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Factors influencing robotic process automation adoption in the South African insurance industry

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Factors influencing robotic process automation adoption in the South African insurance industry.

. ."

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A research thesis submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

Johannesburg, 2023

ABSTRACT

Robotic process automation (RPA) is fast becoming a key instrument in the digital transformation journey of the insurance market. This software technology presents a wide range of benefits to an insurance organisation, from driving operational efficiencies to improving customer experience. However, despite the vast use cases of RPA evidenced in the global insurance market, the South African insurance industry has proven to be a laggard in adopting RPA. In understanding the slow uptake of RPA by SA insurers, it was important to gain insights on RPA adoption from the perspective of RPA vendors as well as South African insurance professionals. A qualitative exploratory study was conducted to investigate the antecedents and factors influencing RPA adoption within the South African insurance industry.

This study is based on the exploration of multiple ICT adoption frameworks existing in literature, such as user acceptance models used at an individual level and diffusion theories used at an organisational level adoption. A conceptual framework integrating the technology-organisation-environment (TOE) framework, diffusion of innovation (DOI) and technology acceptance model (TAM) was created and used to identify the factors. The empirical findings of this study were based on twelve (12) semi-structured interviews conducted with senior managers within the insurance industry and in the RPA vendor space.

The study reveals that relative advantage, complexity, compatibility, management support, competition pressures and vendor support were perceived to have a positive influence on the acceptance and adoption of RPA. The study also suggests that strategy and government regulations have a non-significant influence on the adoption of RPA, whereas skills in the organisational context were perceived as a negative influence. Interestingly, two new factors emerged from the thematic analysis conducted: while perceived costs were viewed as a negative influence, change management was perceived as a significantly positive influence on the adoption of RPA within the SA insurance industry. The study provides recommendations to leaders to ensure a seamless RPA adoption process.

KEYWORDS

Robotic Process Automation, Technology Adoption, Insurance, Automation

DECLARATION

I, **Namdipha Kunene (1405197),** declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: Namdipha Kunene Signature: 

Signed at ……Johannesburg……

On the ……**10th** …… day of …**February**……**2023**.

DEDICATION

This thesis is wholeheartedly dedicated to my late great-grandfather.

Ndoda Ernest Kunene (1932 - 2022)

Mntimande, Madonsela, Lubambo lunye, zingaba mbil'ufuz'ekhabonina.
Ngiyabonga Mkhulu.

For your endless love, encouragement, and support.

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"With man this is impossible, but with God all things are possible." – Matthew 19:26

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LIST OF ACRONYMS

AI	Artificial intelligence
BPM	Business process management
DOI	Diffusion of innovation theory
NLP	Natural language processing
PEOU	Perceived ease of use
PU	Perceived usefulness
RPA	Robotic process automation
SA	South Africa
TAM	Technology acceptance model
TOE	Technology-organisation-environmental framework
TOE-DOI-TAM	Conceptual framework

CHAPTER 1. INTRODUCTION

1.1 Background of the study

Automation can be defined as the application of technology to execute processes using programmed commands with minimal human input (Eling et al., 2022). Studies about the transformation of industries in this digital era have proposed automation and robotics as major enablers of technological transformation for most organisations (Ki et al., 2022).

The concept of automation in the financial sector has been around for years; however, insurance companies have lagged in implementing automation technologies in their core processes (McKinsey Digital, 2017). The impact of Covid-19 has accelerated the need for the adoption of digital technologies and transformation of the global business market. The pandemic lockdown regulations and other mitigation measures that were implemented by the government affected how insurance organisations conduct business, which to a large extent traditionally required physical engagement and manual processes (Schlemmer et al., 2022).

Robotic process automation (RPA) is an automation revolution that has disrupted every industry, and the insurance industry is no exception (Lacity et al., 2016) RPA is a software technology that uses rules and algorithms to mimic back-office tasks performed by human workers (Ghouse & Sipos, 2021). According to Katke et al. (2019), RPA affects the process automation landscape when compared to solutions like business process automation and workflows. RPA offers multiple benefits to insurers, from automating business processes; to reducing operational costs, seamless consumer experience, and the ability to remain competitive in this digital era (Schlemmer et al., 2022).

1.2 Research problem

The South African insurance industry has been ranked as the least trusted industry within the financial sector (KPMG South Africa, 2021). With a negative 0.4% average net sentiment score, insurance consumers cited the industry's overall claims process as one of the major concerns – sentiments around the turnaround time of claims settlements and non-payment of claims have contributed to the dissatisfaction (PwC South Africa, 2021). According to Jones et al. (2019), the unsatisfactory customer services experienced by insurance customers can be attributed to insurers' over-reliance on manual (traditional) processes, thus failing to meet customers' needs. This data-intensive industry is overwhelmed with repetitive, time-consuming, and manual processes such as claims and underwriting which have negatively impacted consumer satisfaction and increased expenditure costs for daily operations (Kaur, 2022).

From the literature it is understood that the insurance industry is perceived to be a laggard in the adoption of RPA. The industry was ranked the third-lowest industry to leverage RPA, heedless of the benefits derived from RPA adoption (Acceleration Economy, 2021). Lamberton et al. (2016) explored the impact of Robotics, RPA, and artificial intelligence (AI) on the insurance industry, and in their study, they identified common RPA adoption challenges faced by insurers such as choosing the correct processes to automate, strategic misalignment and incompatibility with legacy IT systems. Several studies have argued that for many insurance organisations the RPA adoption challenges extend beyond complex technology transitions, and much concern regarding data security and risks associated with RPA being implemented in their processes (Kaur, 2022; WNS, 2018). Oza et al. (2020) associate the drawbacks of RPA adoption in the insurance industry with the fear of job replacement by automation, doubt around the precision and accuracy of tasks completed by bots, and high investment costs for implementing the technology. In the same vein, Smith (2020) found that slow adoption by insurers reflects the industry's conservative culture towards disruptive technologies and changing business models.

Though a considerable amount of global RPA implementation cases in insurance exists, many insurance organisations in South Africa are now looking at adopting

RPA to assist in automating their business processes. The heightened interest in RPA requires contributions to be made to the limited academic literature on RPA adoption within the South African insurance industry and creates a need to investigate the antecedents, and potential enabling or hindering factors influencing the adoption of RPA relevant to SA insurers.

1.3 Statement of purpose

The purpose of this study was to investigate the key antecedents and factors influencing the adoption of robotic process automation (RPA) within the South African insurance industry. Additionally, the study aimed to describe the influence of technological, organisational, and environmental factors from the perspective of the key decision-makers in the RPA adoption process.

1.4 Research questions

Drawing on the extant literature and the integration of the adoption models, the research questions were as follows:

The main research questions:

1. What are the potential antecedents to RPA adoption in the South African insurance industry?
2. What factors influence the adoption of robotic process automation (RPA) in the South African insurance industry from a technology, organisational and environmental perspective?

Research sub-questions:

2.1 Which factors are perceived to have a positive influence on RPA adoption by the South African insurance industry?

2.2 Which factors are perceived to have a negative influence on RPA adoption by the South African insurance industry?

1.5 Rationale

Emerging technologies such as artificial technology and robotic process automation are changing the delivery of end-to-end insurance services. These technologies are providing insurers with enhanced capabilities to work smarter, faster, and more accurately (Cranfield & White, 2016). This research is aimed at understanding the potential antecedents and factors influencing robotic process automation adoption in the South African insurance industry.

Studies about the implementation of RPA across various industries provide case examples of how these industries can acquire value from adopting automation technology (Ghouse & Sipos, 2021). According to a study conducted at Ernst & Young, the application of RPA introduces some challenges and opportunities for the insurance industry (Lamberton et al., 2016). The study points out that despite the cost reduction and efficiency benefits of RPA, several issues are encountered by insurers implementing RPA projects (Lamberton et al., 2016).

The widespread RPA adoption makes the technology crucial to many sectors, thus requiring further research to be initiated (Oza et al., 2020). From a business perspective, it would be of interest to insurers to understand what factors to consider before the adoption to mitigate implementation challenges and increase technology uptake. The outcome of this research may also be used to identify common conditions driving the adoption, which may include industry trends and certain business processes that could imminently be automated by insurers to improve organisational efficiency and productivity.

From a South African perspective, the data gathered from the participants will provide local insights on what factors SA insurers find to be either enabling or hindering RPA adoption.

1.6 Delimitations of the study

This study is based on robotic process automation (RPA) and excludes other types of automation technologies. Despite the widespread adoption of RPA across various industries within the financial services sector, this study focuses

especially on antecedents and factors influencing RPA adoption within the South African insurance industry. Due to time constraints, this study is unable to encompass all factors identified in the three theoretical frameworks chosen. The scope is restricted to factors closer to the study as identified in the conceptual framework. The study did not test the constructs of the conceptual framework; rather, it allowed the participants to share their perceptions on how identified factors influenced RPA adoption within the insurance industry.

1.7 Definition of terms

Adoption: refers to the acceptance and initial use of the technology (RPA) in the organisation.

Adopters: refers to the insurance organisations (as listed in the Insurance Institute of South Africa).

Digital native: a customer who has grown up in the presence of digital technology.

