business need, 2) IA solution, and 3) Results realised.

4.4.2.1 Background and business need

The Set-offs process is a collections process that involves transferring of funds from a customer's transactional account, when funds are available, into a loan product on which they have defaulted. This is done after numerous, unsuccessful attempts to get the customer to honour their loan agreement. A customer will appear in the set-offs file if they meet three conditions; they have a loan product on which they have defaulted on for more than 60 days and up to 90 days, they have a transactional product with the SAFI, and this product has enough to cover the payment due plus R1500.

There are peak times when this process experiences high volumes, especially around pay days. There are also specific months where volumes are higher, for example, the months following big holidays such as Christmas and Easter when spending may be increased, and customers go into debt. The process is split into two parts; capturing and releasing. The end

to end process was taking the BU most of the day to complete, especially at times when volumes were higher. It was therefore decided by the area to split the two components of the process between two areas. As a result, the capturing component was given to the Collections Outbound Call Centre as there were more consultants in that area to complete the more time-consuming component of the process in a shorter time. The releasing component remained with the Set-offs collections team. The business still faced an issue however because while the outbound call centre was processing the Set-offs capturing, they could not be calling customers to arrange for payments on outstanding loans, potentially losing out on collections for that period of time.

The business area required a solution that would reduce the overall time to process the Set-offs file on a daily basis and free up the consultants in both the Outbound Call Centre and the Set-offs collections area thereby freeing up capacity in these areas.

4.4.2.2 IA solution

The Feature Team implemented an automated process that would run the Set-offs file received from the BU between 6am (06h00) and 9:30am (09h30). The segregation of duty was removed from the process by building the necessary business rules into the automated process, removing the need for this hand off and the delay that it created. Any records in the file received that could not be processed automatically were sent back to the consultants to handle manually. There could be a variety of reasons for a failure, including incorrect or missing information in the record, a system error or timeout during the automated run and a discrepancy or mismatch of information in relation to a business rule. This IA solution is reliant on the BU to send the file for processing on a daily basis to the Feature Team.

4.4.2.3 Results realised

Similar to Use Case 1, this IA solution was also released in phases to ensure stability of the solution and to determine the time it would take the solution to process the records received. The Head of the BU would decide how many records to allow the IA solution to process on a daily basis, in order to ensure the process was performing as expected. Based on the performance of the process, the volumes allowed through the IA solution were scaled over time, releasing more capacity in the BU. The BU Head expected a 65% STP rate of the IA solution. The expected outcome of this IA solution was that it would improve the turnaround time of accessing funds that were due to the SAFI and thereby free up capacity in both the Outbound Call Centre and the Set-offs collection area. Figure 4.4 shows the total volume of records processed through the automated solution, month on month up to September 2018. The spike in volume in May 2018 was due to two reasons; higher volume being processed through the solution as well as being a high-volume month following Easter holidays. The

declines in volumes in the following months were purely due to the volumes in the area in those months.

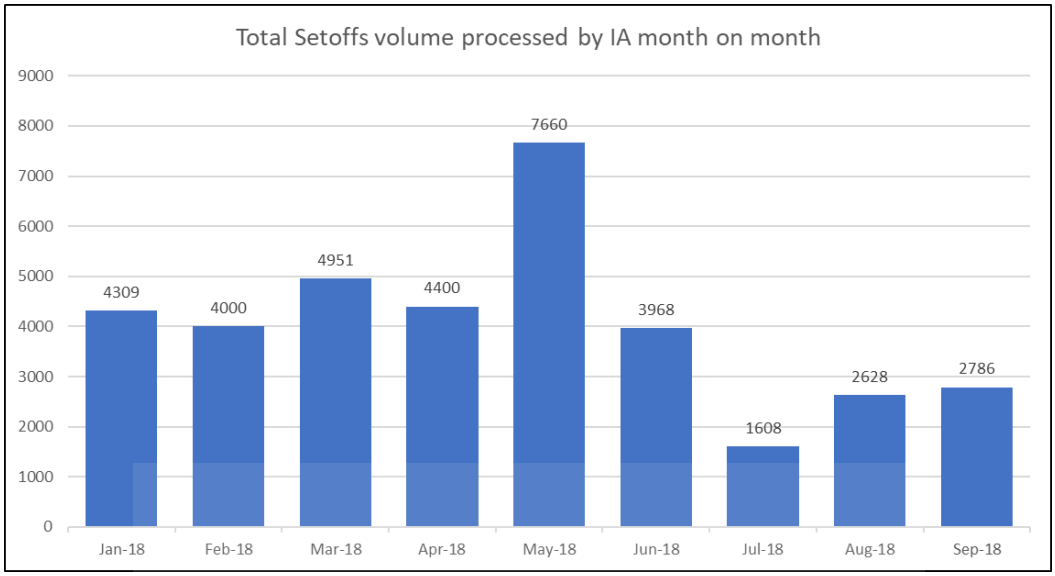


Figure 4.4: Set-offs volumes processed by IA solution: January 2018 - September 2018

Next, the graph in Figure 4.5 shows the STP rates of the IA process each month for the year of 2018. The sudden drop in STP rate in June and July was due to the migration of the solution to the latest version of the IA software.

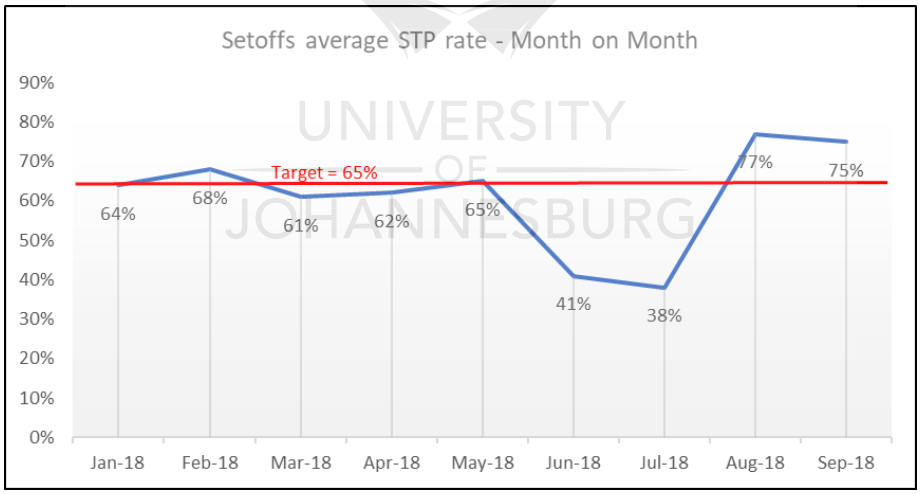


Figure 4.5: Setoffs average STP Rate: January 2018 - September 2018

Illustrated in Figure 4.5, as mentioned above, the sudden drop in STP rate in June and July was due to the migration of the solution to the latest version of the IA software. This resulted in some teething issues and learnings as the team worked to get the solution fully operational on the new platform. The process was fully released on the new version on the 28th of July 2018 and the STP rates of the process the following months were above the target STP rate.

The graph presented in Figure 4.6 below displays the average run time per file for the year of 2018. The target run time, as expected by the BU was between 120 minutes and 150 minutes,

with the expectation that the file would be completed by 9:30am (09h30) daily. The run time significantly decreased in July, based on the volumes of the file and the low STP rate. However, it is interesting to note that the volumes in August and September were similar, but the difference in run time was quite significant. This can be attributed to the improvements of the new version and better processing rates experienced as the solution stabilised.

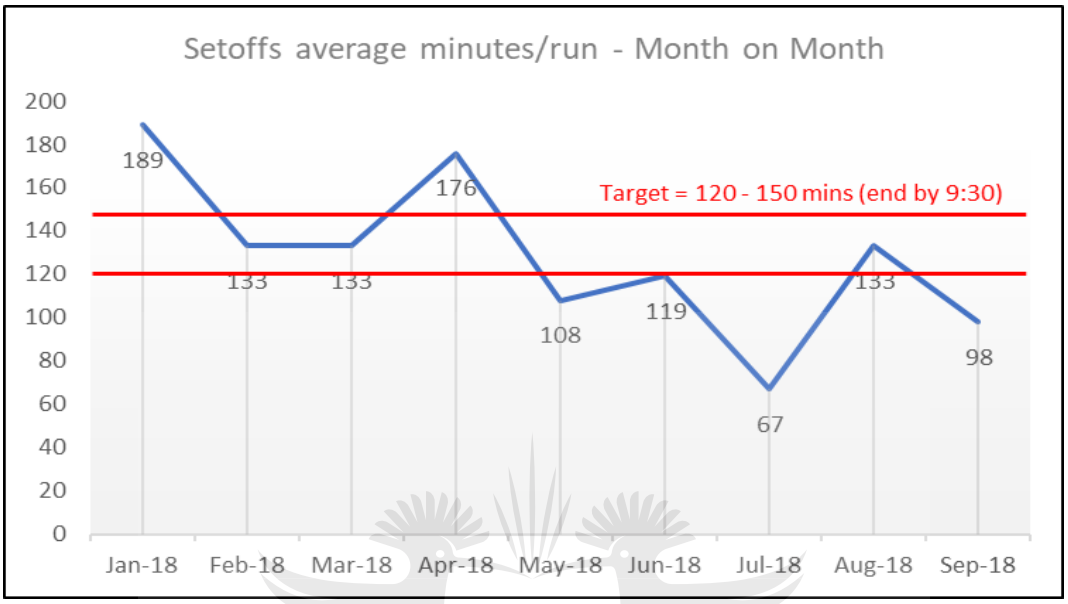


Figure 4.6: Set-offs average run time: January 2018 - September 2018

As mentioned, the hand offs that existed in the manual process meant that there was often a delay in the retrieving funds, which could result in loss of recoveries. The hand off was created because a consultant cannot capture and release their own transaction due to the potential for fraud and human error that exists. As a result, one consultant has to capture the transaction and a second consultant has to release the transaction. The IA solution removes the potential for fraud and human error and therefore removes the need for a person to release the transaction. This step is performed automatically, reducing the delay in the time taken to release, and therefore complete a transaction. Table 4.14 represents the difference between the manual capture to release delay compared to the automated capture to release delay.

Table 4.14: Comparison of capture to release delay time in manual process vs automated process

Delay - Capture to Release	Longest Time	Shortest Time	Average Time	Median
Manual	9:53:10	00:01:12	01:44:36	01:30:44
IA Solution	00:02:20	00:01:05	00:01:40	00:01:40

As explained above, the Set-offs process was being run across two different areas. The capturing component being processed by the Outbound Call Centre. During the time that these consultants were performing this task, they were unable to perform their function of contacting

customers to arrange for payments on outstanding loans. The business conducted an exercise to understand what the potential increase in collections could be, should the consultants not be spending as much time processing Set-offs capturing. The calculation was based on how much time the IA solution saved in the month multiplied by the average amount that the call centre can collect in an hour. Figure 4.7 represents the average potential increase in collections based on this calculation.

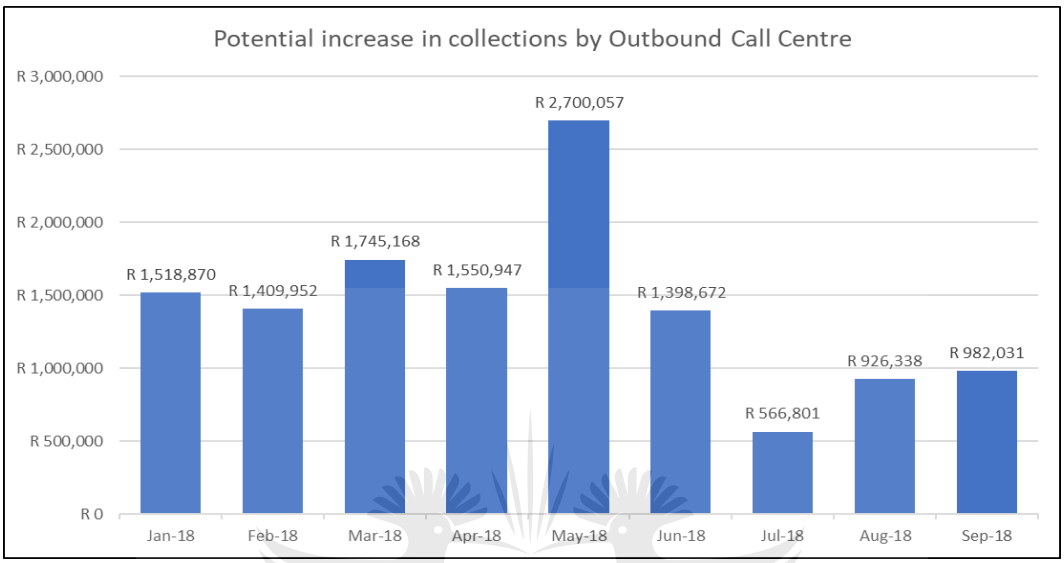


Figure 4.7: Potential collections increase – January – September 2018

The implementation of this solution has assisted the BU in completing the Set-offs process in a much quicker time, creating significant capacity in both the Outbound Call Centre and Set-offs areas. By August 2018 the BU had agreed to let the 100% of the file be processed through the IA solution, with only exceptions being handled by the consultants. The IA solution also assisted the BU is creating capacity of three people who could be taken off this process and repurposed to add value in the BU performing other functions.

4.4.3 Use Case 3: Cash Upload Reversals

The analysis of Use Case 3 is organised into three sections; 1) Background and business need, 2) IA solution, and 3) Results realised.

4.4.3.1 Background and business need

Use Case 3 was implemented in the Cash Shared Services BU. This area deals with the processing of cash both from a cash distribution and management perspective in the ATM and branch network, as well as from a retail client perspective. This process deals with retail customers depositing cash received in their stores into their accounts. The process is triggered by the customer updating the online portal with an amount of cash that has been sent via a CIT (Cash in Transit) van to be deposited into their account. The updating of this amount on the portal counts as Day 1 of the process, no matter what time the portal is updated by the

customer. On advisement of the amount of cash to be expected, the SAFI will credit the client's account with the specified amount. If the deposit is not received within the agreed SLA (service level agreement), the credit must be reversed from the customer account. The SLA is either 4, 5 or 6 days, depending on the customer. Delays in receipt of the deposits can be attributed to a number of factors. Some of these include; the customer not sending the bag on the day of the credit advisement, delays experienced in the CIT delivery or high volumes of deposit bags being received resulting in delays in processing the bags.

4.4.3.2 IA solution

The IA project team came up with a solution that was able to automate 70% of the process, leaving 30% of the process where manual intervention was required. The solution automated the extraction and verification of upload reports, the verification and reversal as well as the reversal of credit where the deposit bag was received within SLA. Prioritisation of deposit bags received remains a manual part of the process.

4.4.3.3 Results realised

This solution was first implemented into the Johannesburg Cash Centre as a pilot or POC. The potential to role this out to the other centres around the country remains possible, based on the BU providing the go ahead. The solution was released in August 2018 and was piloted with two retail customers. The solution was then rolled out to more clients the following month. Figure 4.8 below represents the volume of the cash upload file processed by the IA solution for the month of August 2018.

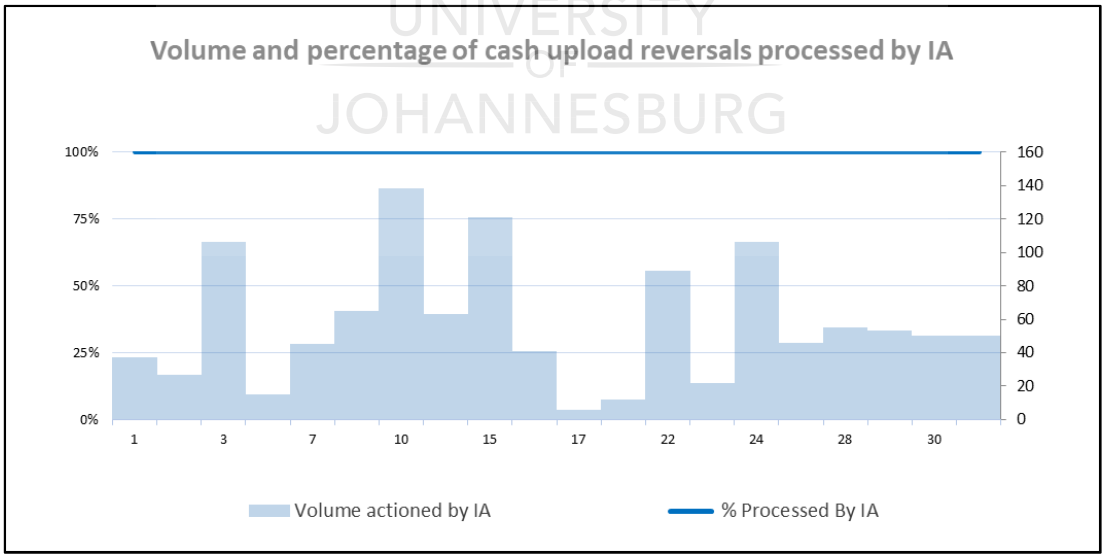


Figure 4.8: Cash upload reversal file processed by IA

Next, Figure 4.9 represents the Design STP of the solution as well as the volume of reversals processed by the IA solution. Design STP refers to the IA solution correctly completing the steps it was designed to complete at that point in time. At this time, the solution was designed

to access and process the reversals file and the perform the reversals only for the two pilot customers, making up 4% of the actual reversals required to be performed by the solution.

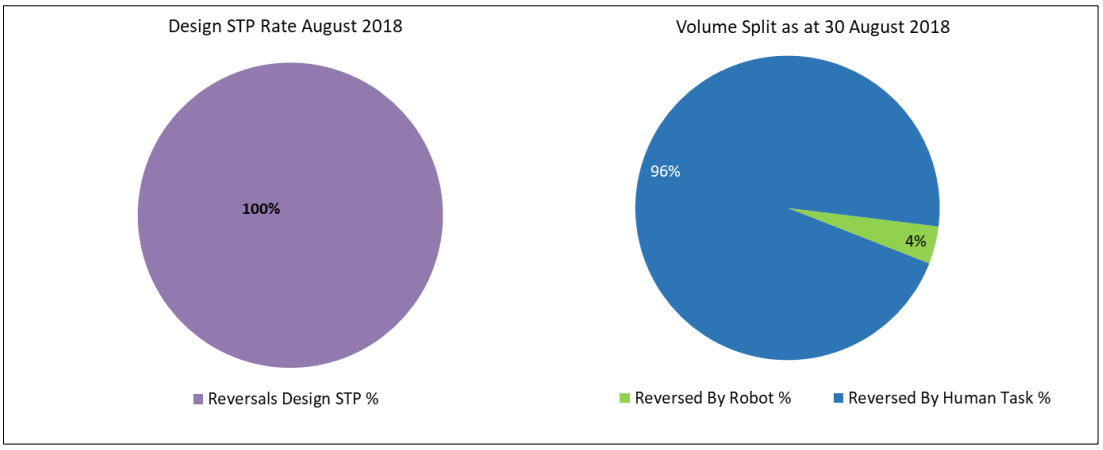


Figure 4.9: Design STP vs volume reversed by the IA solution for August 2018

During the month of September, as STP rates of the process were stable, more of the reversals for different customers were added onto the solution. Figure 4.10 (next page), represents the scaling of the solution over the month of September 2018. Peaks and dips in the volumes per day are purely based on the number of reversals required, based on the number of bags received.

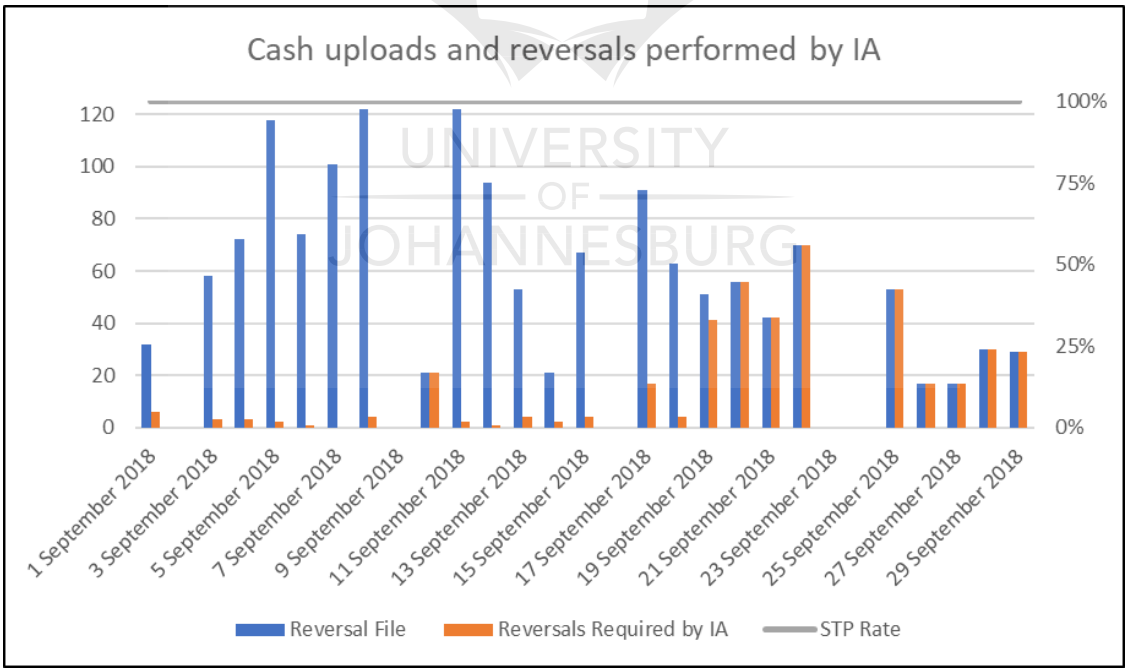


Figure 4.10: The reversals file and reversals required by IA

Figure 4.11 also represents the design STP rate of the process. Once again, the IA solution correctly processed 100% of what it was expected to at that point. By the end of September 2018, the IA solution was processing 100% of the reversals required, at 100% STP.

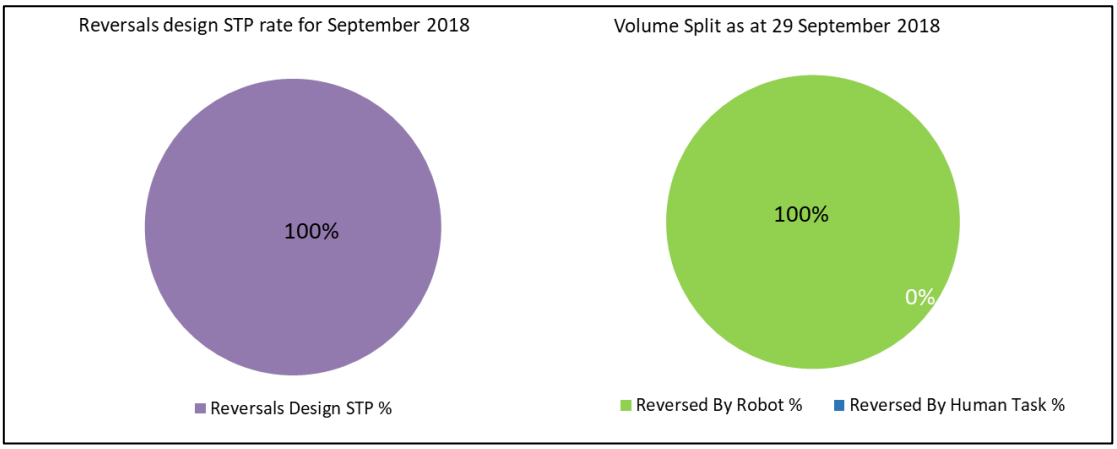


Figure 4.11: Design STP vs volume reversed by the IA solution for September 2018

The expected result of this solution was the repurposing of a resource in the Johannesburg Cash Centre. This resource was able to perform more value-added activities, rather than performing a function that is essentially a process failure. The potential for this solution to be rolled out to the rest of the Cash Centres around country exists. This will create further capacity in the Cash Centres and relieve consultants of having to perform this task.

4.4.4 Use Case 4: Debit or Credit Detail request

The analysis of Use Case 4 is organised into three sections; 1) Background and business need, 2) IA solution, and 3) Results realised.

4.4.4.1 Background and business need

Financial institutions are inundated with requests from customers on a daily basis asking for information on a third-party regarding and unrecognised debited or credited amount on their account. This is one of the highest volumes service request that the organisation receives in a month, especially around peak times of the month, such as pay day. The volumes received on this request can exceed 8700 requests in a month. Due to the high volumes of requests and the complex process of tracing third-party information, customers could wait for up to 7 working days to receive any feedback on their request.

Automating many of the manual steps in this process would allow for quicker response times to customers. It would also allow consultants to focus on the more complex queries while automation processes the simpler requests. There are two types of requests when it comes to this service request; those in which the third-party banks with the same financial institution as the customer, i.e. the SAFI, and those where the third-party banks with an agent bank. The first release of this solution focused on requests where the third-party merchant banked with the SAFI.

4.4.4.2 IA solution

The aim of this solution was to automate as many of the manual steps in the process once the solution was able to confirm that all the input data requirements had been met. Once investigation on this process started it was realised that the query management system did not cater for the structured input data fields required for the automated solution. Most of the request information was captured into the notes field. The unstructured nature of this field meant that the IA solution would never be able to read the information in this field and understand what was required. As a result of this, a human step had to be introduced into the process.

A consultant from the back office was required to capture the request information into a standardised template and insert this information into the request. The request was then routed to the automation for processing. The solution was designed to perform a number of validations on the request information and the customer's account. This included; the date of the transaction, the amount, the transaction description, the type of customer as well as if the customer should be charged for the request. If all this information could be verified, the solution would proceed with accessing the various systems to trace the third-party details, provide the details to the customer and charge the customer for the request, if required. If the process failed at any point, it would be rerouted back to a consultant who would complete the fulfilment of the request.

4.4.4.3 Results realised

The statistics to Use Case 4 show that the automation of this process resulted in some important learnings for the Feature Team.

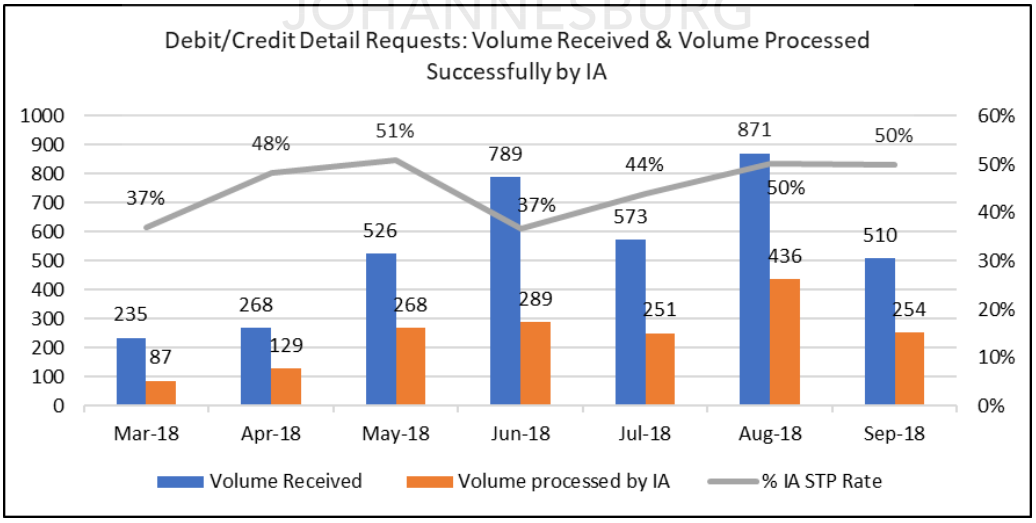


Figure 4.12: Volume received and processed successfully through IA solution

Firstly, due to the unstructured nature of the query management system resulting in the need to have requests updated by a consultant first, caused delays in the process and increased

the risk of human error. This resulted in challenges with incorrect data entry causing the IA solution to fail. Another challenge that was experienced was that the channel environment would often capture the request information incorrectly at source, for example, the incorrect transaction date or amount. If this was not rectified before the request was routed to the IA solution, it would cause the process to fail. The first release of this IA solution only focused on transactions where the third-party banked with the SAFI. The reason for this was because the system used to trace agent bank transaction details is a third-party system and required additional costs and permissions to automate on the platform. This meant that the number of requests that could be processed by the solution were limited as well. The complex nature of the process also meant that there was an element of human intuition required in some instances. These types of scenarios are very difficult to automate and resulted in some process failures.

Figure 4.12 illustrates the volumes received and processed by the IA solution STP since it was released in March 2018. Due to the challenges and learnings described above, the STP rate of the process has never gone above 50%, resulting in a lot of work being reassigned to consultants for fulfilment. The volume fluctuations relate directly to the volume of requests received by operations and the volume of work assigned to the IA solution by the consultants.

There is a service fee that is charged for requests for Debit or Credit Details which the IA solution could automate as well. In April 2018 this portion of the solution was released. Any service request that was completed successfully by the IA solution and required billing was then automatically billed through the solution. Figure 4.13 depicts the volume received and processed STP by the IA solution. The input for the billing process is very standardised and the process of billing is very simple, therefore the STP rates are much higher.