Grey literature: refers to organisational literature produced outside academic and commercial publishing channels (Chugh et al., 2022).

Innovation: refers to “an idea, practice, or object that is perceived as new by an individual/organisation” (Rogers, 1995).

Image recognition: refers to the process of detecting an object from an image (Berruti et al., 2017).

Insurers: defined as an organisation or enterprise that issues or sells insurance policies and provides financial cover to a customer in the form of a sum assured in case of occurrence of the event as stated in the insurance policy (Bharti AXA Life, n.d.).

Intelligent automation: refers to the integration and use of multiple automation technologies such as robotic process automation with artificial intelligence to streamline business processes (Berruti et al., 2017).

Management: refers to a professional who occupies a leadership role and is responsible for a team of people within an insurance company.

Robotic process automation (RPA): is defined as a software technology which uses software bots aimed at automating routine and repetitive human tasks (Ivančić et al., 2019).

South African insurance industry: the industry involves companies and people who develop insurance policies, and sell, administer and regulate them. It consists of non-life insurers, life insurers and reinsurers (KPMG South Africa, 2021).

Technical expert: is limited to RPA vendors or companies selling RPA software technology to insurance companies.

1.8 Assumptions

The assumptions for this research are based on the reviewed literature pertaining to the adoption of RPA in the insurance industry. This research adopts an abductive approach, as it has drawn on past theoretical studies to develop the conceptual model and used empirical findings to modify the model. The following assumptions were made.

An integration of adoption models (TOE, TAM and DOI) provides a comprehensive overview of factors influencing RPA adoption in the South African insurance industry (Julies & Tranos, 2021). In the South African insurance industry, customer-facing services such as claims registration and processing will be significantly disrupted by RPA adoption. Due to the competitive pressures within the industry, insurers have shifted to adopt digital technologies such as RPA to remain competitive. The research also assumed that the low RPA adoption rate can be attributed to the slow digital transformation of the industry and the lack of RPA-skilled experts in insurance organisations.

1.9 Chapter outline

The overall structure of the study takes the form of six chapters as detailed below.

Chapter 1: Introduction

This chapter presents the background to the research on RPA adoption within the South African industry. The research problem and rationale for conducting the research are highlighted. It further identifies three research questions aimed at answering the research problem.

Chapter 2: Literature review and theoretical framework

This chapter provides a critical review of the available literature regarding robotic process automation and its adoption within the insurance industry. The chapter further examines the current body of knowledge on the technology adoption factors as identified in a technology-organisation-environmental framework (TOE), the technology acceptance model (TAM) and diffusion of innovation theory (DOI). The chapter concludes by proposing a conceptual framework based on the integration of the adoption models.

Chapter 3: Research methodology

This chapter provides an overview of the research design and methodology utilised in this research. The chapter also presents the data collection methods and ethical considerations.

Chapter 4: Research findings and data analysis

This chapter presents the empirical findings of this study and uses thematic analysis to analyse the empirical data gathered from the semi-structured interviews.

Chapter 5: Discussion

This chapter links the findings of the study with the research questions and then considers the implications of these on the conceptual framework.

Chapter 6: Conclusion and recommendations

This chapter summarises the study and links the findings to the research questions. The chapter also includes the contributions of the study and suggests future research.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This literature review offers an overview of the significant literature available regarding robotic process automation technology (RPA) and the adoption of RPA within the insurance industry. The literature review begins by defining automation and RPA. In describing the impact of RPA software technology in today's business environment, this chapter provides examples of RPA benefits and limitations.

The section of the literature review explores the role of RPA within the insurance industry and the antecedents of RPA adoption by insurers. Under the analytical framework, this study reviews the existing body of knowledge regarding technology adoption models, with a focus on technology-organisation-environment (TOE), technology acceptance (TAM) and diffusion of innovations (DOI) and their relevance to this research. The literature review further explores the integration of adoption models to better understand the complexities of adopting technologies at an organisational level.

Finally, the literature review concludes by providing a research model of factors influencing RPA adoption in SA's insurance industry using theoretical frameworks. The critical literature review carried out used peer-reviewed journals and available research on the adoption of RPA.

2.2 South African insurance industry

The South African insurance industry is categorised as complex, concentrated, and competitive, with an active regional and global presence. As a vital pillar of the South African financial system, the insurance industry accounts for 18% of the financial sector and has the highest penetration in the African insurance market (International Monetary Fund, 2022).

SA's insurance industry comprises 181 registered insurance companies which include life and non-life insurers, reinsurers, and captives (International Monetary Fund, 2022). Life insurers have a significant dominance in the market (approx. R 3 trillion GWP) whereas non-life insurance has approximately R 131.6 billion GWP. (KPMG, 2022).

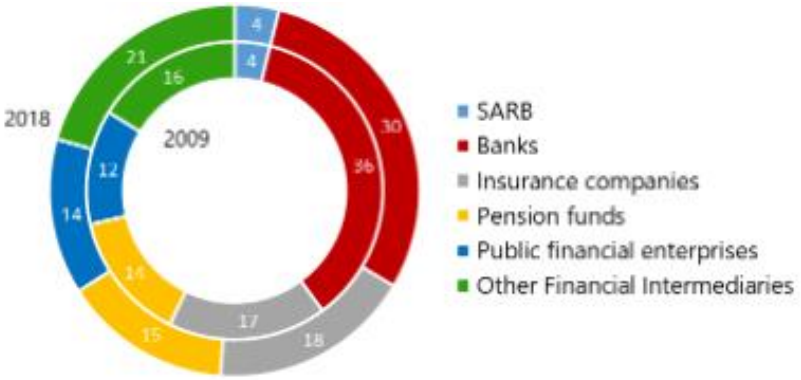


Figure 2-1: Size of the South African insurance industry in the financial sector

Like the global insurance market, the South African insurance landscape is in a continual state of transition, faced with challenges such as **a)** the impact of the coronavirus pandemic on business processes; **b)** inflationary changes; **c)** decelerating prices owing to the emergence of Insurtech and shifting customer demands; **d)** disparate legacy systems; and **e)** demanding regulatory requirements (International Monetary Fund, 2022).

2.3 Adoption of technology in the SA insurance industry

The digitalisation of the South African insurance industry has become critical in recent years, with increased market pressures to launch digital-led services and the impact of Covid-19 on traditional business processes (Deloitte, 2021). Many insurance organisations are turning to robotic process automation to assist them with the digital transformation of their businesses (Pillay & Njenga, 2021). This view is supported by a survey conducted by KPMG that found that SA insurers who had embraced digital capabilities were able to operate seamlessly during COVID-19 and continue to serve changing consumer needs, whereas those insurers who have not explored digital capabilities are experiencing difficulties with remaining competitive in the current insurance market (KPMG South Africa,

2020). However, most insurance incumbents have demonstrated limited adoption of digital technologies, which has enabled Insurtech players such as Naked and Pineapple to gain traction in the market (Moodley, 2019). Insurtech offers competitive premium rates by reducing operational overheads through automation and adopting decentralised digital models and digital channels to improve customer experience (Moodley, 2019).

2.4 Robotic process automation (RPA)

The emergence of robotic process automation (RPA) technology can be traced back to the early 2000s; however, the term gained popularity in 2012 when industries displayed significant interest and uptake in the technology (Doguc, 2020). In defining the term RPA, this study agrees that there is no single definition for robotic process automation (RPA) as the definition varies in the extant academic and professional literature. While much of the RPA research has proposed various definitions, for this research this study adopted the following definition: *"RPA is a software technology used to automate manual and repetitive actions to complete single or multiple processes with minimal or no human intervention"* (Armstrong & Lee, 2021; Ivančić et al., 2019).

There seems to be a pervasive view that RPA can only be understood by describing its application in businesses. From a practical point of view, RPA combines several applications into one software technology that can be used to automate rule-based, repetitive, and manual office tasks (Chugh et al., 2022). In this study, Madakam et al. (2019) link the application of RPA to workflow automation in organisational processes, where the RPA software technology uses a graphical user interface to record and map out the actions (step by step) performed by a human, and then integrates those actions into programmed commands which enable the software bots to perform these actions automatically.

However, there is incongruence in RPA studies as to what RPA can do, while many researchers claim that RPA only emulates the actions of a human by simply recording the steps taken to complete a task. However, this does not represent a

consensus view, as some studies argue that the capabilities of RPA extend beyond mimicking human actions, including manipulating and interpreting data and providing communication across multiple platforms (Hofman et al., 2020; Doguc, 2020). Given the varying capabilities of RPA, the next section will provide an overview of the different types of RPA software technology available for the organisation. Further, it will present benefits derived from using the technology and its limitations.

2.5 Types of RPA, benefits, and limitations

The progression of technology has led to the distinction of RPA software technologies that can be deployed by different organisations. The theoretical orientation of RPA is consistent with the industry orientation in distinguishing the types of RPA based on the capabilities of the RPA bot (Chugh et al., 2022; Ghouse & Sipos, 2021; Oza et al., 2020; WNS, 2018; Lamberton et al., 2016). An RPA bot can be seen as an intelligent software-based robot which uses programmed algorithms to perform different tasks (Chugh et al., 2022), and not a physical robot.