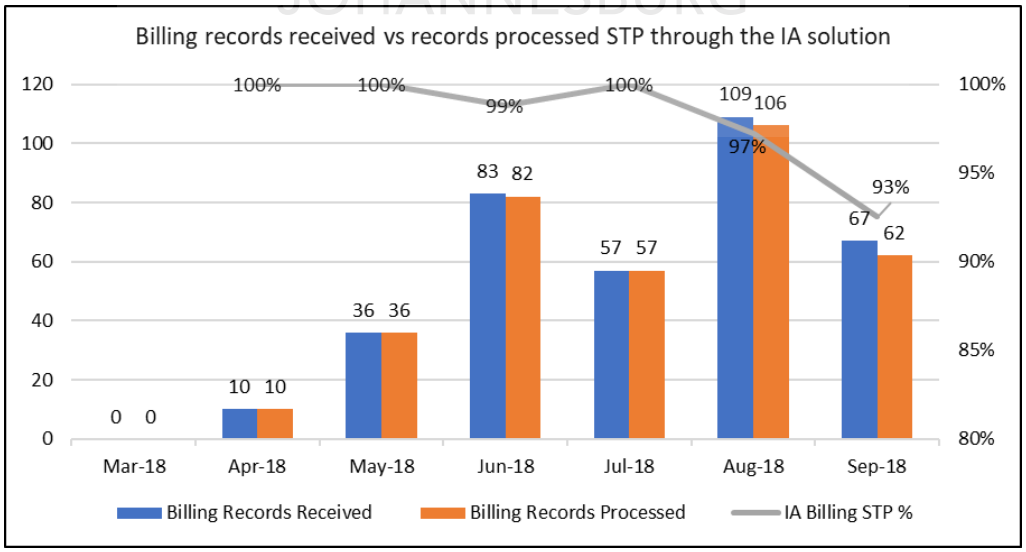


Figure 4.13: Volume of Debit/Credit Details requests billed by the IA solution

The reason for the discrepancy in volume between the requests processed successfully through the IA solution and those that are billed is due to some of the failures in the process being designed for. For example, it is impossible to tell up front if the third-party merchant banks with the SAFI or an agent bank. For this reason, the process was designed to go as far as retrieving the agent bank transaction details which need to be logged onto the third-party tracing system. This was not considered a process failure as the solution was able to do what it was designed to do. Through the tracking of this process it was found that 70% of the designed failures resulted from the third-party merchant banking with an agent bank.

Next, Figure 4.14 depicts the top five failure reasons on the Debit or Credit Details process. These failures are not designed for and are considered exceptions to the process. The biggest contributor to failures is due to the tracing report (report 10846) being on a very old, mainframe system. This system is often very slow and can be difficult to navigate, resulting in high failure rates. The two next highest failures are purely due to incorrect input data which, in this case, result in a combined 25% of the failures on this process. If the IA solution is unable to locate the transaction on the statement, this means that either the channel or the operations consultant has captured the incorrect transaction date or amount. The same applies to the feedback method, the IA solution is only able to provide feedback via text message or email. If anything else such as fax or landline is captured in the request, the process will fail.

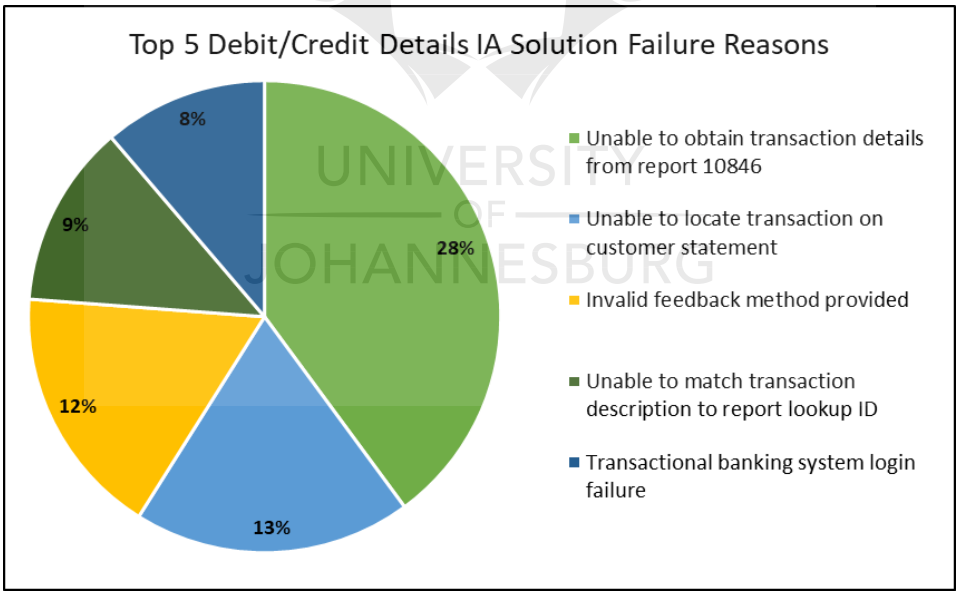


Figure 4.14: Top 5 Debit/Credit Details process failures

Use Case 4 was of high value to the BU due to the high volumes of the process. However, over the time that it has been running it has proved that the more complex a process is, the less effective automation is.

4.4.5 Use Case 5: Vehicle and Asset Finance verification automation

The analysis of Use Case 5 is organised into three sections; 1) Background and business need, 2) IA solution, and 3) Results realised.

4.4.5.1 Background and business need

The Vehicle and Asset Finance (VAF) business requested the Feature Team to investigate a way to reduce the time it takes to complete the verification process for customers applying for vehicle loans. The average monthly volumes of manual verifications sent to the operations area was more than 14 000. These verifications include income verification, employment verification and driver's license verification. The verification process is a manual and very time-consuming process with high amounts of rework and human error. The process requires the vehicle dealer or branch consultant to collect the necessary verification documents and scan these into the system in order for the back-office area to perform the necessary verifications on the customer. Due to the delays in receiving documents, document quality and backlog in the back-office, the vehicle loan take-up rate was very low. In many cases, the back-office operations area would not manage to complete the customer verification before the customer had taken a deal with another financial institution. The request from business was therefore to reduce the manual back-office verifications and improve the response time to market.

4.4.5.2 IA solution

The IA Feature Team came up with a solution that would automate up to 70% of the VAF origination process and reduce the need for applications to be sent to back-office for verifications. The Feature Team, in partnership with various third-party vendors, developed a "Verification Engine" that the IA solution could access, with consent from the customer, and retrieve all the necessary verification documents on the customer's behalf, whether the customer banked with the same financial institution or a different financial institution. The solution accesses the eNaTIS system to retrieve Confirmation of License (COL). It accesses a separate third-party database to access payslips in order to perform Confirmation of Employment (COE) and a third database to perform Confirmation of Income (COI).

The IA solution was designed to access the application system and retrieve requests from the queue, automatically access the various databases and perform the verification and update the system with the information and documents. For example, the solution will retrieve three months of bank statements and look for credit and debits on the account in order to calculate affordability. It will also retrieve three months of payslips and confirm the salary payment over the three months. The consultant then verifies that information and documents are correct and generates and approval or rejection based on this.

4.4.5.3 Results realised

The implementation of this automated process resulted in a reduction reworks as well as an overall reduction turn-around time of the origination process of 180 minutes to less than 40 minutes. The end-to-end processing time was reduced from 1-2 days to less than 40 minutes, resulting in an improved customer experience. There were different automation scenarios that were realised on implementation of the process, namely:

- **Automated**: all applicable components extracted and validated through IA
- **Semi-automated**: application documents are extracted but IA is unable to perform one or more of the verifications
- **Manual**: documents are not available, or customer consent is not received and the whole process needs to be performed manually

The automated process was released in KwaZulu Natal (KZN) in October 2017 as a pilot. For the first two weeks half of the applications where processed via the IA solution, in order to test the stability of the system. Once stability was established, 100% of applications received through the online application portal were processed through the IA solution. The solution was released in Johannesburg in June 2018.

The solution also had some unexpected results. Due to the reduction in the verification process and the subsequent quicker response to market, the loan take-up rate increased in the KZN region by 35%, increasing the number of consultants required to complete the final processing of applications in the back-office. An additional five consultants were required to manage the increase in volumes, often requiring overtime and the costs associated with this. Figure 4.15 depicts the volume increase in KZN, resulting in the need for additional consultants.

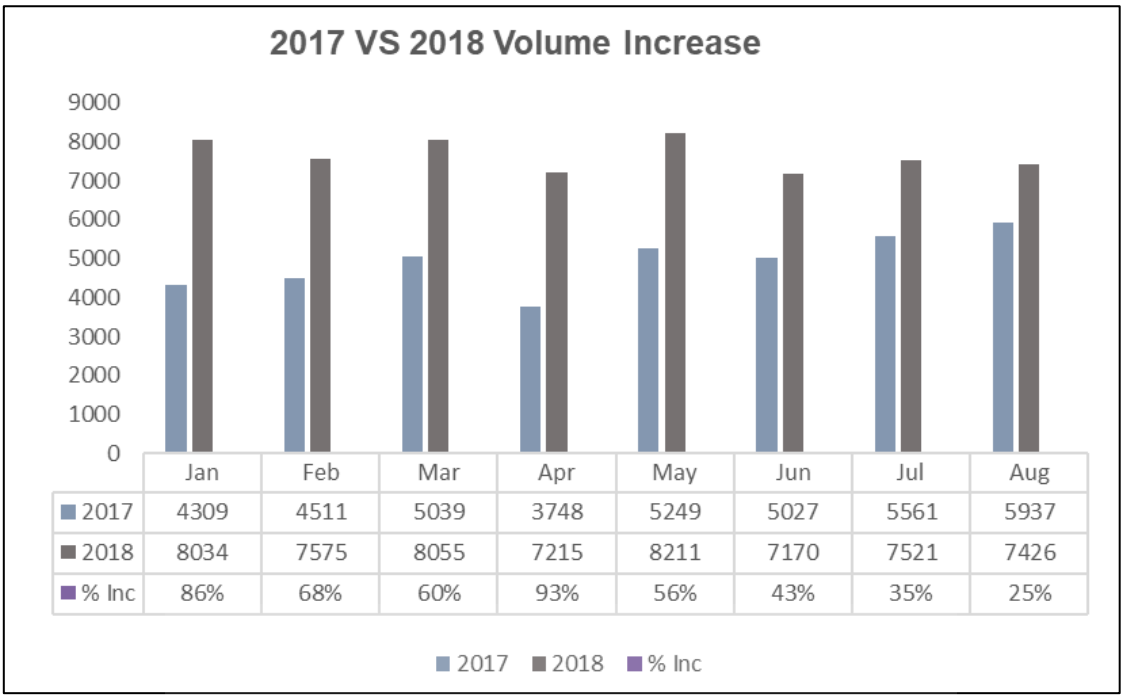


Figure 4.15: Volume increase in KZN between 2017 and 2018

As a result of this application increase and the commitment to process applications as quickly as possible, there was a marked improvement in the loans that were paid out between 2017 and 2018. Figure 4.16 depicts this increase in pay outs in the KZN region.

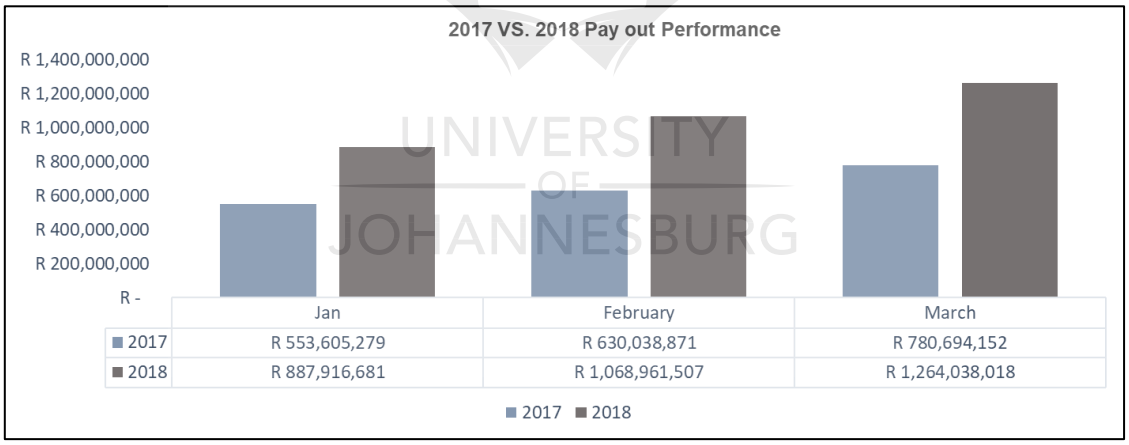


Figure 4.16: Pay out improvement in KZN between 2017 and 2018

The successful implementation of Use Case 5 ties back to many of the responses received in Section 4.2 and Section 4.3 about why people thought IA was the right direction for SAFI to be heading in. In Use Case 5, process automation clearly reduces the burden on customers to bring in all their documents when applying for a vehicle loan and significantly improves the turnaround time in processing of applications.

This concludes the quantitative data analysis and discussion of five of the SAFI use cases that were implemented across the organisation.

4.5 Summary

This chapter discussed the research findings of the empirical study conducted. The findings from the interview presented various perspectives that should be considered with regard to IA implementation and adoption. A qualitative study was conducted using semi-structured interviews with managers from across the different business areas that were impacted by the changes, as well as with representatives from IT and the IA project team. These interviews gave insights into the perceptions and understanding across the organisation about IA and revealed how employees were feeling about the changes they were experiencing. The qualitative study was concluded with a comparison of the interviews that were conducted with the two different Heads of the IA programme. This gave an interesting dynamic to the study as it afforded the opportunity to see how the programme had advanced in the time that the original Head had resigned, and a new Head had been appointed. It also presented the opportunity to understand the different strategic approaches to the programme of each of the Heads.

The research findings from the interview helped identify the fundamental areas of focus for the organisation when embarking on an IA programme. These findings emphasised the need for the organisation to ensure that employees are taken on the IA journey and that communication is open and honest, with clear intentions in order to manage fears appropriately.

The results from the content analysis of use case statistics augment the learnings from the qualitative analysis. The quantitative data analysis described five of the use cases that were implemented across the organisation and the impact that these IA solutions had on the BU, organisation and customers. Some of the use cases resulted in unexpected results, leading to some important learnings for the Feature Teams and IA Programme as a whole. In the next chapter, the learnings from the findings of qualitative data analysis and quantitative data presentation inform the development of a conceptual framework for a balanced approach to IA implementation and adoption.

Chapter 5

Conclusion and recommendation

5.1 Introduction

This chapter interprets the research results by means of an initial conceptual framework (*cf* Figure 2.2) to bring together the findings from the qualitative data analysis and quantitative data analysis, and interpreting it against the study's theoretical framework in order to develop a conceptual framework for balanced IA implementation and adoption (*cf* Figure 5.1).

The implementation of IA is a phenomenon that is happening in many organisations in South Africa and around the world. The need for an effective and resilient IA adoption plan is necessary to ensure the success of the new workforce which is created as a result of IA. The different perspectives of IA that were explored in Chapter 4 informed the study conclusion in terms of:

- The need for IA in the banking industry
- How the changes were managed within the organisation and effectiveness of the change management initiatives with the impacted employees
- The new ways of work within the organisation as a result of IA
- The process that was followed to implement IA into the organisation

The research followed an inductive approach and case study strategy; therefore this study's conclusion and recommendation address the SAFI. However, the conceptual framework could also be used by other organisations to assist with managing the changes and pressures that can be expected through the implementation of an IA programme. This chapter also presents the limitations of the study and the potential for future research topics are suggested at the end of this final chapter.

5.2 Conclusions reached

The study conclusion addresses the problem stated in Chapter 1, namely, the imbalance and uncertainty caused by how IA and the resulting new workforce implementation at financial institutions change the ways of work for banks and deliver new value to their customers. The sub problems outlined in Chapter 1 on the need for IA in the financial services industry, the change management techniques that can be applied to encourage adoption of the changes, and what value IA creates for customers are discussed below.