2.5.1 *Types of RPA*

The literature has identified the types of RPA that are commonly used as attended, unattended and hybrid:

a) Attended RPA

Attended RPA requires human intervention to complete the intended automation. The RPA bot will perform tasks triggered by the human user or a system-level event and the automation takes place at an individual workstation (Choi et al., 2021; Ghouse & Sipos, 2021).

b) Unattended RPA

In an unattended RPA, the RPA bots are designed to execute back-office tasks and interact with the technology with very little and – in most cases – no human intervention. This automation can be scheduled, operates on the enterprise's

server, and is suitable for rule-based tasks which do not require human input (Choi et al., 2021; Ghouse & Sipos, 2021).

However, a recent study and a report by a widely used RPA vendor (Chugh et al., 2022; UiPath, 2020a) extend the literature regarding RPA types by introducing hybrid RPA bots. They describe hybrid RPA as a combination of attended and unattended bots used to provide a single end-to-end automation solution for complex business tasks. This type of RPA can operate at both desktop and server levels, thus providing flexibility and scalability to an organisation (Chugh et al., 2022; UiPath, 2020a). As the literature positions the types of RPA based on the level of human interactions with the technology, this study suggests that for organisations intending to adopt RPA, their distinction between types of RPA should adhere to the sophistication level of the RPA.

2.5.2 *RPA benefits*

The question of how adopting and using RPA can benefit an organisation is widely researched. The table below draws extant examples from reviewed literature and provides multiple benefits derived from RPA adoption and usage within an organisation.

Table 2-1:Potential benefits of RPA (a review of literature)

Potential RPA Benefits	Authors
Cost reduction	(Chugh et al., 2022; Armstrong & Lee, 2021; Choi et al., 2021; Ghouse & Sipos, 2021; Pekonen & Lähteinen, 2021; Doguc, 2020; Gami et al., 2019)
Improved process efficiencies	(Chugh et al., 2022; Armstrong & Lee, 2021; Choi et al., 2021; Pekonen & Lähteinen, 2021; Doguc, 2020; Gami et al., 2019)
User-friendliness	(Chugh et al., 2022; Armstrong & Lee, 2021; Ghouse & Sipos, 2021; Gami et al., 2019)
Improves quality (reduced errors)	(Chugh et al., 2022; Armstrong & Lee, 2021; Choi et al., 2021; Ghouse & Sipos, 2021; Pekonen & Lähteinen, 2021; Doguc, 2020; Gami et al., 2019)

Flexibility and scalability	(Chugh et al., 2022; Ghouse & Sipos, 2021; Doguc, 2020)
Increases customer satisfaction	(Chugh et al., 2022; Armstrong & Lee, 2021; Pekonen & Lähteinen, 2021; Doguc, 2020; Gami et al., 2019)
Improved compliance and governance	(Chugh et al., 2022; Armstrong & Lee, 2021; Gami et al., 2019)
Compatibility with existing IT architecture	(Chugh et al., 2022; Choi et al., 2021; Pekonen & Lähteinen, 2021; Doguc, 2020; Gami et al., 2019)

As Gami et al. (2019) suggest, to organisations, RPA is a simple automation solution aimed at resolving operational issues. In resolving these operational issues, the literature offers a wide range of benefits to organisations as cited in the above table. In the insurance industry, RPA has been deployed in various processes and has brought many benefits to insurers. The most significant benefits of RPA in insurance are the reduction in operating costs and improvement in operational performance as noted by Sreeja and Shanthini (2018). In the same vein, this study suggests that insurance organisations with the business goal of reducing costs, improving operational efficiencies, and increasing service quality and customer satisfaction can largely benefit from adopting RPA.

2.5.3 *Limitations of RPA*

Despite many RPA benefits presented, authors have argued that RPA is not without limitations. The limitations of RPA have been identified by determining what RPA is not in comparison with other automation solutions. These comparisons of RPA with AI and business process management (BPM) indicate the limitations of the technology (Armstrong & Lee, 2021; Doguc, 2020) as displayed in the table below.

Table 2-2: Limitations of RPA (a review of literature)

Limitations	Authors
Dependency on standardised and rule-based tasks	(Armstrong & Lee, 2021; Choi et al., 2021; Fernandez & Aman, 2021; Hofmann et al., 2020; Vijaya et al., 2019)
Requires intelligent automation (e.g., embedded with natural language processing (NLP) and image recognition to process unstructured data	(Pekonen & Lähteinen, 2021; Hofmann et al., 2020)
Requires human intervention to control and monitor RPA bots	(Choi et al., 2021; Fernandez & Aman, 2021; Hofmann et al., 2020)
Requires frequent maintenance	(Armstrong & Lee, 2021; Fernandez & Aman, 2021; Hofmann et al., 2020)

Although RPA is widely implemented in conjunction with other digital technologies such as AI and BPM, adopting the technology alone poses some limitations to the organisation. Choi et al. (2021) suggest that organisations intending to adopt the technology need to outline what is included in the scope of RPA in conjunction with what the technology can do. Despite the limitations presented in the literature; strategy is identified as a tool to overcome these limitations of RPA. This strategy will address the scope of the RPA implementation (short-term or long-term), which technologies can be implemented to supplement the drawbacks of RPA, what effect RPA will have on business processes and the required alignment of business, and RPA strategy within an organisation.

2.6 RPA in insurance

Insurers are recognising robotic process automation as an innovative force disrupting their traditional work environment. In a CEO survey conducted by PWC

with various insurance organisations, it was acknowledged that RPA has become critical across many insurance processes (WNS, 2018). The implementation of RPA in various insurance processes has been researched globally; however, limited studies have been conducted in South Africa, as seen in the review literature. For instance, studies explored RPA implementation in insurance claims registration and processing and identified that adopting RPA leads to faster claims processing, increased data accuracy and enhanced customer experience (Oza et al., 2020; Vijaya et al., 2019). The adoption of RPA can help streamline processes such as underwriting, claims and fraud detection, and customer-facing services (WNS, 2018).

While much of the RPA research in insurance has highlighted various use cases, most studies have been limited to providing a process perspective on the adoption as they focused on siloed processes. A report by Capgemini (2017) provided a holistic overview of the advantages of RPA adoption in the insurance industry. They categorised these advantages into three perspectives; a) productivity perspective – reduces production downtime as the application can run 24/7; b) operational perspective – reduces cycle-time of the process by 75%, reduces output errors, ensures higher security and continuity of processes; c) regulatory perspective – ensures regulatory compliance when implemented in certain administrative and legal processes. There appears to be an important need for insurers intending on adopting RPA to understand how the adoption of technology will impact the overall business.

2.6.1 *Antecedents to RPA adoption*

Most of the literature that focused on the adoption of technology at an organisational level has suggested a few antecedents influencing the adoption. Saghafian et al. (2021) argue that there is an inconsistency pertaining to the antecedents that influence technology adoption. They can be viewed as conditions contributing to the success or failure of the adoption. For this study, antecedents will relate to preceding conditions considered to be influencing RPA adoption in the insurance industry.

a) The high volume of manual repetitive process

The insurance industry is known as a data-intensive industry with several manual processes. This makes RPA adoption ideal in insurance – for automating manual repetitive tasks prone to human errors, rule-based and high data volume tasks (Sobczak, 2021). There are numerous benefits that insurers can derive from adopting RPA in their organisations, such as improved service quality, cost-saving, and scalability, as cited in section 2.5.2 RPA benefits**.** However, selecting the optimal processes ideal for automation can be seen as a challenge for most insurers (Lamberton et al., 2016).

b) Regulatory compliance

The insurance industry is a highly regulated environment that requires high levels of compliance where the slightest oversight may cause financial loss to an insurance organisation. For insurers, RPA ensures that regulatory compliance is met through automated screening, early detection of missing documents, expediting verification of know your customer (KYC) compliance, and detecting fraudulent data. Considering the threats of cybercrime, the implementation of a cloud-native RPA solution may pose major data privacy and security for insurers as sensitive information may be exposed (Katke et al., 2019).

c) Competition intensity

The digital era has changed the way insurers conduct business and with the rise of Insurtech, it has become apparent that incumbents need to adopt digital technologies to remain competitive. The effects of COVID-19 and competition intensity are pressuring insurance organisations to explore and adopt RPA to assist them in digitally transforming their processes. According to Lamberton et al. (2016), RPA offers higher efficiency and lower operating costs, which allows insurance organisations to transform their processes and build a competitive advantage.

d) Seamless integration

Lamberton et al. (2016) describe RPA as a non-invasive technology that allows for seamless integration with existing IT systems within an organisation and faster implementation. The literature has highlighted that many insurance organisations still use old legacy systems, and changing the entire IT infrastructure to accommodate a new technology seems like a huge investment that not many are willing to make. RPA vendors have argued that RPA is a non-invasive technology that is compatible with existing IT infrastructure (UiPath, 2020a). Based on RPA's non-invasive compatibility, it is more attractive to insurers that want a technology adoption process with minimal disruptions to normal business operations.

e) Organisational culture

Resistance to change from employees and a lack of management support can result in RPA adoption failures and low usage of the technology within an organisation (Sobczak, 2021). There is a strong chance that the organisational culture may feel threatened by the adoption of new technology, which may pose changes to the existing culture. This view is supported by Lamberton et al. (2016), who write that the success of RPA adoption within an organisation requires a supportive organisational culture that embraces change. Likewise, this study agrees that insurers must utilise change agents to assist in the journey of transitioning the existing culture to be supportive of RPA adoption.

f) Creating value for customers

Insurers are faced with high expectations from digital natives, who expect faster services, paperless processes, reduced costs, and digital engagements. Many insurance organisations cannot afford to lose any more customers due to paperwork (such as KYC, policy documents, and claims) or disengaged manual processes, and are seeking solutions. RPA promises to deliver automated, simplified onboarding processes, faster response rates, and cost benefits through automation. However, a study by Cenfri and Equisoft that explored the effects of automation within the African insurance industry acknowledged the presence of a digital divide amongst African customers and proposed that insurers seeking to adopt RPA should balance automated services with physical engagements to

create value for both non-digital savvy and traditional customers (Schlemmer et al., 2022).