5.2.1 Creating awareness of the need for IA in the organisation

In the current economic climate in South Africa, fear about job security is a concern for many people. It is for this reason that creating awareness and managing expectations about why something like IA is a necessity for the organisation is critical. There is a lot information available online about automation, robotics and the future of jobs. If expectations are not carefully managed from the beginning, and all employees have to go on is what they are able to find online, this can create incorrect impressions which may be difficult to change.

During the interview data collection and analysis process, some common themes emerged across the participant group regarding feelings towards the IA programme. It became clear that there were two stories at play across the participant group; one of fear and concern and one of excitement. Demystifying the concept of robotics and automation appeared to be a vital part of the IA journey to managing staff empathy and alleviating concerns. In the early stages of the IA journey fears about job security were raised, but it was too early to know what the impact on jobs would be. If fears about the IA journey and job security are not addressed with employees, then IA will immediately become the thing to blame if there are job losses, even if they are completely unrelated to automation being in the organisation. Creating the right message across the organisation is vital to driving the conversation about IA in the right direction. That is, that IA is not intended to replace human jobs, but rather to enhance them.

A lack of understanding of the intentions of the IA programme creates a lack of trust in the technology as well as in the organisation and its leadership. At the start of the IA programme in the SAFI there was a definite skew towards technology and systems. This was necessary to get the programme up and running, but too much bias towards the technology resulted in uncertainty among many employees. Omitted from this initial approach were the actual people; the developers, feature teams, technical teams and the recipients that would all be impacted by the changes.

There are many elements to driving the right engagement with the people who are impacted by the changes of the programme. It is important to remember that any person that is involved in the programme is a person that needs to be managed. Underestimating the impact that a change of this nature can have on any of the role players in the IA programme can severely impact the success of the programme. Any change, to any role player, still requires that they are prepared for the changes to come.

A key learning that was established through the interviews for this research was that key stakeholder involvement from the beginning is crucial. The right stakeholders being part of a project early on reduces the risk of negative responses from the project team as well as the BU as they all feel involved from the start of the initiative. When awareness is managed correctly, and people feel involved in the journey, responses to questions become a lot more

positive. This was evident in the results of the survey that was run across one of the BUs in the early phases of the programme. Responses to the survey question directed at employees in the BU about what they believe IA is about included; enabling the organisation to resolve requests in a quicker time for clients, being able to provide more efficient service to clients by automating simple processes and streamlining processes for efficient and convenient banking, are the positive results that can be expected if awareness is created and expectations are managed.

5.2.2 Ensuring effective adoption to achieve new ways of work across the organisation

Another important element to ensuring the success of a programme of this nature is the change management approach that is taken. A key insight from the interviews that were conducted was that a blanket approach to change and adoption cannot be used. There needs to be a clear and concise message spread across the organisation from a strategic, executive level. However, the way this message is shared within the different BUs needs to specific to the BU, their level of exposure to the changes and readiness for the changes.

It is important to remember that change management is not just applicable to the areas where IA is being implemented. The relationship between the IA Feature team and the BU is vital to ensure effective implementation of solutions in the BU. There is often evidence of change fatigue in these operations environments where the focus is often on cutting costs and streamline processes to reduce waste and rework. This relationship is therefore vital to ensure that IA is not another cost cutting initiative but something that has real benefit for the organisation and its customers.

The engagement between the IA Feature Team and the BU also plays a role in effective selection of the right use cases for IA. The right communication needs to take place so that the BU understands that not every process can be automated, and the Feature Team should not feel pressured into automating a process because the BU says it should be done. This communication needs to come down to what is best for the BU, organisation and customer. Use case 4, presented in the quantitative analysis in Chapter 4 is a good example of this. The Debit/Credit Details process is a very high-volume process, which was one of the reasons why it was chosen as an IA project. However, the complexity of the process was underestimated, and the automation results have not been what they were expected to be. Another issue with a process of this nature is that it could not be automated from the start and required a human in the loop to assign work to the automated process. It was realised that because the consultants perform this process on a daily basis, they often knew the outcome of a request just by looking at it. They knew they would be able to complete the request quicker than the IA solution, so they would choose not to assign the work to the process. It is therefore

important to determine an effective way for the IA solutions and BUs to work together, so the benefit can be realised for both.

As part of the adoption journey, a number of initiatives were implemented that were aimed at getting the operations environments or BUs more involved in the programme. The two Heads of the IA programme eluded to these in their interviews that were presented in Chapter 4. One of these initiatives was the Power User Programme. This Programme involved having people from the line of business go on an intensive three-week training course in which they were taught the basics of automation and coding. They were then required to identify a simple project that met the criteria within their BU and automate this process. This programme presented a great opportunity to get the business involved in IA, to understand how it can be applied in their line of work as well as for these resources to learn a new skill, providing great development opportunities. This was a great way for IA to be felt in the BUs and for the employees from different levels to start thinking about IA and the opportunities it presented differently. It also helped in ensuring that the staff in the BU felt included in the changes from the beginning by having someone from their team directly involved.

5.2.3 Creating new value for clients

Another important element of this study was to understand how IA can create value for banking clients. A lot of the insights gained from the interviews that were conducted were that IA would allow the organisation to service customers a lot quicker. This was evident in the VAF use case presented in Chapter 4. The response time to market improved dramatically with the implementation of the verification engine, improving the take up rate of loans. This is especially beneficial for the financial institution's existing customers as the chances of them being able to get a vehicle loan with their existing financial institution improved. The organisation also benefits by being able to keep their existing customers happy and not losing them to a competitor.

Another way that automation adds value to clients is by reducing the amount of paper work and documentation the client needs to provide to the financial institution. With the verification engine that was developed, clients don't need to worry about bringing documents to the financial institution. Provided customers give their consent, these documents can all retrieved on their behalf. This verification engine has the ability to be applied to different products, thereby improving response rates to customers even further. Having access to this information allows the SAFI to ensure their own records are update and improves the quality of data retained by the financial institution and the accuracy of client information.

Insights gained from some of the interviews that were conducted cautioned against understanding the human touch element and how this still applies to customers. There will always be a level of human interaction that is required and it's vital that this is not lost. The

opportunity to repurpose staff to add this human element and engage on a more personal level exists while ensuring that the right stuff is automated for the business.

5.3 IA implementation and adoption conceptual framework

As part of this study, a conceptual framework was developed to attempt to depict the way in which people within the case organisation were responding to the pressures of the changes around them. This conceptual framework was developed based on the literature review, which guided this study's interpretation of the environment within the organisation at the early stages of the IA programme, as well as the analysis of interview data collected. The of this study was to create a framework that portrayed the atmosphere within an organisation that was going through a huge transition at a specific point in time and how the organisation could attempt to balance the feelings across the organisation by implementing an adoption framework. This section of the study is thus dedicated to developing a conceptual framework in relation to employees' feelings amid internal and external pressure components as a result of the organisation's IA programme, illustrated in Figure 5.1. It is also dedicated to the development of an overlaying framework that depicts how an implementation and adoption strategy can help to balance these business units, illustrated in figure 5.2.

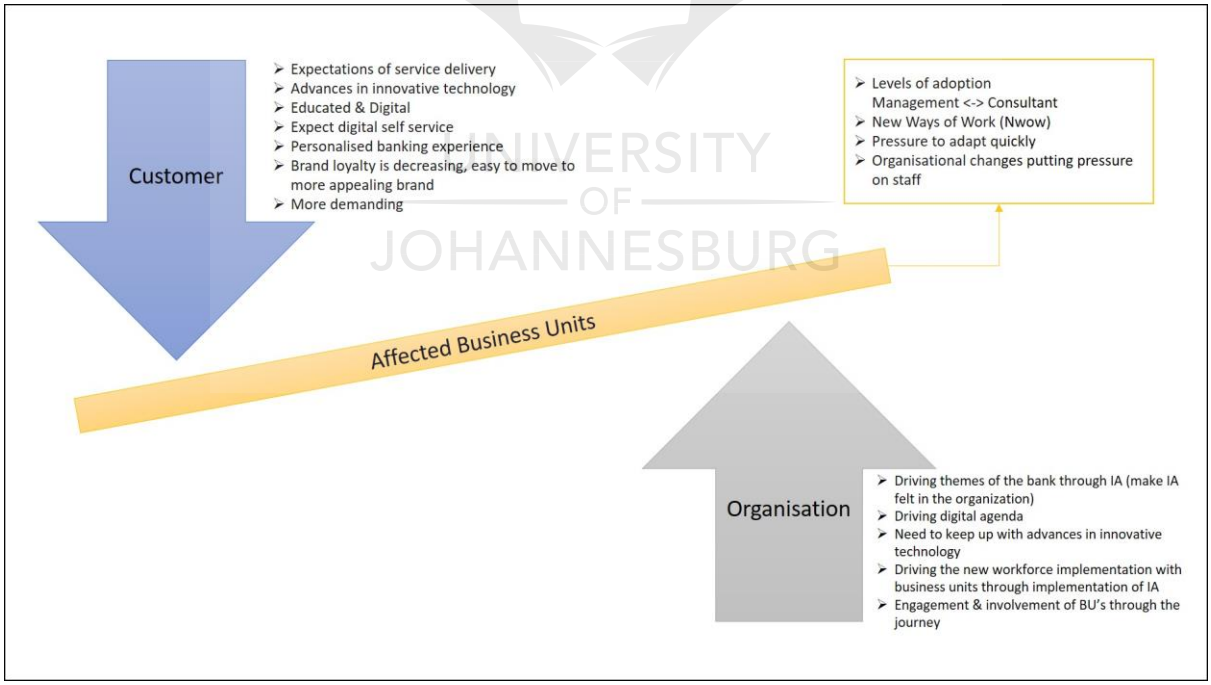


Figure 5.1: Conceptual framework depicting feelings about the organisational transition (Own source developed for this study, 2018)

Figure 5.1 represents the study's initial conceptual framework depicting the feelings or pressure components that demonstrate the complexities and interdependencies of an

organisation's IA programme. The framework was broken down into three main segments, namely; external pressures such as customers and competitors, internal pressures from a strategic organisational level and the business units (BUs) within the organisation that were affected by the IA programme across the group. As is depicted in Figure 5.1, the affected BUs formed the centre of the framework. These BUs, and the people within them were represented as feeling unstable or unbalanced due to the pressures placed on them both internal and external to the organisation. The angle of the "affected business units" bar reflects this unbalance within these Bus. On the one end of the scale the customers and competitors place pressure on the organisation from an external perspective. While the organisation tries to adapt and keep up with the demands of the customer, this places internal pressure on the BUs to adapt to these expectations.

The view of the external pressures was formed based on the literature presented in this chapter. Customers are digitally savvy and expect faster service delivery and the ability to perform their banking anytime, anywhere, digitally. They are far more demanding and expect personalised banking experience. The pressure to retain customers is increased because brand loyalty is decreasing. This is due to the ease at which people can switch service providers if they are unsatisfied with the service at their current provider. Similarly, as presented in the literature review, financial institutions are facing competition from non-traditional competitors like Fintechs who are far nimbler and digitally enabled (Clark & Essex, 2012; Bashir, 2017; Reed, 2016a; Reed, 2016b).

The internal organisational pressures were also shaped by the literature review presented in this chapter. As a result of the pressures being placed on the organisation by customers and competitors alike, the organisation in turn places pressure internally to respond to these demands. Driving a digital agenda and new workforce implementation through the use of IA puts great pressure on the BUs within the organisation to adapt to these expectations. As a result, the BUs are expected to adapt quickly to the NWow. The instability felt within these BUs comes as a result of the levels of adoption across the group. Management levels across the different BUs may understand and agree with the need to adapt, however, this message needs to be filtered through to all levels to ensure the same understanding across the group. It was within this context that the study's data collection took place. The data that was collected and analysed from the interviews conducted helped to shape the development of an implementation and adoption framework. The framework presents the ways in which the organisation approached the changes brought as a result of the IA programme in order to create more balance and stability in the BUs impacted by the changes. The research findings were used to adapt the initial framework (*cf* Figure 5.1), to illustrate how the application of the implementation and adoption strategies helped to equalise the balance within the organisation (Figure 5.2).

The IA implementation and adoption framework depicted in Figure 5.2 represents how the various components of this framework helped to balance the feelings of instability within the organisation. It is interesting to note that some of the components of the framework were mentioned as part of the responses to the change management question asked of the participants in the interviews. As discussed in Figure 5.1 there were pressures from outside the organisation from customers and competitors, as well as internal pressures. These pressures were creating a sense of instability within the organisation, which would impact the level of adoption of the solutions and programme across the group.

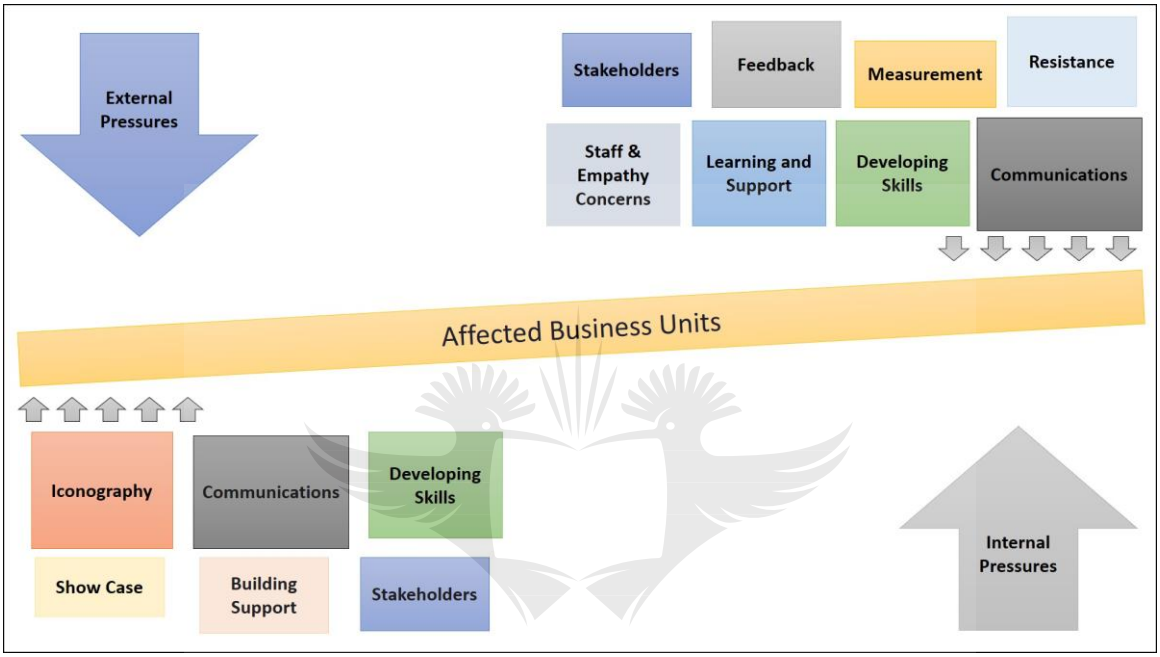


Figure 5.2: Conceptual framework for a balanced approach to IA implementation and adoption (Own source developed for this study, 2018)

The adaptations made to the conceptual framework (Figure 5.1), based on the research conducted, indicate that there are two approaches to consider when implementing adoption strategies across an organisation. The first approach represents changes that can be implemented from an organisational perspective, across the group. The second is changes that can be made on a departmental or BU level, specific to the needs of particular BUs. Some elements of the strategy fell on both sides of the scale, communication for example, was vital at an organisational level but could also be customised from a departmental specific perspective.