However, the literature is not clear as to which of these antecedents lean towards creating a case for RPA adoption in insurance. It is noted that some of the identified antecedents may not apply to the South African insurance landscape, as most of the reviewed literature is not country specific. In bridging the gap identified, this study aims to contribute to the literature by identifying the antecedents relevant to the South African insurance landscape.

P1: *High volume of manual processes, demands from customers and competition intensity are the key antecedents to RPA adoption in the insurance industry*.

2.7 ANALYTICAL FRAMEWORK

Studies show that the impact of technology adoption on organisations is unpredictable. Some authors have suggested that a newly adopted technology creates opportunities for organisations (Gangwar et al., 2014), whereas others argue that a newly adopted technology may disrupt existing processes, thus having a negative impact on the organisation (Dube et al., 2020).

Dube et al. (2020) define technology adoption as the acceptance and use of new technology by an individual, group or organisation. Studies conducted in the past few decades reveal that technology adoption is an extensively studied area in information systems with several technology adoption models introduced by numerous researchers (Fonseka et al., 2020).

This research focuses on the organisation-level perspective of technology adoption, thus the selection of reviewing the technology-organisation-environment framework (TOE), technology acceptance model (TAM), and diffusion of innovations theory (DOI).

2.7.1 *Technology-organisation-environmental framework (TOE)*

The technology-organisation-environment framework (TOE) is aimed at providing a theoretical lens for the factors influencing IT adoption in organisations

(Tornatzky & Fleischer, 1990; cited by Rosario Oliveira Martins et al., 2011). TOE is regarded as the most utilised framework by researchers conducting studies on technology adoption at the organisational level (Fonseka et al., 2020). Several studies have revealed that the TOE framework is utilised to gain a better understanding of various IT adoptions such as e-commerce, enterprise resource planning (ERP), electronic data interchange (EDI), and knowledge management systems (Gangwar et al., 2014).

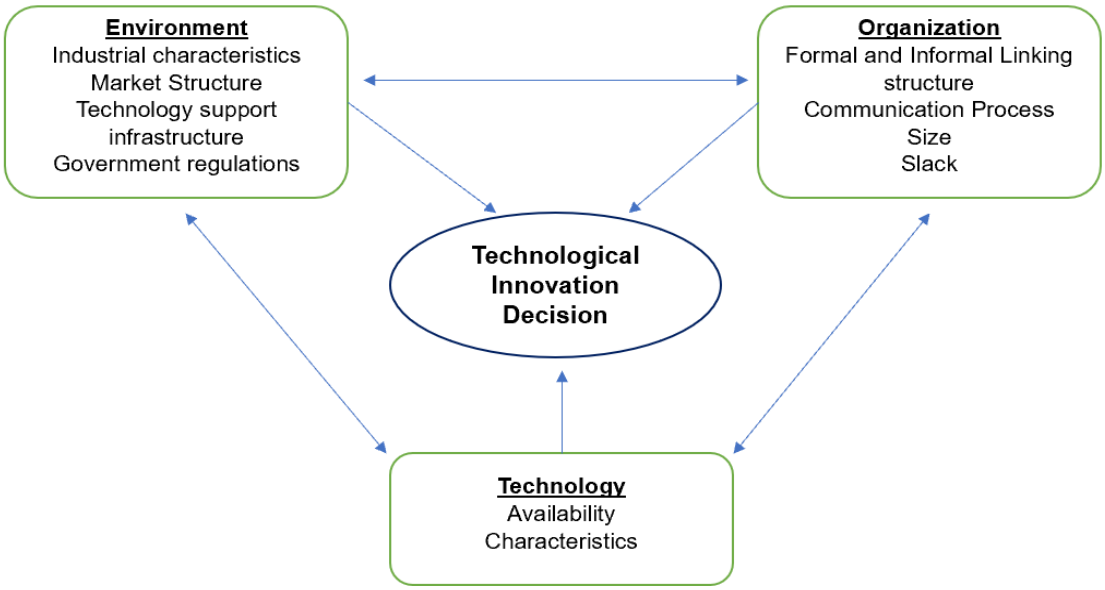


Figure 2-2: Technological, organisational, and environmental framework (Tornatzky & Fleischer, 1990)

The framework identifies three types of contexts – technological, organisational, and environmental – that may influence the adoption and implementation process of new technology by an organisation.

a) Technological context

The technological context considers both internal and external technologies available to the organisation (Fonseka et al., 2020). In this context, the characteristics, competence, and perceived benefits of the technology are cited as significant factors in RPA adoption studies (Gangwar et al., 2015; Julies & Tranos, 2021).

b) Organisational Context

The organisational context relates to the organisation's size, scope, and managerial structure and beliefs (Fonseka et al., 2020; Salwani et al., 2009). Studies have also identified managerial support, degree of centralisation, standardisation of processes, quality of talent, strategic use of technology, trust and organisational slack as significant factors in this context that inhibit and contribute to the adoption of innovations (Iraq, 2020; Julies & Tranos, 2021). However, the factors introduced by Tornatzky and Fleischer fail to include the financial resources available to the organisation, which may influence the organisational inclination to invest and adopt new technologies.

c) Environmental context

This context focuses on the external environment in which the organisation conducts its operations (Salwani et al., 2009). It identifies factors external to the organisation such as industry competition, suppliers' support, and governmental laws as significant factors influencing organisations to adopt technological innovations (Dube et al., 2020; Fonseka et al., 2020; Salwani et al., 2009).

d) Limitations of technology-organisation-environmental framework (TOE)

Despite being cited as the most utilised framework for organisational adoption, there are limitations associated with TOE. For instance, the list of factors identified in TOE is not succinct and their application varies between the three contexts of the framework (Julies & Tranos, 2021). The framework does not provide information regarding the relationship between the contexts (Awa et al., 2017). In addition, it appears that TOE places less emphasis role of the decision-makers as a factor in the organisational context. Based on the RPA it is apparent that management has a significant influence on the adoption process of RPA.

For this study, the TOE framework provides value-added information relevant to explaining and a theoretical foundation of the factors influencing RPA adoption by insurance organisations. However, the integration of the TOE framework with other technology adoption models is supported.

2.7.2 *Technology acceptance model (TAM)*

The technology acceptance model (TAM) was developed by Davis (1989) based on the theory of reasoned action. TAM was commonly used to explain the user's behaviour, beliefs, and attitudes toward accepting and adopting new technological innovations (Pires et al., 2011). The original constructs of TAM suggested five concepts: perceived usefulness (PU) and perceived ease of use (PEOU) that are linked to the users' attitude (ATU) towards using new technology, the behavioural intention (BI) to use, and ultimately the actual use (AU) of new technology (Fonseka et al., 2020). Perceived usefulness (PU) is defined as a relative advantage based on the probability that an employee of an organisation will adopt a technology if it is confirmed that using the technology will enhance their work performance (Pires et al., 2011). Perceived ease of use (PEOU) relates to employees' perception that the use of a certain technology will require less mental and physical effort (Pires et al., 2011).

Most research has focused on the extension of TAM in efforts to expand the constructs of the model by introducing new external variables that influence the user to accept a new technology ((Hoong et al., 2017; Kauffman & Techatassanasoontorn, 2011; R. Sharma & Mishra, 2014). The extensions of TAM, such as TAM 2 and TAM 3 (see Figure 2-3) emphasised external variables (individual and social factors) that influence the adoption of ICT at an individual-level and considered the removal of attitude as a construct to increase the effect of PU and PEOU on behavioural intention (Hoong et al., 2017).

However, from an organisational adoption of technology context, Dube et al. (2020) found the original TAM an appropriate model for predicting the adoption and usage of new technology at an organisational level. In their study, a causal relationship was suggested between the two constructs (PU and PEOU) of the model. It was also suggested that perceived ease of use of technology influences perceived usefulness, which implies that the simplicity of technology makes it more useful to the user.

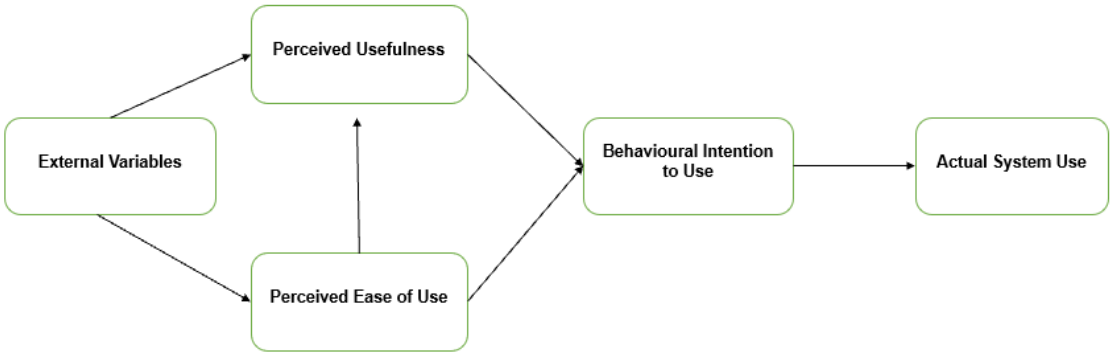


Figure 2-3: Technology acceptance model (Davis et al., 1989; Venkatesh et al., 2003)

a) Limitations of TAM

Extensions of TAM were not conceptualised to address the adoption of technology in an organisational context but rather the individual's acceptance of new technology (Julies & Tranos, 2021). This relates to the commonly cited limitation of TAM in the literature being self-report usage; in that way the model illustrates an individualistic view for PEOU and PU of a new technology which is independent of the usage of others (Koul & Eydgahi, 2017).

Although not focused on individual intent to adopt new technology, this study finds it important for the participants to share their experiences and how they perceive the new technology as this influences the intention to adopt and ultimately use the technology. Drawing on Dube et al.'s (2020) concept of employing TAM in understanding organisational level adoption, this study considers the constructs of PU and PEOU as constructs that describe the organisational perceptions towards the acceptance of RPA technology, thus affecting the decision to adopt RPA.

2.7.3 *Diffusion of innovations theory (DOI)*

Rogers (1995) introduced the diffusion of innovations theory (DOI) that identified innovation, communication channels and the social system as determinants of adoption. The theory defines diffusion as a process that involves an innovation being communicated over time amongst the members of a social system using specific channels (ibid). In an organisational context, innovation can be described as an idea, behaviour, or process new to the organisation (Damanpour & Gopalakrishnan, 1998). The authors further suggest two streams of diffusion of innovation in an organisation: a) generation of innovation – which relates to the internal generation of innovations to be solely used by the organisation; and b) adoption of innovation – which relates to externally developed innovations imported by an organisation (Damanpour & Gopalakrishnan, 1998).

Over the years, organisations have adopted the latest techniques, practices, and technologies to remain competitive in the fast-paced business environment. This has placed greater emphasis on organisations to understand the diffusion of innovations to cope with the changes (Askarany, 2011). In addressing diffusion, Rogers (1995) describes the five characteristics of innovations: relative advantage, compatibility, complexity, trialability, and observability. These characteristics introduce a variety of factors influencing the adoption of innovations in an organisation, such as the level of uncertainty regarding the innovation; cost of the innovation; the expected return of investment associated with the innovation; flexibility; perceived benefits; availability of an innovation; knowledge about the innovation; and lastly, the type of innovation influences the adoption (Askarany, 2003).

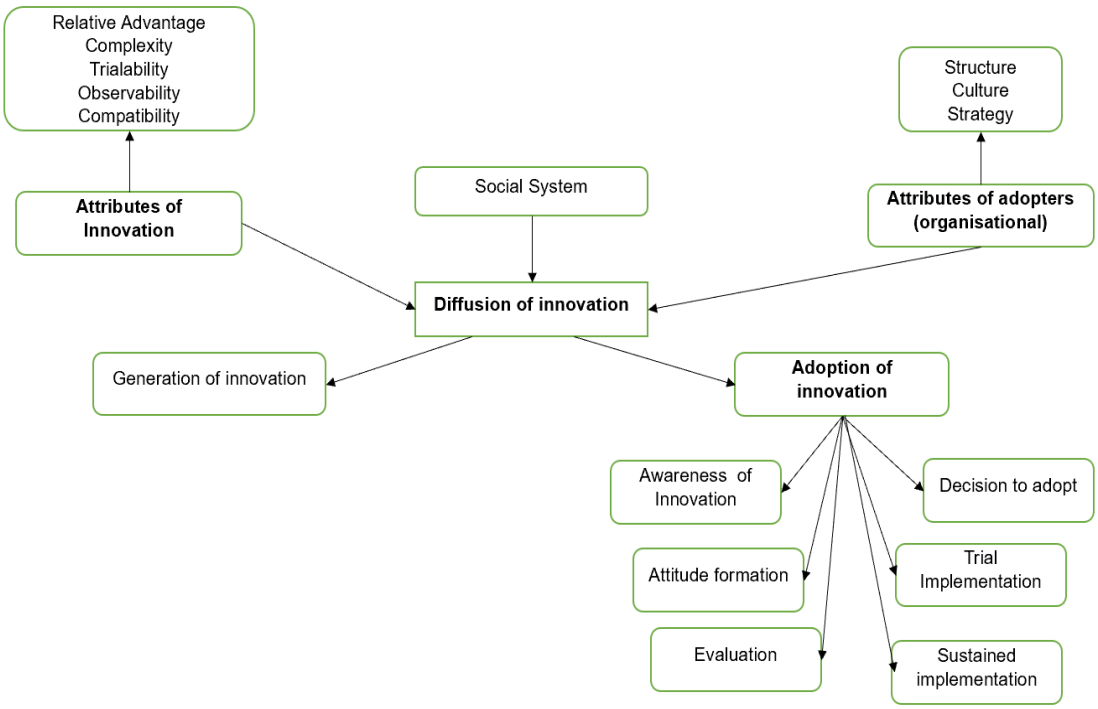


Figure 2-4: A general diffusion model (an adaptation of the diffusion of innovation theory by Rogers, 1995; Askarany, 2011)

a) Limitations of the diffusion of limitations theory (DOI)

While DOI presents a case for the antecedents of technology, it does not distinguish between the causes for the non-adoption or adoption of a technology (MacVaugh & Schiavone, 2010). According to Oliveira & Martins (2011), DOI excludes the analyses of the environmental context in its theory, and the exclusions of environmental variables such as competition pressures limit the theory in explaining intra-organisation innovation adoption.

Therefore, in this study, Askarany's (2011) general diffusion model (which is an adaptation of DOI) is seen as a more relevant model for understanding the influencing factors of RPA adoption by an insurance organisation. It is viewed as providing a comprehensive understanding of the technology adoption process and factors influencing the adoption. However, the focus will be on the attributes of innovation and adopters. The attributes of innovation will be limited to complexity, compatibility, and organisational strategy, and will only be considered as attributes of adopters.

2.7.4 *Integration of the adoption models*

Various empirical and conceptual studies have shown the relevance of using TOE, TAM and DOI in understanding the factors affecting technology adoption. Each model has presented limitations that have justified the integration of models (Awa et al., 2012; Gangwar et al., 2015; Iraq, 2020). Iraq (2020) posited that the integration of various adoption models could increase the adoption of innovative technologies in organisations.

Julies and Tranos (2021) claim that when compared, the constructs of the TOE and DOE show consistencies in models, for instance; **a)** DOI's attributes of innovations with TOE's technological context; and **b)** DOI's attributes of adopters with the organisational context of the TOE. TAM and TOE are regarded as complementary models that have been integrated by previous studies. A TAM-TOE model was used in determining the factors of cloud computing adoption in organisations (Gangwar et al., 2015). Another study used a TAM-TOE model to explain e-commerce adoption by SMEs (Awa et al., 2012).

Several studies have suggested the integration of multiple technology adoption models and theories. In a South African context, a study that reviewed the progression of TAM and TOE suggested an approach to integrate the two models (Julies & Tranos, 2021). Another study considered the constructs of TAM, TOE and DOI to better understand the adoption of job automation technologies across various industries (Abdulla, 2019). In support of integrating multiple adoption models, Nesindande, (2020) incorporated TAM, DOI and motivational model into one framework to understand the experiences of human resources concerning the implementation of RPA in commercial banking (Nesindande, 2020). In the same vein, this study integrates the three models into a conceptual framework aimed at obtaining a comprehensive understanding of the factors influencing RPA adoption in SA's insurance industry, as discussed in the following section.

2.8 Conceptual framework

Based on the review of multiple theories and models regarding the adoption of new technology at an organisational level, a framework for identifying factors influencing the decision to adopt RPA was developed (see Figure 2-5). The framework acknowledges that the ultimate adoption of new technology within an organisation requires a phased approach. Drawing from the existing literature on the adoption process, this study adopted a four-staged adoption process, an adaptation of the five stages in the innovation-decision process by Rogers (2003). The framework acknowledged that different factors influence the adoption of new technology at different stages of the adoption process. The first stage of the adoption process (referred to as **Knowledge**) adopted the external and internal variables selected from DOI's innovation characteristics and TOE framework and were framed to complement the RPA adoption process. The second stage (referred to as **Piloting**) considered organisational behaviour towards the technology after a trial implementation (initial human-technology interaction). Then, stage three of the framework considered perceptions of these factors on the decision to adopt or reject RPA within an insurance organisation. Lastly, dependent on the decision to adopt, the final stage of the framework considers the adoption and use of RPA in the insurance organisation.