The different elements of the adoption framework were represented as blocks that balance out each end of the scale. Some of the blocks were bigger in size than others, depending on their weighting on the overall impact on the implementation and adoption strategy. It is clear from the angle of the "affected business units" bar that these elements will help to bring balance to the BUs if these are implemented correctly across the group. The small grey arrows

on each side of the “Affected Business Units” bar represent the weight of these adoption elements and how they help to balance the feelings in the business units.

The different elements of the framework are discussed in more detail below.

- **Iconography:** this element refers to the images and symbols that will support and communicate the vision of the programme. It is vital that the same message is shared across the entire organisation in order to maintain a single view of the programme and its objectives across the group.
- **Communication:** refers to how the communications will be targeted towards different audiences, the channels that can be used, when will these communications be sent and how will feedback be obtained from the different audiences.
- **Feedback:** refers to how key stakeholder, including users, can feedback their thoughts and ideas about the change and approach to implementation, and how this will be fed into the change planning. This helps to ensure that users feel part of the journey and feel included in the process, rather than feeling like the change is happening to them.
- **Learning and support:** refers to the learning and support required by the different BUs, specific to the IA use cases implemented in those areas. This covers how the staff are required to work with the IA processes, where hand offs may be required and what role the consultants play in ensuring the processes run smoothly between IA and human intervention, where it may be required.
- **Developing skills:** this refers to how sponsors, the implementation and adoption team, change agents and line managers will be supported and developed to effectively manage the implementation and adoption of the change. It also refers to understanding what upskilling will be required to ensure staff are sufficiently trained to perform their new roles, supported by IA processes.
- **Staff and empathy concerns:** this element refers to understanding and addressing anticipated and emerging staff concerns, specific to the use cases implemented in the different business areas. Depending on the type of use case and the amount of involvement required by the staff, the level of staff concern may be higher or lower, requiring different levels of intervention.
- **Building support:** this refers to understanding what activities are planned to communicate the need for the change and increase buy-in and support. These activities can include roadshows across the various areas of the group, group wide communications, televised communications, showcase events and group information sharing sessions.

- **Resistance:** refers to understanding and anticipating the expected types of reasons for resistance and how these will be dealt with. This is something that will be particular to a BU, the type and amount of automation that is expected and how this will change the roles of the consultants that are impacted.
- **Showcase:** refers to exhibits, displays and demonstrations that can be held at different events across the group. Showcases give the IA programme an opportunity to display some of the use cases that have been implemented and what they achieved. This also gives the programme an opportunity to identify potential new use cases or existing use cases that have the potential to be reused in another BU.
- **Measurement:** refers to how it can be ensured that the change interventions are successful. This can be done through initiatives such as pre and post department surveys and regular engagements with the teams that are impacted.

Although this framework is presented as being specific to the IA journey that this organisation embarked on, it is something that can be applied to any change initiative in any organisation. The components of this framework are applicable to all types of change. It may be necessary to increase or decrease the size of the components, depending on the degree of impact on the change that was implemented.

5.4 Limitations

Due to the infancy of the IA journey in the organisation at the time that the research was conducted, some interviews were conducted in BUs when it was too early to know what the impact of the projects would be. Some of these participants gave insights into what they thought the impact might be, based on what they had read or been told about IA. This was also true for the change management initiatives that were conducted in some BUs as it was sometimes premature to know how effective the initiatives were if nothing had yet been implemented in the area.

Another limitation of the study was that many of the use cases had not been in production for extended periods of time, so understanding the impact of the IA programme and projects on the organisation and customers over a longer period of time was limited. Another limitation of the study again related to the infancy of the programme was that understanding the full impact of the new workforce was limited. There were elements of this that started to become obvious but had the programme been at a more mature state, this would have been more advanced.

As discussed in Chapter 3, secondary data for this study was to be collected from the dashboards that were to be developed for each use case that was implemented. However, this was not possible for all the use cases presented in the quantitative section of Chapter 4 as these dashboards had not all been developed yet. This presented a limitation to the study

because a lot of time had to be spent with each Scrum Master to understand what data they had and if the data had been approved by the BU.

5.5 Value of the study

A study of this nature has not been conducted to date and the research findings of this study played a vital role in the development of a conceptual framework that can be applied in any industry embarking on a journey of significant change, especially one related to IA. Learnings from the study of an organisation that has been on the IA journey for almost three years will prove invaluable to an organisation that may just be starting on the journey to leverage and apply in their organisation or industry. While every organisation will have their own unique challenges and experiences, the framework and learnings presented in this study will serve as a reference point for those organisations in a similar situation.

5.6 Future research

Firstly, this study did not focus very much on the IT aspect of a programme of this nature and what it would mean for IT departments within the organisation. This is not referring to the IT teams involved in the IA programme but rather the system development and support teams that exist across the organisation. It would be unrealistic to assume that these teams would not have some level of fear and discomfort if their perceptions are not managed correctly. Also, given that the IA programme became a strategic programme for the organisation, the pressures on these other IT teams would have increased. The expectations for them to provide support to the IA programme and possibly change their strategic objectives to accommodate the programme would have an impact on their morale and perceptions of the programme.

Secondly, a thorough study into the impact of an IA programme on jobs within an organisation can be conducted over a prolonged period of time. While the purpose of the IA programme in the SAFI was not to impact jobs in the organisation, there would be a natural trend over time that would become evident. Where solutions are stable in an area and are scaled effectively, the need for certain jobs would decrease, roles would evolve and the need for new roles would become available. A study into this phenomenon would provide unique insight into the changes an organisation would go through from inception to full scale implementation.

Thirdly and closely related to the above point, a study into the phenomenon of an automated workforce and a human workforce working closely together would provide valuable insights into the future ways of work. This started to become obvious in some areas of the SAFI during the course of the study, but more time on the study would have revealed a lot more insight into this phenomenon.

5.7 Conclusion

In conclusion, in order for financial institutions to remain relevant in the future world of banking, they need to invest in IA technology now. A successful IA journey is linked to an organisation's proactive awareness of the impact the IA journey will have on employees. Correct management will reveal the value of knowledge-based automation. This means that a financial institution should adopt a balanced approach for its new workforce implementation in order to remain relevant in the Fourth Industrial Revolution.

References

Accenture. (2016a). 2016 North American consumer digital banking survey. *Banking on value – rewards, robo-advice and relevance.* Available from: https://www.accenture.com/us-en/insight-consumer-digital-banking-survey-2016 (Accessed 30 March 2017)

Accenture. (2016b). Beyond the everyday bank. Available from: https://www.accenture.com/_acnmedia/PDF-10/Accenture-Banking-Beyond-Everyday-Bank-pdf.pdf. (Accessed 30 March 2017)

Adams, M. (2016). *The history, mechanics, technical implementation and powerful use of blockchain technology*. San Bernardino, CA: CPSIA.

Bashir, I. (2017). *Mastering blockchain*. Birmingham: Pcakt Publishing.

Beebe, A. (2016). Change Management for a fast-moving world. Available from: https://www.ccl.org/blog/change-management-fast-moving-world/ (Accessed 6 April 2017)

Behrens, K., (2015). Implementing RPA: Challenges & obstacles. Available from: https://www.uipath.com/blog/implementing-rpa-challenges-obstacles (Accessed 6 March 2017)

Brusnahan, P. (2017). Can bots be bankers? *Retail Banker International,* 733: 11.

Burns, R. (2000). *Introduction to research methods*. 4th ed. Frenchs Forest: Longman.

Business Insider. (2016, October 26). *Bank of America has announced launch of its AI Chatbot Erica.* Available from: http://www.businessinsider.com/bank-of-america-has-launched-its-ai-chatbot-erica-2016-10 (Accessed 11 March 2017)

Bryum, J. (2018). Taking advantage of the AI revolution. *Industrial and Systems Engineering at Work,* 50(6): 29-32. Available from Ebscohost *Online database:* http://content.ebscohost.com/ContentServer.asp?EbscoContent=dGJyMNLr40Sep7Q4yOvqOLCmr1Gep65Ssqe4SbWWxWXS&ContentCustomer=dGJyMPGssVGup7VRuePfgeyx9Yvf5ucA&T=P&P=AN&S=R&D=f5h&K=129633580 (Accessed 16 July 2019)

Casale, F. (2014). Here come the robots: The emergence of Robotic Process Automation and the beginning of the end of Outsourcing as we know it. Available from: http://www.irpanetwork.com/here-come-the-robots/ (Accessed 26 June 2016)

Casale, F. (2015). Hard facts and hype; the data and the drama behind Robotics Process Automation. Available from: http://www.irpanetwork.com/wp-content/uploads/2015/05/Robotic-Process-Automation-June2015.pdf (Accessed 7 September 2017)

Clark, J. & Essex, A. (2012). CommitCoin: Carbon dating commitments with bitcoin. *Financial Cryptography and Data Security*, 390-398.

Creswell, J.W. & Plano Clark, V.L. (2007). *Designing and conducting mixed methods research.* Sage, Thousand Oaks, California.

Everett, C. (2015). Are robots a threat to the outsourcing industry? Available from: https://www.raconteur.net/business/are-robots-a-threat-to-the-outsourcing-industry (Accessed 3 March 2017)

Flick, U. (2011). *Introducing research methodology*. Thousand Oaks: Sage.

Flynt, O. (2016). Blockchain: The ultimate guide to understanding the hidden economy. San Bernardino, CA: CPSIA.

Fung, H.P. (2014). Criteria, use cases and effects of Information Technology Process Automation (ITPA). *Advances in Robotics and Automation,* 3(3):1-10. doi: 10.4172/2168-9695.1000124.

Fraß, A. (2016). *Achieving brand loyalty in China through after-sales services*. [Springer Gabler]. doi: https://doi.org/10.1007/978-3-658-14367-1

Goddard, W. & Melville, S. (2004). *Research methodology*. Lansdowne: Juta.

Greener, S. & Martelli, J. (2015). *An introduction to business research methods.* 2nd edition. Available from: http://bookboon.com/en/introduction-to-research-methods-ebook (Accessed 5 November 2016)

Guibaud, S. (2017). What will 2017 bring to banking? *Retail Banker International,* 733.

Hawes, A. & Chitra, T. (2016). Keeping up with the FinTechs: A banker's strategy for digital transformation. *Journal of Digital Banking,* 1(2):102-110.

Hodge, B. (2017a). *The new 'science fiction' world of Shared Services.* Available from: http://www.ssonetwork.com/global-business-services/articles/the-new-science-fiction-world-of-shared-services (Accessed 6 April 2017)

Hodge, B. (2017b). *What artificial intelligence can do for service processing.* Available from: https://www.ssonetwork.com/rpa/whitepapers/what-artificial-intelligence-can-do-for-shared (Accessed 16 July 2019)

Hodge, B. (2019a). *Blockchain in Shared Services.* Available from: https://www.ssonetwork.com/rpa/articles/how-to-guide-blockchain (Accessed 16 July 2019)

Hodge, B. (2019b). *Upskilling your workforce for the new shared services environment.* Available from: https://www.ssonetwork.com/human-resources/articles/upskilling-your-workforce-for-the-new-shared-services (Accessed 16 July 2019)

Horton, R. (2015). *The robots are coming.* Deloitte Insight. Available from: https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/finance/deloitte-uk-finance-robots-are-coming.pdf (Accessed 13 June 2016)

Institute for Robotic Process Automation and Artificial Intelligence & Edge Verve. (2017). *Turbo-charging your process automation.* Available from: http://irpaai.com/wp-content/uploads/2017/01/EdgeVerve_IRPA-WP-Turbo-Charging-Your-Process-Automation..pdf (Accessed 17 February 2017)

IRPAAI *see*
Institute for Robotic Process Automation and Artificial Intelligence

Johannessen, J.A. (2018). *Automation, innovation and economic crisis: Surviving the Fourth Industrial Revolution*. London: Routledge.

Johnson, R.B. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1):58-92.

Karlsson Lundström, V. (2016). Impact from the blockchain technology on the Nordic. (Master's Thesis, Unversity of Upsala).

Kendal, S. (2015). *How to write a research paper*. Available from: http://bookboon.com/en/how-to-write-a-research-paper-ebook (Accessed 10 November 2017)

Kenny, B. (June, 2017). Digital lending gaps for retail banks. *Retail Banker International*: 8.

Konopka, M. (2015). *8 benefits of Robotic Process Automation.* Available from: http://virttia.com/2015/09/benefits-of-robotic-process-automation/ (Accessed 20 March 2017)

Kumar, R. (2011). *Research methodology, a step by step guide for beginners*. 3rd edition. Sage, Thousand Oaks, California.

Lacity, M., Willcocks, L. & Craig, A. (2015). Robotic Process Automation at Telefónica O2. *The Outsourcing Unit Working Research Paper Series* 15/02: 1-19.

Laurence, T. (2014). *Blockchain for dummies*. New Jersey: Wiley & Sons.

Laurent, P., Chollet, T & Herzberg, E. (2015). *Intelligent automation entering the business world.* Available from: file:///C:/Users/Cath/Downloads/lu-intelligent-automation-business-world.pdf (Accessed 19 July 2019).

Lowes, P. & Cannata, F. (2015). *Automate this: The business leader's guide to robotic and intelligent automation.* Available from: https://www2.deloitte.com/content/dam/Deloitte/us/Documents/process-and-operations/us-sdt-process-automation.pdf (Accessed 11 June 2016)

Makhubela, S. & Ngoepe, M. (2017). Knowledge retention in a platinum mine in the North West province of South Africa. *South African Journal of Information Management.* 20(1), 5. Available from https://sajim.co.za/index.php/sajim/article/view/905/1232 (Accessed 15 July 2019)

Marous, J. (2016a). Being 'just a bank' is not enough. *The Financial Brand*: 13, June 2016. Available from: https://thefinancialbrand.com/59306/digital-banking-product-service-platform-expansion/ (Accessed 6 January 2017)

Marous, J. (2016b). Top 10 strategic priorities for banking in 2017. *The Financial Brand*: 7, December 2016. Available from: https://thefinancialbrand.com/62711/top-10-strategic-priorities-for-banking-in-2017 (Accessed 26 January 2017)

Marous, J. (2017a). Should banking build an Internet of Things (IoT) strategy? *The Financial Brand*: 16, January 2017. Available from: https://thefinancialbrand.com/63285/banking-Internet-of-things-iot-data-analytics-pay (Accessed 10 March 2017)

Marous, J. (2017b). Ten ways to improve the digital banking experience. *The Digital Banking Report.* January 2017. Available from: https://thefinancialbrand.com/62845/digital-banking-experience-strategy-online-mobile/ (Accessed 7 September 2017)

Mayville, L. (2018). *Why employees want nothing to do with your digital transformation.* Available from: https://www.hellosign.com/blog/digital-transformation-employee-buy-in?utm_medium=paid_content&utm_source=buysellads&utm_campaign=hsent_blog_digitaltransformation_pocket (Accessed 6 May 2018)

McMillan, J. & Schumacher, S. 2014. *Research in education: Evidence-based inquiry*. 7th ed. London: Pearson Education.