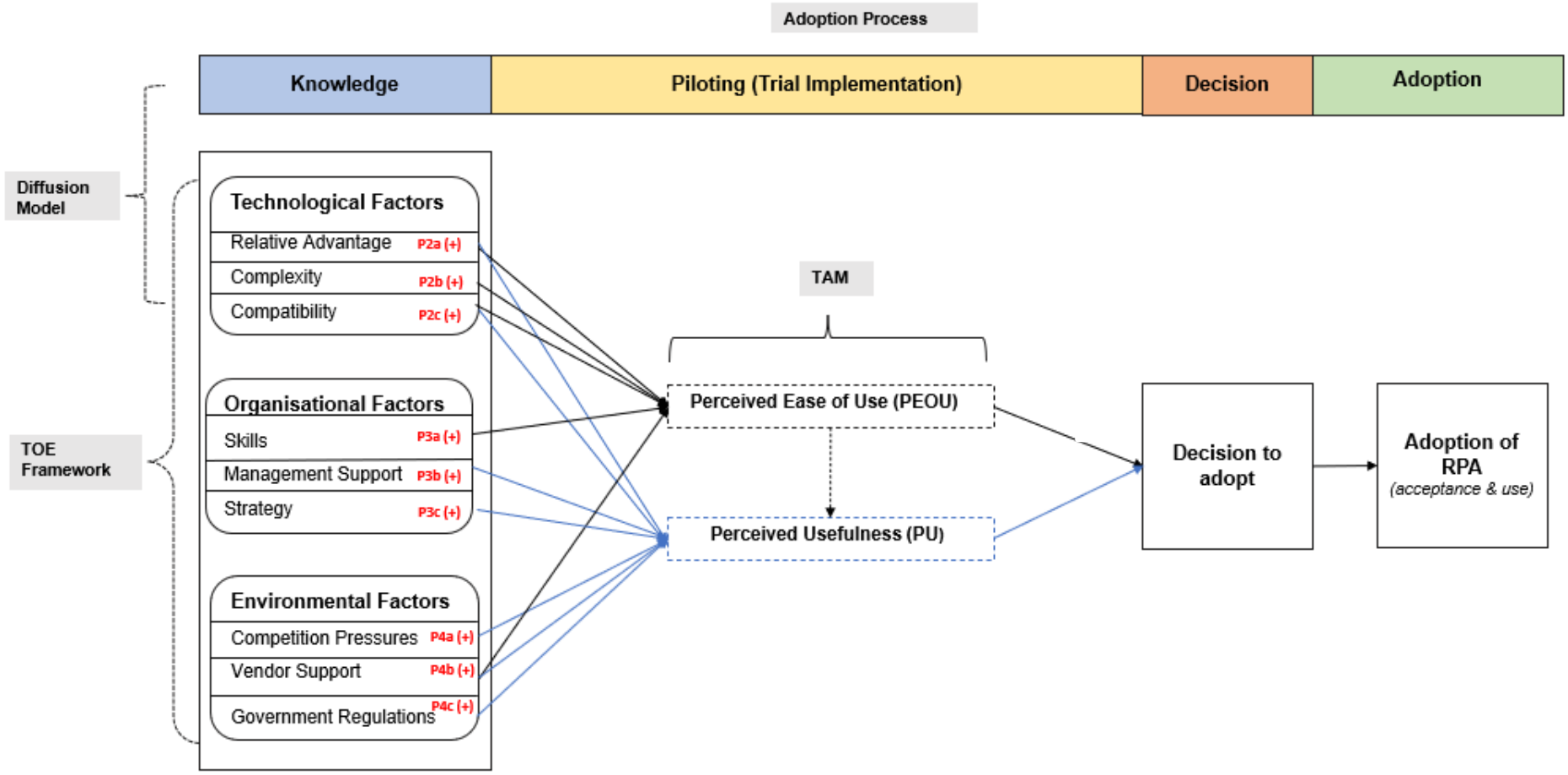


Figure 2-5: TOE-DOI-TAM Conceptual Framework

Solid lines (shapes) – represent independent and dependent variables.
Dashed lines (shapes) – represent mediating variables.

2.8.1 *Adoption process*

The adoption process is an adaptation of DOI's innovation-decision process model which highlights the stages that an adopter goes through when adopting new technology. For this study, the RPA adoption process followed four stages.

a) **Knowledge:** This stage involves two steps: a) a knowledge gathering step, which is heavily influenced by external factors that spark interest and awareness of technology for the potential adopter; b) the evaluation step, which involves that the adopter will be using information obtained to create a business case for the adoption of the technology.

b) **Piloting (trial implementation):** this stage refers to the small-scale implementation, the initial organisation-technology interaction where the viability of the technology is tested. The success of this phase is heavily influenced by whether the technology is perceived to be easy to use and useful to the organisation (attitude formation).

c) **Decision:** this stage leads to either the adoption or non-adoption of the technology.

d) **Adoption:** at this stage, the adopter acts upon the decision taken. In the case of deciding to adopt RPA, this phase will include the acceptance and use of RPA by the insurance organisation.

In understanding the contextual factors influencing the adoption of RPA by SA insurance organisations, the following factors have been identified.

2.8.2 *Technological factors*

In terms of technological factors, perceived benefits, complexity, and compatibility of RPA are considered for this study. The **relative advantage** in this study refers to the perceived benefits of RPA. These benefits, derived from RPA implementation in insurance, extend beyond improving efficiency and cost reduction (Capgemini, 2017; Lamberton et al., 2016). The expectation from RPA

is that through the adoption, employees will be relieved of repetitive and manual tasks to focus on higher-value tasks; however, recent RPA cases in insurance show benefits such as personalisation and selling opportunities, cost advantage (savings) over RPA laggards, and enhanced customer experience through self-service processes (WNS, 2018; Oza et al., 2020). This study then proposes:

P2a: *Relative advantage is positively associated with the perceived usefulness (PU) and perceived ease of use (PEOU) of RPA.*

Complexity relates to the level of difficulty in using and understanding a new technology by the potential adopters (Askarany, 2011). For this study, complexity was associated with the user-friendliness of RPA and easy-to-follow automation processes. Lanfranchi and Grassi (2022) warn against undocumented RPA processes which contribute to the complexity experienced by users of the technology. In their study, they found that when compared with other automation technologies like artificial intelligence and machine learning, RPA is regarded as a simpler automation technology; hence, the following proposition is made:

P2b: *Complexity is positively associated with the perceived ease of use (PEOU) of RPA.*

Compatibility refers to the level of consistency of innovative technology with legacy systems (Askarany, 2011). In the RPA adoption, this may relate to how compatible RPA is with the IT /internal systems of the organisation and whether the adoption will cause major interruptions to normal business operations. The perception that RPA is a non-invasive technology makes it compatible with many IT existing systems (Ivančić et al., 2019). However, a study by KPMG highlights that, for many South African insurance organisations, there is a high usage of old legacy systems that may not be compatible with newer technologies such as RPA. Furthermore, the study suggests that insurers may be required to make investments towards updating or changing the current IT infrastructure (KPMG South Africa, 2021). Based on the literature reviewed, the following proposition is made:

P2c: *Compatibility is negatively associated with the perceived usefulness (PU) and perceived ease of use (PEOU) of RPA.*

2.8.3 *Organisational factors*

Considering the **skills** required to effectively use RPA, it is the technology's simple nature and the fact that little/no formal programming skills are required to use RPA that make it attractive to many organisations intending on automating their processes (WNS, 2018). However, some studies argue that the initial setup of RPA and automating more complex processes will require expert skills and capabilities (Lacity et al., 2016; Lamberton et al., 2016). While RPA research debates the skills required for RPA, a recent report on the future of automation in South Africa highlighted two skills issues: RPA skills shortages in South Africa, and a high migration rate of RPA professionals leaving South Africa for international opportunities(Burrows, 2022). This is supported by earlier observations that suggested that there is a short supply of RPA developers in South Africa (Solutioneers, 2020). Based on the literature, this study assumes that a shortage of skills in the current SA insurance industry will negatively affect RPA adoption, thus the following proposition is made:

P3a: *The current skills in the South African insurance industry* are *negatively associated with the perceived ease of use (PEOU) of RPA.*

In a previous study, **management support** was regarded as a significant factor in the decision to adopt or non-adopt RPA within the organisation (Juntunen, 2018). Managerial support acts as a facilitating factor in the adoption process (acceptance and use) of RPA in the insurance industry, but it is worth noting the failure and non-adoption of RPA are high when there is no management buy-in from the start (Lamberton et al., 2016). Consequently, management support is considered a significant factor influencing the perceived usefulness of RPA within the insurance industry, thus the following proposition is made:

P3b: *Management support is positively associated with the perceived usefulness (PU) of RPA.*

The Covid-19 pandemic has accelerated that digital shift amongst SA's insurance organisations, with most SA insurers adopting clear and aggressive modernisation strategies, from the digitalisation of processes (paving the way for RPA and AI usage) to creating customer-centric products (Kean, 2020).

Strategy refers to an organisational strategic approach to selecting business processes to automate and RPA-business alignment (Lamberton et al., 2016). In their study, Lamberton et al. (2016) listed strategy as one of the challenges in the RPA implementation processes, citing that many insurance organisations lack the business-IT strategic intent, and hence target wrong or fewer value processes to automate, which results in higher RPA implementation costs and requires additional efforts from employees. In support, Choi et al. (2021) state that organisations vaguely define the RPA adoption plans, citing the complexities in strategic planning. However, the study by Choi et al. (2021) highlighted that the absence of an RPA strategy may increase failure in RPA projects. Rawashdeh et al. (2022) argue for the importance of an RPA strategy, and further suggest that organisations intending on adopting RPA should begin with a strategy to realise the benefits of the technology. However, based on the literature reviewed, strategy is perceived as a challenge for most organisations adopting RPA, hence the following proposition is made:

P3c: *Strategy is negatively associated with the perceived usefulness (PU) of RPA.*

2.8.4 *Environmental factors*

Competition pressures refer to pressures from other organisations that have adopted RPA within the insurance industry. The role of Insurtech and micro-insurance is recognised as a positive motivator that places pressure on insurance incumbents to adopt digital technologies (Moodley, 2019).

The South African Insurance Outlook 2021, a study conducted by Deloitte, found that within the insurance industry, first movers to adopt digital technologies in their organisations tend to maintain a competitive advantage over the digital laggards. These early adopters were also found to have seamlessly operated during the pandemic (Deloitte, 2021). This notion is also applicable in the context of insurers adopting automation technologies such as RPA. Rawashdeh et al. (2022) say that while there are early adopters in every industry, most companies have evident mimetic isomorphism in their adoption of RPA. Based on the literature reviewed, the following proposition is made:

P4a: *Competition pressures within the SA insurance industry are positively associated with the perceived usefulness (PU) of RPA.*

Vendor support refers to the service providers of RPA that assist insurance organisations with the adoption and successful implementation of RPA projects (OpenSky Data Systems, 2020). RPA vendor selection is identified as a challenge for most financial and insurance industries implementing RPA. Many seek business partners that will provide a reliable product at a reasonable price and provide post-sale support (Fox et al., 2021). For many insurers seeking to adopt RPA, vendor support is a key demand in resolving data protection and other security concerns relating to RPA. The support extends to vendors providing adequate post-sale support and training to ensure effective utilisation of the RPA software technology. Based on the literature reviewed, the following proposition is made:

P4b: *Vendor support is positively associated with the perceived usefulness (PU) and perceived ease of use (PEOU) of RPA.*

In the South African context, government regulations lag as opposed to the fast-changing technology landscape (Farhat, 2019). **Government regulations** relate to laws organisations need to consider before adopting RPA. Katke et al. (2019) highlight the complexity of automation within the financial services sector and the impact it may have on customers. In their study, it is suggested that adopters of automation need to study and comply with regulatory laws to safeguard the interests of customers. However, some studies acknowledge that statutory obligations may impact adoption but have found this factor as a less significant influence on RPA adoption (Tew, 2019; Katke et al., 2019). Concerns about data privacy and the legal implications of using RPA may negatively affect the adoption; hence, the following proposition is made:

P4c: *South African government regulations are negatively associated with the perceived usefulness (PU) of RPA.*

2.8.5 *Perceived ease of use (PEOU) and perceived usefulness (PU) of RPA*

PEOU describes the users' perception that new technology is easy to use and user-friendly (Gangwar et al., 2015). This study considers the following fundamentals in understanding how the users of RPA perceive the technology to be easy to use or not: a) there are factors identified as influencing the perceived ease of use; b) the study assumes RPA's ease of use can only be evaluated on the user's initial interaction with the technology, which is during the piloting stage. This conceptual framework agrees with the view that a technology regarded as easy to use and easy to understand is perceived to be more useful to the adopter; hence it is likely to be adopted. For this study, PEOU and PU are regarded as mediating variables. This entails that the influence of TOE factors on the decision to adopt will be significantly influenced by how RPA software technology is perceived by the user.

2.9 Summary of Chapter 2

Existing literature has demonstrated the importance of insurance organisations making investments towards digital technologies like RPA to remain competitive. In summary, this chapter has presented the literature around RPA, the types of RPA applications, and the benefits and limitations of RPA. It has also highlighted that, although RPA has been implemented within the insurance industry, there are limitations in academic research on RPA in a South African context. Furthermore, a critical review of the TOE framework, technology acceptance model and diffusion of innovations theory has been presented to provide a theoretical orientation to this study. This study found that the application of the models individually resulted in limitations, hence the proposal of an integrated conceptual framework. The conceptual framework presented aims to contribute to the academic literature on RPA adoption whilst giving local insights on factors affecting the adoption of RPA from a SA insurers' perspective. To date, several studies have suggested a multi-perspective model be used for a comprehensive view of the factors influencing technology adoption at an organisational level.

CHAPTER 3. RESEARCH METHODOLOGY

This chapter describes the methodological approach adopted in this study. The chapter is divided into sub-sections that include the selected research design and methodology, followed by the data collection method. Thereafter, a discussion on the chosen data analysis strategy and interpretation of findings is presented. This chapter will also present the limitations of the chosen methodology and provide details on the quality assurance of this study and, finally, the ethical considerations.

3.1 Research methodology and design

Creswell (2007) describes the philosophical assumptions of the research as the researcher's standpoint on the development of human knowledge. In qualitative research, these assumptions consist of ontology, epistemology, and axiology (Creswell, 2007). An ontological assumption questions the characteristics and nature of reality, and an epistemological assumption is based on the understanding of workings of the world (Creswell, 2007), whereas an axiological assumption questions the role of values in the research by combining both ontological and epistemological stances (Teherani et al., 2015). In this study, the realities (ontology) of RPA within the insurance industry are known, which include the benefits of RPA adoption to the insurers. However, the understanding of current drivers of RPA adoption and how technological, environmental, and organisational factors influence the adoption are unknown; hence, epistemological philosophy was deemed appropriate for this study. Epistemology allows the researcher to understand what is known about the adoption of RPA in the South African insurance industry and how the known factors influencing the adoption of RPA are perceived as positive or negative by the participants of this study.

According to Sreeja and Shanthini (2018), the emergence of RPA has disrupted the insurance market. This automation technology has revolutionised core insurance business operations; however, the adoption of RPA presents both opportunities and challenges for insurers (Akkor & Ozyuksel, 2020; Lamberton et

al., 2016; Lanfranchi & Grassi, 2022). Given that there are varying views on the impact of RPA in the insurance market, an interpretive approach is used in this study, which is one of the epistemological stances. Interpretivism lends itself to discovering insights about a new phenomenon from an individual's perspective. It is also found to be flexible enough to explore different explanations of the research problem, thus allowing the study to refine the focus into a narrower context as the research progresses (Saunders & Lewis, 2018). The reasons for selecting interpretivist philosophy are that it is compatible with qualitative methods of collecting data (Saunders & Lewis, 2018). Furthermore, the chosen philosophy enabled this study to seek multiple views on understanding the complexities of this topic, which included uncovering the underlying drivers (antecedents) of technology adoption at the organisational level as well as the contextual factors influencing the RPA adoption process within the South African insurance industry.

This study is framed with assumptions influenced by the characteristics of qualitative research (Kothari, 2004). While inductive forms of reasoning are often associated with qualitative research, which involves drawing from a set of multiple premises (observations and data findings) and combining them to formulate a general theory (Saunders & Lewis, 2018), this study used abductive reasoning, which refers to the iteration between empirical data and existing theories found in the literature (Saunders & Lewis, 2018). Since the purpose of this study was to utilise existing theories as a guideline for the data collection process as opposed to generating a new theory from the data collected, the abductive reasoning approach is deemed appropriate. This approach allowed for this study to identify contextual factors influencing technology adoption from existing research and technology adoption theories whilst using empirical data to refine contextual factors emerging from analysis to better understand the RPA adoption process from an insurance perspective.

While many studies addressing the adoption of RPA at an organisational level have used a case study design to test the factors influencing the adoption of technology based on a single adoption model (Flechsig et al., 2022; Holmberg & Härning-Nilsson, 2020; Pillay & Njenga, 2021), an exploratory design was

selected for this study. This research design focuses on understanding and gaining new insights on the topic through the integration of adoption models and empirical data from those who have interacted with RPA within the insurance landscape. The exploratory research design provides an opportunity to generate new ideas on a particular topic (Kothari, 2004), hence it was deemed to be appropriate for this study, as the study attempted to uncover the antecedents behind RPA adoption in the insurance industry and address the different perceptions of factors influencing RPA adoption based on the individual's experiences.

Based on the timeframe and limited financial resources allocated for the completion of this study, a cross-sectional timeframe was chosen for the data collection. Cross-sectional research is defined as a study of a specific topic conducted over a single period, i.e., a "snapshot", and allows for the analysis of multiple variables (Saunders & Lewis, 2018). Additionally, the use of cross-sectional methods allowed this study to conduct a quick and inexpensive data collection process. The study used semi-structured interviews and secondary data in the form of industry documents to identify the antecedents of RPA adoption and ascertain the perceived influences of the various factors.