Merriam, S.B & Tisdell, E.J (2016). *Qualitative research: A guide to design and implementation.* 4th ed. San Francisco: Jossey-Bass.

Mouton, J. (2008). *How to succeed in your master's & doctoral studies. A South African guide and resource book.* 12th ed. Pretoria: Van Schaik.

Murphy, E. & Seitzinger, M. (2015). *Bitcoin: Questions, answers, and analysis of legal issues*. Washington DC: Congressional Research Service.

Norton, J. 2016. *Easiest ultimate guide to understand blockchain*. San Bernardino, CA: CPSIA.

Porter, M.E. (1998). Clusters and the new economics of competition. *Harvard Business Review*, 78 November-December.

Porter, M.E. (2000). Location, competition, and economic development: Local clusters in a global economy. *Economic Development Quarterly*, 14(1): 15-34.

Redwood Software. (2016). What everyone needs to know about enterprise robotic process automation. Available from: https://www.redwood.com/ppc/view/what-everybody-needs-to-know-about-robotic-process-automation (Accessed 6 March 2017)

Reed, J. (2016a). *Blockchain, smartcontracts, investing Ethereum, Fintech*. San Bernardino, CA: CPSIA.

Reed, J. (2016b). *The Blockchain: The essential guide to understand the Blockchian revolution*. San Bernardino, CA: CPSIA.

Regelman, R., Hayes, D., Mobre, O., Lingel, J. & Reshef, M. (2016). How digitised customer journeys can help banks win hearts, minds and profits. Available from: https://www.bcgperspectives.com/content/articles/financial-institutions-technology-digital-how-digitized-customer-journeys-help-banks-win-hearts-minds-profits/ (Accessed 7 September 2017)

Russell-Jones, N. (2011). *The managing change pocket book.* 3rd ed. Alresford: Laurel House.

SAFI see
South African Financial Institution.

Saunders, M., Lewis, P. & Thornhill, A. (2009). *Research methods for business students.* 5th ed. doi: 10.1007/s13398-014-0173-7.2

Saunders, M., Lewis, P. & Thornhill, A. (2012). *Research methods for business students.* 6th edition. Edinburgh Gate: Parsons Education UK

Scaled Agile Inc. (2016). *Leading Safe 4.0. Leading the Lean-Agile software enterprise with the Scaled Agile Framework* [Booklet]. V4.0.3a.

Schupmann, C. (2017). *Blockchain as an emerging cross-border payments infrastructure*. New York NJ: Institute for International Law and Justice.

Schwab, K. (2016). Welcome to the Fourth Industrial Revolution. *Rotman Management*. Available from: Business Source Complete, EBSCO*host.* http://0-web.b.ebscohost.com.ujlink.uj.ac.za/ehost/search/selectdb?vid=0&sid=b868fd94-4359-46a2-b822-2ed20d651b93%40pdc-v-sessmgr03 (Accessed 8 April 2017).

Schweistal, M (n.d.). Fintech definition, *Fintech Weekly.* Available from: https://fintechweekly.com/fintech-definition (Accessed 14 March 2017)

Setumu, T. & Ngoepe, M. (2014). Augmenting conventional sources with alternative sources in research: An analysis of historical dissertations and theses from universities in South Africa. *Mousaion*, 31(3): 1-12.

Shah, S. (2016). Key steps to implementing robotics and choosing the appropriate vendor. Available from: https://www.redwood.com/article/key-steps-implementing-robotics-choosing-appropriate-vendor/ (Accessed 6 March 2017)

Sheth, M. (2017). Intelligent Automation – Reshaping the future of work with robots. Available from https://www.ey.com/Publication/vwLUAssets/EY_intelligent_automation/$FILE/EY-intelligent-automation.pdf (Accessed 14 January 2018)

Skinner, C. (2017). The four pillars of going digital. *The Banker*: 59.

South African Financial Institution. (2018). *Project reports, documentation and use case statistics.* (Available on file, from the research case organisation and/or researcher).

Srinivasan, V. (2017). *The intelligent enterprise in the era of big data*. New Jersey: John Wiley & Sons.

Subramanian, R. (2014). Robotics Process Automation – ushering innovation, cost savings. Available from: https://www.xchanging.com/system/files/dedicated-downloads/Robotics-Process-Automation.pdf (Accessed 13 June 2016)

Surdak, C. (2017). *Not your parents outsourcing: How digital transformation is changing the BPO game.* Available from: http://outsourcing.com/not-parents-outsourcing-digital-transformation-changing-bpo-game/ (Accessed 6 April 2017)

Swan, M. (2015). *Blockchain blueprint for a new economy*. California: O'Reily Media Inc.

Tandulwadikar, A. (2016). *Blockchain in banking: A measured approach*. Teaneck: Cognizant Research Center.

Taylor, H. (2016). *Bank of America launches AI chatbot Erica – here's what it does.* Available from: http://www.cnbc.com/2016/10/24/bank-of-america-launches-ai-chatbot-erica--heres-what-it-does.html (Accessed 11 March 2017)

Teller Vision. (2016). Banks look to personalisation, automation to better serve customers. *Business Source Complete,* (1468): 1-3. doi: https://doi.org/10.1007/978-3-662-49275-8_31

Toureille, C. (2016). Banking and the IoT. *BankerSA,* 18: 47.

University of Johannesburg. (2007). Code of academic and research ethics. Available from: http://www.uj.ac.za/

Van Velden, L., Roopnarain, R. & Stonebridge. (2016a). *Growing in turbulent times. Major banks analysis – South Africa.* Available from: https://www.pwc.co.za/en/assets/pdf/major-banks-analysis-march-2016.pdf (Accessed 19 March 2017)

Van Velden, L., Roopnarain, R., Stonebridge, D., Kana, H., Hutchinson, C., Veerasamy, P. (2016b). *Getting the balance right. Major banks analysis – South Africa.* Available from: https://www.pwc.co.za/en/assets/pdf/major-banks-analysis-september-2016.pdf (Accessed 19 March 2017)

Wattenhofer, R. (2016). *The science of the blockchain*. Charleston: Inverted Forest Publishing.

Willcocks, L., Lacity, M., & Craig, A. (2015a). The IT function and Robotic Process Automation. *The Outsourcing Unit Working Research Paper Series* 15/05: 1-20.

Willcocks, L., Lacity, M., & Craig, A. (2015b). Robotic process automation at Xchanging. *The Outsourcing Unit Working Research Paper Series* 15/05: 1-19.

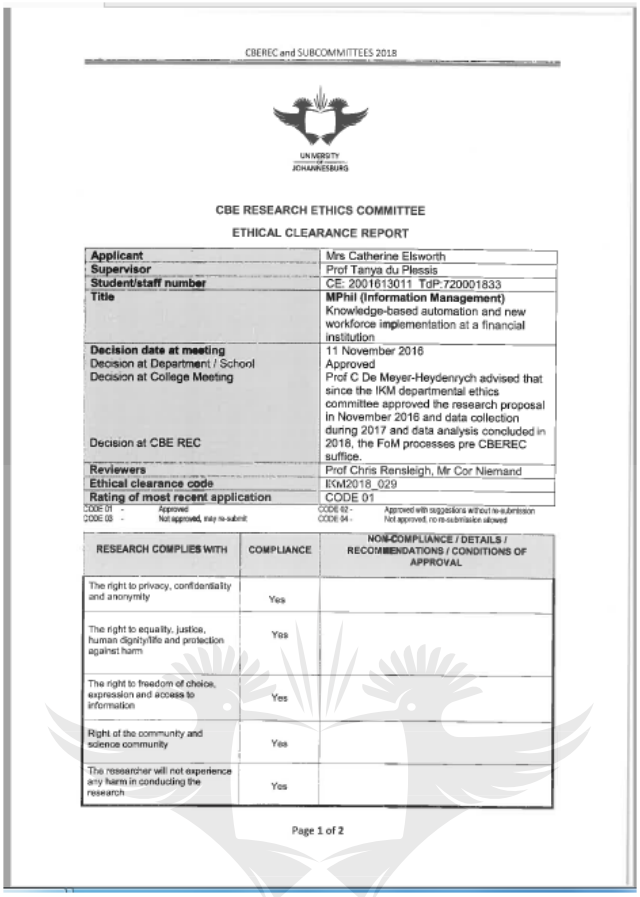
Wirtz, J. (2016). *Winning in service markets: success through people, technology and strategy.* [Ebscohost]. dio: https://doi.org/10.1142/y0002

Wrike.com. (n.d). The beginners guide to project management. Available from: https://www.wrike.com/download/the_beginners_guide_to_project_management_methodologies.pdf (Accessed 6 February 2018)

Wylant, B. (2008). Design thinking and the experience of innovation. MIT Design Issues, 24(2):1-4 Spring.

APPENDIX A

Access and ethical clearance obtained



CBEREC and SUBCOMMITTEES 2018

UNIVERSITY OF JOHANNESBURG

CBE RESEARCH ETHICS COMMITTEE

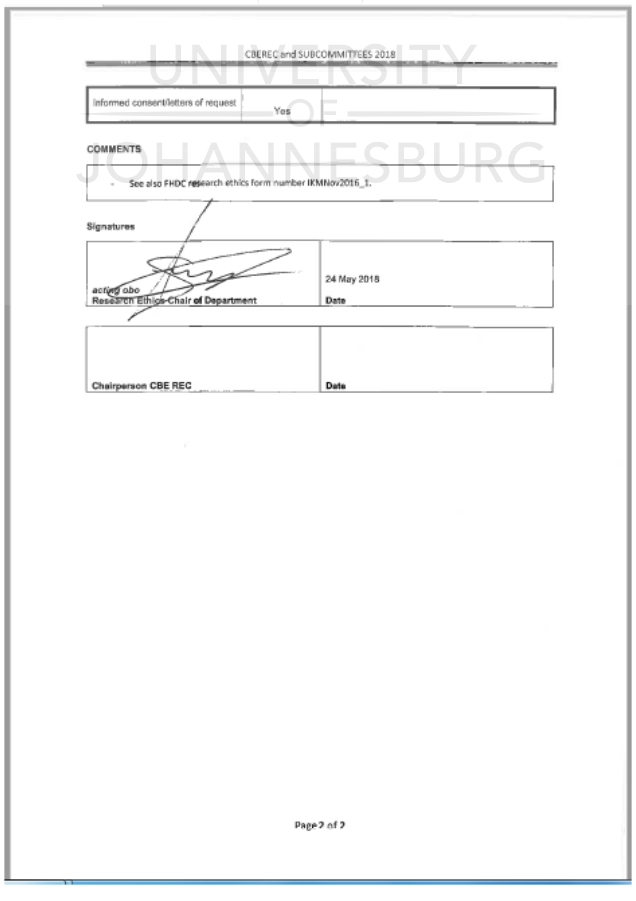
ETHICAL CLEARANCE REPORT

Applicant	Mrs Catherine Elsworth
Supervisor	Prof Tanya du Plessis
Student/staff number	CE: 2001613011 TdP:720001833
Title	**MPhil (Information Management)** Knowledge-based automation and new workforce implementation at a financial institution
Decision date at meeting Decision at Department / School Decision at College Meeting Decision at CBE REC	11 November 2016 Approved Prof C De Meyer-Heydenrych advised that since the IKM departmental ethics committee approved the research proposal in November 2016 and data collection during 2017 and data analysis concluded in 2018, the FoM processes pre CBEREC suffice.
Reviewers	Prof Chris Rensleigh, Mr Cor Niemand
Ethical clearance code	IKM2018_029
Rating of most recent application	CODE 01

CODE 01 - Approved
CODE 02 - Approved with suggestions without re-submission
CODE 03 - Not approved, may re-submit
CODE 04 - Not approved, no re-submission allowed

RESEARCH COMPLIES WITH	COMPLIANCE	NON-COMPLIANCE / DETAILS / RECOMMENDATIONS / CONDITIONS OF APPROVAL
The right to privacy, confidentiality and anonymity	Yes	
The right to equality, justice, human dignity/life and protection against harm	Yes	
The right to freedom of choice, expression and access to information	Yes	
Right of the community and science community	Yes	
The researcher will not experience any harm in conducting the research	Yes	

Page 1 of 2



CBEREC and SUBCOMMITTEES 2018

Informed consent/letters of request	Yes

COMMENTS

- See also FHDC research ethics form number IKMNov2016_1.

Signatures

acting obo Research Ethics Chair of Department	24 May 2018 Date
Chairperson CBE REC	Date

Page 2 of 2

APPENDIX B

Consent to perform study from head of Human Capital

UNIVERSITY OF JOHANNESBURG

FACULTY OF MANAGEMENT

Department of Information and Knowledge Management
PO Box 524
Auckland Park
2006

Date: 07/11/2016

Dear Mr Sheikh

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am currently a Pre-registered Master's student in the Department of Information and Knowledge Management. My supervisor is Professor Tanya du Plessis.

My topic of research is: *How does knowledge-based automation and the resulting new workforce implementation at financial institutions change the ways of work for banks and deliver value to their clients?* The objectives of my study are:

a) To understand why knowledge-based automation is required in the banking industry
b) To understand what capabilities financial institutions require in order to use knowledge-based automation such as chat bots
c) To understand what are the implementation phases of introducing chat bots and Robotic Process Automation (RPA) into a financial institution
d) To understand how knowledge-based automation will create new value for banking clients
e) To understand how knowledge-based automation and new workforce implementation change the way in which financial institutions operate

I am hereby seeking your consent to interview self-selected participants within the Group Shared Services (GSS) environments in which RPA technology has been implemented, as well as the project teams involved in the implementation. The target participants for the study will be from Team Leader level to Senior Manager. Participants' responses will remain anonymous and their participation in the study is completely voluntary. **The name of the organisation will not be used in the study.**

Should you require any further information, please do not hesitate to contact me or my supervisor. Upon completion of the study, I will undertake to provide you with a bound copy of the dissertation. Your permission to conduct the study will be greatly appreciated.

Yours Sincerely
Catherine Elsworth, 082 827 0575 | 011 696 4537
Tanya du Plessis

Prof Tanya du Plessis

Department of Information and Knowledge Management
Faculty of Management | University of Johannesburg

Tel: +27 (0)11 559 3836 | Fax: +27 (0)11 559 2822 | E-mail: tdupless@uj.ac.za | Web: www.uj.ac.za/informan
Office: A Bridge 508, Kingsway Campus, Auckland Park | Mail: PO Box 524, Auckland Park, 2006

APPENDIX C

Invitation sent per email to interview participants

From: Catherine.Elsworth@[...].co.za[mailto:Catherine.elsworth@[...].co.za
Sent: 12 June 2017 9:13 AM
To: <respondent's email>
Subject: Participation in research study

Good day <Respondent's name>,

I hope you are well.

I am currently conducting research into the implementation of Intelligent Automation (IA) in the bank for my Masters study at the University of Johannesburg.

As part of the data collection I am required to conduct interviews with the people affected by the changes as well as those who are part of driving the change. I would very much appreciate your input into the research.

The topic of the research is focusing specifically on driving the adoption of IA across the organisation in order to ensure that this programme delivers value to our banking clients.

Your participation in the interview is obviously completely voluntary.

Please advise an alternative time should this time not suit you.

Kind regards

Catherine

<email signature removed>

APPENDIX D

Interview consent form

Consent Form

Research Problem:

How does intelligent automation and the resulting new workforce implementation at financial institutions change the ways of work for banks and deliver new value to their customers?

1. I have read the information relating to the research and any questions have been answered to my satisfaction.
2. I agree to the arrangements described in the questionnaire and information provided.
3. I understand that my participation is entirely voluntary and that I may withdraw from the project at any time.
4. I agree to the interview and responses being recorded for analysis for the study.
5. I have received a copy of this consent form and of the accompanying information sheet.
6. I am aged 18 or over.

Name of participant……

Signature……

Date……

APPENDIX E

Interview schedule A

1. What is your role in the IA programme and which area in the bank are you from?

2. If you consider the advances in technology and the resulting expectations of customers on their bank to provide more innovative banking solutions, do you think IA is the right direction for the bank to be heading in?

3. Considering that IA can cause fear about job security if the intention of it is not managed correctly, what change management initiatives were implemented in your business area to easy the fears of the people affected?

4. How would you describe the effectiveness of the change management initiatives in managing staff concerns about IA?

5. What IA initiatives have been implemented (or are currently being implemented) in your business area?

6. Do you think that IA has the potential to improve the banking experience of the customer? Please elaborate

7. What other **benefits** have you seen through the implementation of IA in your **business area**?

8. What were some of the **challenges** that you experienced in the process of implementing IA?

APPENDIX F

Interview schedule B

1. What is your role in the IA programme and which area do you support?

2. If you consider the advances in technology and the resulting expectations of customers on their bank to provide more innovative banking solutions, do you think IA is the right direction for the bank to be heading in and why?

3. Considering your role in the IA programme, what are the main steps that were followed to implement IA into the business area that you support (There are no right and wrong answers here, just what process was followed in terms of your role?)

4. Considering **your role** in the IA programme, what are the main steps involved in the implementation and deployment of IA across the various business areas?

5. How have your ways of work changed as a result of the IA journey?

6. What IA initiatives have you been involved in implementing/supporting?

7. What **benefits** have you seen through the implementation of IA in the **business area** you support? (staff morale, staff involvement, staff able to do more meaningful work)

8. What were some of the **challenges** that you experienced in the process of implementing IA?

9. Do you think that IA has the potential to improve the banking experience of the customer? Please elaborate

APPENDIX G

Interview schedule C

1. What is your role in the IA programme and which area in the bank are you from?

2. If you consider the advances in technology and the resulting expectations of customers on their bank to provide more innovative banking solutions, do you think IA is the right direction for the bank to be heading in?

3. Considering your role in the IA programme, what are the main steps that were followed to implement IA into your business area (There are no right and wrong answers here, just what process was followed in your area?)

4. Considering that IA can cause fear about job security if the intention of it is not managed correctly, what change management initiatives were implemented in your business area to easy the fears of the people affected?

5. How would you describe the effectiveness of the change management initiatives in managing staff concerns about IA?

6. What IA initiatives have been implemented (or are currently being implemented) in your business area?

7. Do you think that IA has the potential to improve the banking experience of the customer? Please elaborate

8. What other **benefits** have you seen through the implementation of IA in your **business area**?

9. What were some of the **challenges** that you experienced in the process of implementing IA?

APPENDIX H

Interview schedule D

1. What is your role in the IA programme and which area do you support?

2. If you consider the advances in technology and the resulting expectations of customers on their bank to provide more innovative banking solutions, do you think IA is the right direction for the bank to be heading in and why?

3. Considering your role in the IA programme, what are the main steps that were followed to implement IA into the business area that you support (There are no right and wrong answers here, just what process was followed in terms of your role?)

4. Considering that IA can cause fear about job security if the intention of it is not managed correctly, what change management initiatives were implemented in the business area you support to easy the fears of the people affected?

5. How would you describe the effectiveness of the change management initiatives in managing staff concerns about IA?

6. How have your ways of work changed as a result of the IA journey?

7. What IA initiatives have you been involved in implementing/supporting?

8. What **benefits** have you seen through the implementation of IA in the **business area** you support? (staff morale, staff involvement, staff able to do more meaningful work)

9. What were some of the **challenges** that you experienced in the process of implementing IA?

10. Do you think that IA has the potential to improve the banking experience of the customer? Please elaborate

APPENDIX I

Interview schedule E

1. Why is IA the next big thing for the bank?

2. Why was […] chosen as the vendor?

3. From your role, what was the process followed in setting off on the IA journey?

4. In your view, what have the biggest challenges been from an **adoption** perspective? Business, users, other

5. How can we increase adoption going forward?

6. What have been the biggest challenges from an organisational perspective? Budget, Ownership, other

7. What have the challenges been from a departmental and programme level? Resourcing, skill environment, interpersonal, other

8. What is next in the journey? Chatbot, RPA express, Machine Learning, other

9. What are the perceived benefits of IA and what benefits have already been shown?

10. If you knew then what you know now, what would you do differently in setting off on this journey?

APPENDIX J

Nvivo codes

Code Groups	Sub Groups	Case Classification	Codes
Right Direction		IA Project Team	Right Direction_ It's a component which can assist us in our digital journey
			Right Direction_ it doesn't solve all the problems, but it assists with "let's automate some things"
			Right Direction_ any company that does not pursue robotics will not exist in the very near future
			Right Direction_ absolutely without a doubt
			Right Direction_ business understands technology can make life easier
			Right Direction_ one of a number of cutting-edge technologies at this point in time
			Right Direction_ in terms of what the customer expects from us it's definitely the solution
			Right Direction_ it will be a good thing
			Right Direction_ part of the right way
			Right Direction_ not the only way
			Right Direction_ there's the digitisation journey and there's automation
			Right Direction_ definitely
			Right Direction_ the right way to go
			Right Direction_ definitely the right direction
			Right Direction_ definitely the way we have to go
			Right Direction_ certainly it's the right direction
			Right Direction_ yes absolutely
			Right Direction_ yes, I think it's the right direction
		Business	Right Direction_ I would think so yes
			Right Direction_ definitely
			Right Direction_ definitely
			Right Direction_ part of the right direction_ don't think it's the only direction
			Right Direction_ dependant on the market segment_ not everyone has access to a smart phone_ percentage of the population will be left behind
			Right Direction_ I do because a lot of our processes are very manual
			Right Direction_ I do think so_ it does
			Right Direction_ I do
			Right Direction_ IA is the right direction
			Right Direction_ I think yes
			Right Direction_ definitely the right way
		IT	Right Direction_ yes_ definitely think it's the right direction
			Right Direction_ distinguish between automation and digitisation_ to digitise you need automation in the front so do see both

Code Groups	Sub Groups	Case Classification	Codes
			running in parallel_ robotics is key driver around automation
			Right Direction_ definitely
	Right Direction_ Why	IA Project Team	Why_ has a role to play in digital world_ definitely not the only thing that has a role_ will contribute towards it_ right use cases can make an impact in digital world
			Why_ automation and robotics is part of the industrial revolution_ don't see companies existing if they not pursuing these new ways
			Why_ embracing a new age in customer experience and customer satisfaction_ as a bank we have no alternative than to be on the front foot as far as possible_ deliver to our customers that experience they're looking for through creating a digital experience that satisfies their needs_ IA specifically for a bank like ours is critical because we've got a massive legacy with very old systems and the bank cannot afford to integrate those systems together to give that digital experience
			Why_ it's a race and ones got to invest in a particular technology_ in the absence of knowing what the others can deliver I think we can get there with this one
			Why_ it will reduce the time to process most of the stuff that customers ask us to do which essentially doesn't become an issue about our own SLAs but how we service our customers better
			Why_ take a small process with no exceptions and let people do the exceptions_ take away the mundane day-to-day work
			Why_ digitisation journey and there's automation_ robotics is a good tactical solution to close the gap while we're on the digital journey_ automating clunky front-end processes in a tactical manner before digitisation comes in as a strategic solution
			Why_ customer wants good service so is looking for improved turn-around times_ time it takes to bring the right documents when we as a bank potentially with their consent are able to source it ourselves_ enhance human production_ not replacing them, enhancing productivity of individual and bank
			Why_ keep up to date with technology_ be relevant in the market place for customers
			Why_ provides a digital experience for clients_ customers are going digital_ either align or become dinosaurs
			Why_ reduction in errors_ eliminates mistakes_ stitches current systems together which has been an issue in how we service

Code Groups	Sub Groups	Case Classification	Codes
			our customers because the systems are disparate_ automation brings them together
			Why_ well researched_ external articles have spoken about various companies adopting and embracing this technology_ would be foolish not to explore this
			Why_people are looking for things a lot faster
			Why_ multi-skilling our staff_ one stop shop_ free up mundane tasks tedious tasks to be automated_ free to do more complex tasks
			Why_ reduce repetition that's being done in the bank_ make it a one stop bank where people don't have to go from pillar to post
			Why_ multiple software solutions that we need follow_ ability to join lots of core banking systems seamlessly together in the backend so the client doesn't experience current handover delays
			Why_ systems implemented over the years which gets to the point where it starts becoming a web and it takes long to implement things_ takes very long to do simple requests_ a lot of inefficiencies in simple things_ how fast we can action an account directly affects the customer_ in time customer will become non-compliant and their accounts become frozen
		Business	Why_ going to automate most of our processes which will reduce SLA's_ it's instantaneous_ will definitely improve service
			Why_ eliminates time
			Why_ system integration is a painful exercise_ opportunity is to use IA to bridge the gap between multiple systems and processes without having to pay for very costly integration exercises and core banking changes
			Why_ IA can help with a lot of initiatives where we have repetitive type of work_ free up some head count so instead of being focused on certain manual processes we can focus on more interaction with the customer_ drive to get to our customers and understand what they want_ IA will help to free up capacity to focus on the customer
			Why_ from a customer perspective it's going to help improve our quality of data and information we retain_ labour intensive work which is prone to errors_ set the benchmark and be sure we've got certain quality level_ don't have to go back to customers to update information and frustrate them
		IT	Why_ enables staff to focus on customer-centric service components than mundane

Code Groups	Sub Groups	Case Classification	Codes
			delivery components_ takes away repetition in specific tasks that don't add value to the customer_ by digitising you enable staff to focus on more value add to the customer
			Why_ need to distinguish between automation and digitisation_ to digitise you need automation in front_ robotics is a key driver around automation_ automation is a catalyst for machine learning and to drive execution of digitisation_ digitisation is more the user interface_ input for digitisation is actually automation
			Why_ pressure from new kinds of enterprises_ brand new companies that have digital footprint whereas the legacy organisations within the financial industry come from analogue era_ new generation of customers in terms of millennials_ used to being able to do everything on their phone and portable devices_ used to instant gratification_ want stuff at the click of a button_
Improve banking experience			Improve Banking Experience_ the functionality and technology definitely does_ theoretically it can_ definitely learning the lessons that out environment is difficult and those are our challenges_ if we can solve basics then the customer will be happy
			Improve Banking Experience_ I think it really does
			Improve Banking Experience_ absolutely it does_ customers are immersed in digital everyday_ do believe it can improve the experience
		IA Project Team	Improve Banking Experience_ as it matures, and everybody develops confidence in the solution
			Improve Banking Experience_ think it does
			Improve Banking Experience_ I think so
			Improve Banking Experience_ yes, I think it does
			Improve Banking Experience_ definitely
			Improve Banking Experience_ yes definitely
			Improve Banking Experience_ yes, I think it does
			Improve Banking Experience_ well it is about digital, and it absolutely has the potential
			Improve Banking Experience_ yes
			Improve Banking Experience_ yes absolutely
			Improve Banking Experience_ automation will definitely improve service
			Improve Banking Experience_ I think it does
		Business	Improve Banking Experience_ I think it would
			Improve Banking Experience_ opens up more thought opportunities
			Improve Banking Experience_ yes

Code Groups	Sub Groups	Case Classification	Codes
			Improve Banking Experience_ yes, I think so_ automation is definitely going to change customer experience for us
			Improve Banking Experience_ yes more definitely
			Improve Banking Experience_ I think it can
			Improve Banking Experience_ definitely_ think we've got a good opportunity
		IT	Improve Banking Experience_ yes definitely_ it's just going to take time
			Improve Banking Experience_ it does
			Improve Banking Experience_ definitely
			Improve Banking Experience_
	What new value does IA add to clients	IA Project Team	What new value_ customer might have a "wow" experience_ even if we're getting down to hours from days
			What new value_ we've improved customer experience to such an extent that he doesn't have to submit documents, proof of income etc_
			What new value_ must make sure we understand clearly what that personal touch still means to the customer_ how can we repurpose and refocus people to do that and automate the right stuff
			What new value_ have the ability to take these processes out of operations and make them completely seamless from customer-initiated requests through something like an application or a handheld device, one of those existing customer facing application rather than having them phone through to the business_ by reducing turn-around time
			What new value_ it depends on what type of initiatives we embark on
			What new value_ has potential to increased speed of responses to customer requests_ todays age of instant gratification, if you can increase response time you'll ultimately have happier customers
			What new value_ if we improve our turn-around times of customer facing processes we're seen as a more efficient bank and it improves customer experience or customer delight index_ improve customer delight because they no longer need to get my document and bring them into a branch_ don't need to visit a branch anymore_ ways of banking can be more self-service, more suited to the way customers want to bank_ processes happen faster_ can open an account immediately_ apply for a loan immediately and have an answer immediately because processes are more in line with turn-around tome that customer expects

Code Groups	Sub Groups	Case Classification	Codes
			What new value_ think about chatbots_ you can start cutting out all the manual errors_ ability to upload information to the bank
			What new value_ It's going to do things faster_ we're going to get the answers and potentially the accuracy of information_ feedback of customers could be of higher quality
			What new value_ pulls different product systems together for a seamless experience_ IA will bring speed, so things can be done a lot quicker_ less onerous on the customer to come with things to the bank_ opening a new account you don't have to bring all you documents
			What new value_ speed things up_ information will be more consistent_ won't be asking customers to repeat certain standard information that we should have_ less rework_ more accurate data_ able to engage with customers about more meaningful stuff that will add value to their lives_ deliver things to the customer faster_ helps us be proactive
			What new value_ a lot quicker for them to get answers
			What new value_ able to service client really quickly which will improve customer service_ doesn't have human touch element, that's where the gap might be
			What new value_ helping the customer quicker_ getting quicker response on refunds_ from a money matter perspective, we are holding client closer to our hart_ get things done right the first time
		Business	What new value_ if we made sure that it connects the dots in the background_ IA on the front-end in terms of chatbots and interactive user interfaces will help in terms of predictability for the client_ client satisfaction in "I want it now" hoping IA will help speed the process up to give more real time experience of requirements
			What new value_ if you're willing to leverage experience of fast banking, going to feel the benefit_ streamline certain processes which is your backend component
			What new value_ by changing the account opening process you can open an account without even going to bank
			What new value_ reducing time to fulfil a process_ improve time to fulfil customer requirement_ getting things done faster is better for the customer
			What new value_ it can play a huge role in terms of turn-around time

Code Groups	Sub Groups	Case Classification	Codes
			What new value_ from a customer perspective it's going to help improve our quality of data the information we retain_ ensure that we have proper storage around our traceability and creating predictability for the customer
		IT	What new value_ automation is one of those pillars to get to digitisation
			What new value_ expectation of the customer has significantly changed and where response times of days would have been acceptable this has dramatically changed to customers expecting responses in minutes_ being able to operate 24/7
Change Management Initiatives		IA Project Team	Change Management_ tried to rather talk about intelligent automation_ get away from concept of robotics_ change terminology_ get away from images that refers to robots_ big focus on changing negative perceptions_ message shared around business is that IA will remove mundane, repetitive tasks so they can rather learn something new or do something new_ insight sessions to communicate_ product owners help to engage teams to help change message
			Change Management_ doing more around awareness_ name robotics became very loosely used_ been attempts to call it IA_ there's a whole drive and marketing agenda_ about empowerment as well _ about awareness_ hard conversations_ people have change fatigue, things have changed so many times for them, so robotics is just another thing for them
			Change Management_ create awareness_ had discussion with team leaders_ managers do their best to answer questions that come out around job threats_ message is around reskilling people_ repurposing people
			Change Management_ engage business change and enablement team_ driving communication_ managing and engaging environment to prepare for implementation_ running surveys in the environment
			Change Management_ documented a comms plan_ head was able to communicate to staff_ ran a survey to determine understanding_ held initial sessions with people compiling the comms_ had conversations with the people
			Change Management_ bring someone who knows the business very well and get their buy-in
			Change Management_ engagements with change managers_ took a step back and allowed change managers to manage areas_

Code Groups	Sub Groups	Case Classification	Codes
			stopped calling it robotics because of the misconception that it was going to replace jobs
			Change Management_ prepare people for changes or redeployments_ business has to manage impact with people on the floor
			Change Management_ awareness sessions_ introduce the Internet of things_ not only about IA but also about everything else that is happening_ create awareness around asking people to think about their jobs and what they want to do to reskill and repurpose themselves_ open and transparent communication around jobs changing and people staying relevant
			Change Management_ create awareness of what it is_ new ways of work implies doing new stuff, adopting new approaches so we can't go look from an old change management perspective_ creating understanding of what's happening globally_ education and upskilling through online portals_ iconography approach, images and symbols_ showcase and demonstrate the changes_ introduced exhibitions and displays to make it more accessible and tangible_ stakeholder management
			Change Management_ message always been upfront that it's not about jobs but about the customer_ delivering better service_ capacity released are being put on more meaningful work
			Change Management_ survey to get voice of the staff_ engagements with team leaders and staff_ more intimate sessions with smaller teams_ department newsletter_ personalised, intentional senior level communication_ taking feedback from staff on the floor_ keep in touch with people around fears_ transparent communication
		Business	Change Management_ be open and honest with people_ areas running under capacitated which has been done on purpose, in anticipation of IA_ people are not ignorant to the fact that IA can result in job losses, being clear from the start that this has been catered for will reduce fears_ communication about keeping yourself relevant_ face-to-face sessions_ keeping people aware of what is happening
			Change Management_ get everyone onboard on understanding what IA is_ give examples of IA that they currently use but may not have noticed
			Change Management_ sessions with the team_ followed change plan around different initiatives in the area_ focus groups_ face-to-

Code Groups	Sub Groups	Case Classification	Codes
			face sessions_ town hall sessions
			Change Management_ Questionnaires to the staff_ paint a picture in terms of what IA is
			Change Management_ general awareness sessions
			Change Management_ general staff connect sessions with head of the area giving an overview_ changed the use of robotics to IA_ smaller sessions_ presentation about IA, benefits to the area, initiatives
			Change Management_ done awareness sessions to explain what it's about
			Change Management_ workshops with the entire team to learn about IA
			Change Management_ communication from the director around what IA is and where it's going to hit_ create awareness that it's happening_ more detailed awareness session with affected staff_ talking to people who are going to be affected
			Change Management_ got the business areas that was being influenced by IA and briefed them in terms of what IA is about_ explained the advantages around IA
			Change Management_ communication at all junctions is very important_ during change management sessions, speak to them a lot about saying the work is very repetitive and would rather focus on getting the IA to do that_ see roles evolving into something where team would support IA
	Effectiveness of change initiatives	IA Project Team	Effectiveness_ some have probably been effective_ it might be early days_ you still hear people talking about robots_ they've had an impact but you'll always have fear until you know more and understand the impact_ need a little more time to understand if it's been positive
			Effectiveness_ it's just pockets for now where the change is actually happening because there's not massive amounts of people affected at this point
			Effectiveness_ haven't had negative feedback_ initially people on the ground felt like this was being done to them_ initial reaction was shock and horror_ because we have had time to scale this up and for people to get involved in human tasks, I see a lot more excitement_ when we have problems they want to jump in and help
			Effectiveness_ very low percentage of the survey that actually are fearful
			Effectiveness_ they were quite comfortable_ they understood why it was being done_ also don't feel like what they're doing on a daily basis is adding value

Code Groups	Sub Groups	Case Classification	Codes
			Effectiveness_ gotten a call every week asking me when they are going in_ manager is very good, promotes IA and gets them understanding
			Effectiveness_ been effective but slow_ right message is being delivered_ people are less apprehensive now that they were when first heard it
			Effectiveness_ they understand that it takes away a lot of their repetitive, manual activity and that it enhances their productivity
			Effectiveness_ it's been very effective_ we've only really started_ this is predominantly a business deal so if there's going to be an impact on the people business has to manage that
			Effectiveness_ it's a bit too early to gauge whether it has been effective_ still some uncertainty because nothing has tangibly really landed on a big scale_ people are saying we hear you but we not seeing the reality yet
			Effectiveness_ it has been pretty good_ it was well received_ appreciated what the robot was doing on a daily basis_ buy in was great_ appreciate the fact that we're using automation to do tasks that are mundane, and they have more free time to do more meaningful work
			Effectiveness_ we're right at the start of this in terms of change_ refreshing that we're speaking the same language_ forum is to check and engage_ balance and learn from each other_ it was positive_ we're moving in the right direction_ not leaving change lagging behind
		Business	Effectiveness_ people have started to see the possibilities
			Effectiveness_ it's been positive
			Effectiveness_ it has been effective_ people are well aware, and they are taking the change quite well from my perspective_ face-to-face session people take onto that much better that electronic_ they accept or adopt it much better because they can interact and ask questions and feel more comfortable around what's going on
			Effectiveness_ they have been kind of successful in that it's created more knowledge on what it actually is
			Effectiveness_ general consensus was it's actually going to make our jobs easier and going to improve our processes_ the perception of IA got perceived as our jobs are going to evolve and not be replaced
			Effectiveness_ haven't done a lot of change

Code Groups	Sub Groups	Case Classification	Codes
			because we got involved very late_ it hasn't helped to ease their fears but it's more clarity as to what it's all about
			Effectiveness_ the whispering in the corridors and all the negativity died down_ colleagues at ease with the fact that they would not lose their jobs but won't be doing the same thing
			Effectiveness_ abysmal
			Effectiveness_ I think they have been effective
			Effectiveness_ few generations so people that have been in the bank longer see this as an opportunity to lose their jobs_ millennials, guys more in tune with technology see them becoming enablers of the technology_ people are happy to be done with monotonous work and focus on something more rewarding and value adding
Benefits			Benefits_ reduce wait time_ might still take 10 minutes but he was waiting 2 days to do it_ do more of something else_ if a consultant was spending an hour or two a day doing a request_ our assumption is that we will be able to free that time
			Benefits_ turn-around time_ 22 days to 30 minutes_ automation gave us 25-minute reduction, Lean Six Sigma engineering gave us that 22-day reduction
		IA Project Team	Benefits_ knowledge_ new IP_ how to view things differently going forward_ been a lift from that perspective_ believe that it will take up at least 80% of the volume which equates to 4 or 5 FTE's across the business which will give them capacity to take on new business_ believe the solution will take away all account origination work from consultants who will then be able to concentrate on very complex closure of accounts
			Benefits_ the business benefit comes in where you have a customer book that is sitting at 44 million customer base and you have incomplete profiles across that book
			Benefits_ an increase in collections in terms of rand value_ there's a 0% drop off between capture and release_ closed that 20% gap and increased the rand value that we've been able to capture by around 5% just because we get to it faster_ single person dependency for extracting logs was quite onerous on them_ access to some more cases to investigate faster so the money where the bank has been liable will be paid to the customer faster
			Benefits_ reduction in turn-around time of the process_ in terms of volumes, we'll be able to achieve regulatory compliance over a

Code Groups	Sub Groups	Case Classification	Codes
			period of time once we've addressed the regulatory gaps there we are either not fulfilling because of human error or data is missing because the customer hasn't supplied
			Benefits_ people that are currently doing manual tasks will now be assigned to something else that could add more value
			Benefits_ giving a new leash for people being exposed to doing new things_ gives the opportunity for business to create differentiated type of service_ releasing people in the Shared Services space from doing more value-added work versus doing the mundane, repetitive tasks
			Benefits_ automation pulls the different product systems together for a seamless experience_ releases capacity_ quality is a lot better in terms of errors and mistakes so human error is eliminated_ people can get onto more meaningful work
			Benefits_ people were complaining that were doing non-value-added work
			Benefits_ people have seen the possibilities_ they feel more empowered
			Benefits_ automates mundane tasks_ they can do more complex stuff
			Benefits_ people are enthusiastic because they can see the bank is moving with the 20:20 vision_ majority of the people are between ages 18 and 24 and are all technology driven
			Benefits_ standardisation of processes
			Benefits_ deals with repetitive tasks and things that are not value added in or processes_ process can be better_ remove redundant checks_ improves process so it improves moral_ could replace consultants doing non-value-added tasks and make them do more value add
			Benefits_ staff moral_ they are learning a lot
			Benefits_ mindset of the leaders and people_ new perspective on what improvement on process means_ good for people to have exposure to that so it expands their knowledge of what exists in terms of financial services and what the future looks like
			Benefits_ guys are very interested in how the whole thing works_ they are very eager to see it working in the environment
			Benefits_ quality of our deeds have improved_ good percentage in gains from a legislative requirement
New Workforce Implementation		IA Project Team	New workforce_ take away very boring, repetitive tasks_ the consultants don't have to sit and drill through data, they're doing the

Code Groups	Sub Groups	Case Classification	Codes
			exceptions_ give them something better to do
			New workforce_ long history of doing programmes typically on waterfall methodology so in terms of the agile approach that have been a lot of adaptations to make in terms of facilitating an implementation
			New workforce_ it has improved one's knowledge in other spheres such as IT
			New workforce_ hasn't changed for me_ been doing this work for 20 years_ it's a learning curve
			New workforce_ access to some more cases to investigate faster_ money can be paid to customer faster
			New workforce_ collaborative approach to agile and new ways of work is starting to take hold_ cultural change and mind set change for everyone_ taking ownership for one's own work_ pulling work rather that work being pushed on you_ gives people a chance to develop their own maturity and then take pride in their own work_ encourages healthier team dynamic in that everyone is pulling their weight and learning and developing
			New workforce_ the team concept is an interesting concept in a sense that if you have good team work you can achieve better results than one or two people doing the work_ in the past you had clear delineated responsibilities_ now you have pockets of expertise and have to start linking the dots_ makes it extremely complex_ with that goes the responsibility of reskilling people and you can't reskill someone quickly
			New workforce_ new ways of work implies doing new stuff_ teams being exposed to new things and challenges_ human in the loop_ supporting the customer
		Business	New workforce_ the job you have may not be required any longer_ opens new opportunities
			New workforce_ forecasted how many people we are going to require_ reusing talents in other areas
			New workforce_ see roles evolving to support IA_ maintenance and administration of accounts allows sales team to focus on doing selling to customer and servicing customer_ pass on maintenance or admin work to IA
		IT	New workforce_ brings it closer to small components of a process_ identifying exactly what we can change_ before this it was

Code Groups	Sub Groups	Case Classification	Codes
			purely system development and design
			New workforce_ personally my role hasn't changed_ just different specialist focus
			New workforce_ no clear-cut role that says this is what a robotics architect does_ learning
Implementation phases			Implementation_ started looking at service requests_ highest volumes_ look at steps followed by agents_ where they have to do same things each time_ can't automate something that is unique every time
			Implementation_ strategic perspective - interim sales and marketing_ POC with one vendor_ proved the concept_ Showcase a demo_ greater demand for solution_ implementing IA – look to operations for good candidates_ run assessment_ understand the frustration of the customer_ don't automate failure_ reengineering and lean principles apply at this stage_ technical solution document_ build it_ test it_ fix it_ implement solution_ IT governance
			Implementation_ solution design_ roll out and scale up_ change management
			Implementation_ engage with customer to understand requirement_ understand candidates for IA in the space
		IA Project Team	Implementation_ initial pre-analysis to understand if processes are fit for robotics_ deeper analysis of candidates_ see what steps can be automated_ not necessarily end-to-end automation_ understand business and customer value
			Implementation_ set up meeting with people wanting the project_ understand the process_ screen shots of each step of process_ as is process, visualisation document_ analyse process and come up with to be process_ approval from business_ take developer through documents_ start development_ test it_ user acceptance testing_ easy aid guides
			Implementation_ process analysis_ process candidate for IA_ requirements from consultants_ validations of process_ screen shots_ handed over to developers_ got access to platforms that they operate on_ went through screenshots with developers and held their hands along the way while they developed the solution
			Implementation_ user sign off on solution requirements_ governance committees to satisfy to make sure you can actually roll out the tech
			Implementation_ awareness of what automation is_ run a POC to get executive

Code Groups	Sub Groups	Case Classification	Codes
			leadership_ got a backlog of processes_ execution of work
		Business	Implementation_ budget approval_ formalisation of the team from a SAFe methodology perspective_ identify book of work_ try to delivery those aspects_ as part of the deployment we include change management
			Implementation_ understand the area and need for automation_ feasibility in terms of nature of processes, volumes_ prioritise_ requirements_ turn process into bite size chunks_ develop solution_ test solution_ implement_ support
			Implementation_ align business in terms of IA_ work with feature team to implement and roll out and adopt the solution_ pick up challenges that was experienced_ address these concerns with the team
			Implementation_ taken staff from team leader level, one at junior consultant and embedded them into robotics team_ used opportunity to bring information back into the team_ taken staff through what will be implemented and what it will mean for them
		IT	Implementation_ business engagement_ process analysis_ design_ requirement analysis_ development_ testing and deployment
			Implementation_ establishing a couple of methodologies and standards around overall execution and development and testing and the ability to release into production
			Implementation_ POC to show value_ understand what is possible for use cases_ understand tool being positioned and value it can add_ understand what is the gap we are trying to fill and how will it fit in with our current capabilities with the IT landscape_ RFP in terms of the right product_ started with an actual pilot_ identified certain use cases_ make sure product had been put in correctly_ necessary infrastructure requirements in terms of service and memory_ view proposed solutions from an architecture perspective to make sure design will work on platform_ change management_ set up development lifecycle_ make sure dev is in place and running smoothly_ make sure we have our integration environment running_ have a production environment for deployment_ start looking to scale_ create a disaster recover environment

–END–