3.2 Unit of analysis

This study understood that the adoption process of the RPA within the insurance industry involves both insurance organisations and the RPA vendors; therefore, the two units were considered for the analysis. The study identified senior managers within insurance organisations and RPA vendor companies. The reason for the two units of analysis was to allow the study to obtain perspectives from those with a direct strategic influence on the decision to adopt RPA within an organisation. It was also important for this study to provide insights from both sides (suppliers and adopters) involved in the RPA adoption process. This allowed for the richness in data and participant enrichment of the study.

3.3 Population

Saunders and Lewis (2018) define the research population as all the elements, people, objects, events and services of a particular group, organisation, or universe. The target population refers to a population with specific interests in the research topic. This may include individuals or organisations that meet the sample criteria of the researcher (Klopper, 2008). For this study, the target population included insurance organisations that have adopted RPA, senior technical and business managers within the insurance industry, and RPA vendors that have procured RPA services from insurers. However, this study found it impossible to identify all the senior managers that are directly involved in the RPA adoption within the insurance industry, hence the sampling frame for this study could not be determined. A sampling frame is referred to as a source list consisting of all members of a targeted population (Saunders & Lewis, 2018).

3.4 Sampling methods and sizes

Sample designs can be categorised into two types, viz., probability and non-probability sampling. Saunders and Lewis (2018) describe probability sampling as a technique used for the random selection of a sample from a known sampling frame, whereas non-probability sampling relates to a technique used when the sampling frame is unknown or inaccessible to the researcher. For this study, non-probabilistic sampling is due to the inaccessibility of the sampling frame. Initially, participants were carefully selected based on purposive sampling. Purposive sampling is also referred to as subjective sampling, and it is based on the researcher's judgement when selecting the participants of the study (Saunders & Lewis, 2018). However, due to low response in the predetermined sample list during the pilot stage of the study, the snowballing sampling method was also employed for participant enrichment. Snowballing sampling also forms part of the non-probability sample technique, in which the initially identified participants of the study will provide referrals and recommendations of potential candidates that can form part of the study (Saunders & Lewis, 2018). Therefore, this study made use of both purposive and snowballing sampling methods in the selection of the participants. The selected sample was found to be crucial in addressing the

research questions as all the participants were chosen based on the following characteristics.

a) Participants should have similar RPA experience – all participants were selected based on their involvement in the RPA adoption process.
b) Homogeneity – All participants occupied senior management positions (similar level of occupation).

This study also employed some degree of heterogeneity in the sample characteristics. Participants should belong to an organisation, which could be either an insurance organisation or an RPA company only. RPA vendors were chosen to provide information from a supplier or technology owner context whereas insurers were to provide information from an adopter or user context based on their interaction with RPA. The approach of applying some degree of heterogeneity was to provide minimum variation in the data collected, thus generating deeper insights into the factors influencing RPA adoption in the insurance industry.

According to Creswell (2007), a sample size of between five (5) and twenty-five (25) participants is recommended for semi-structured interview data collection methods. Due to time constraints, in this study a sample size of a total of twenty (20) sources of information was selected, which comprised seventeen (17) participants and three (3) industry documents. However, only twelve (12) participants were interviewed out of the seventeen (17) participants targeted for this study, which results in a 70.59% response rate. The response rate for this study is found to be suitable and aligns with the recommendations for semi-structured interviews by Creswell (2012). The demographics of the participants involved in the study are provided in Table 3-1, and any identifiable information obtained during the interviews remained anonymous.

In addition to the sample for the semi-structured interviews, three (3) industry documents were selected for analysis. The selection of these documents was limited to published reports from the three commonly used RPA vendors such as UiPath, Automation Anywhere and Blue Prism, which have partnered with South African insurers on their RPA adoption journey.

Table 3-1: Participants of the study

Participant ID	Industry Classification	Role	RPA Adoption Process: Involvement
Participant A	Insurance	Automation Head	Decision Stage
Participant B	RPA Vendor	Divisional Head: RPA Implementation	Knowledge & Decision Stage
Participant C	RPA Vendor	Senior Business Process Engineer	Piloting Stage
Participant D	RPA Vendor	Head Architect: Intelligent Automation	Knowledge & Piloting Stage
Participant E	Insurance	Business Intelligence Manager: Underwriting	Piloting & Decision Stage
Participant F	Insurance	Executive Head: Insure Distribution	Decision Stage
Participant G	RPA Vendor	Business Development Manager	Knowledge & Decision Stage
Participant H	RPA Vendor	Implementation Partner: RPA Developer	Implementation Stage
Participant J	Insurance	Senior BI Developer	Piloting & Implementation Stage
Participant K	Insurance	Lead Architect: Process Re-engineering	Decision & Implementation Stage
Participant L	Insurance	Digital Program Manager	Knowledge & Decision Stage
Participant M	Insurance	Data & Analytics Manager	Implementation Stage

This study also acknowledges that for purposive sampling the size of the sample is dependent on theoretical saturation. Theoretical saturation, also known as data saturation, refers to a point during the data collection process where little or no new information can be found to generate new themes to address the research questions (Glaser & Strauss, 1967, as cited in Guest et al., 2020).

3.5 Data collection process

The data collection procedure followed a series of steps aimed at collecting rich data to gain a deeper understanding of the factors influencing RPA adoption in the South African insurance industry.

a) Development of the interview guide for the semi-structured interviews

The interview questions are based on the factors identified in the conceptual framework and open-ended questions regarding the antecedents driving RPA adoption within the industry.

b) Recruiting participants for the study.

The recruitment strategy began with recruiting participants through professional connections, such as the Insurance Institute of South Africa (IISA). However, with regard to recruiting RPA vendor participants, engagements with the gatekeepers of those companies were made to obtain consent to conduct interviews. Gatekeepers refer to people in administrative positions such as HR or secretaries (Kabir, 2016). In addition, a social platform like LinkedIn was used to reach potential participants, followed by a formal request via email.

c) Interviewing the participants

Upon obtaining informed consent from participants, interview guidelines were sent to the participant before the interview session. This allowed participants to acquaint themselves with the topics to be covered. All interviews were conducted in a digital setting via Microsoft Teams, with a time allocation of 30-45 minutes per interview. The sessions allowed for follow-up questions to be asked by the participants and an open discussion to cover any additional factors the participants found had influenced the adoption of RPA in their organisation.

d) Documenting the interviews

Interviews were recorded via the Microsoft Teams platform and transcribed thereafter.

3.6 Research instrument

The research instruments are supported by the research approach and design for this study, and semi-structured interviews and documents were chosen for this study.

3.6.1 *Semi-structured interviews*

The semi-structured interviews were guided by open-ended questions derived from the analytical framework and literature of other similar studies that explored the adoption of RPA in the financial services sector. Semi-structured interviews were selected because they ensure that rich information is captured from the interviewee since the conversation is not fully structured (Kothari, 2004). This merit ensured the gathering of rich and comprehensive data from the research participants. Furthermore, semi-structured interviews enabled the participants to engage in lines of conversation following themes but simultaneously allowing a degree of flexibility in responses from the participants.

Following Kabir's (2016) semi-structured interviewing method, this study made use of an interview guide that consisted of a list of questions to be covered during the interview sessions. The interview guide questions were based on the factors identified under the technological, organisational and environmental contexts of the conceptual framework (see Figure 2-5). Furthermore, the questions of the interview guide aligned with the research questions of this study as shown in Table 3-2.

Table 3-2: Consistency table (interview questions and research questions)

Research Questions *(see Chapter 1.4)*	**Interview questions** *(see APPENDIX C: Research Instrument)*
RQ.1. What are the potential antecedents to RPA adoption in the South African insurance industry?	Question 2. Antecedents of robotic process automation adoption (include questions 2.1. and 2.2.)

RQ.2. What factors influence the adoption of robotic process automation (RPA) in the South African insurance industry from a technology, organisational and environmental perspective? **RQ.2.1** Which factors are perceived to have a positive influence on RPA adoption by the South African insurance industry?	Questions 3, 4 and 5 (including 3.1. – 3.3.; 4.1. – 4.3 and 5.1. – 5.3.)
RQ.2. What factors influence the adoption of robotic process automation (RPA) in the South African insurance industry from a technology, organisational and environmental perspective? **RQ.2.2** Which factors are perceived to have a negative influence on RPA adoption by the South African insurance industry?	Questions 3, 4 and 5. (including 3.1. – 3.3.; 4.1. – 4.3 and 5.1. – 5.3.)

3.6.2 *Documents*

Documents as a research instrument refer to gathering existing documentation such as reports and using cases that have already been published by organisations (Kabir, 2016). For this study, documents formed part of the secondary data that was collected and analysed. The industry documents were obtained from publicly available sources and used as confirmation of facilitating conditions (antecedents) driving the RPA adoption in the South African insurance industry as identified during the interviews.

3.7 Data analysis strategy

The most widely used data analysis method for qualitative data is thematic analysis, which was developed by Braun and Clarke (2006). In their study, they identified six phases in thematic data analysis; however, in this study, a five-phased approach was applied which is an adaptation of Braun and Clarke (2006).

a) **Phase one:** The first step of the data analysis involved the use of the Otter.Ai software to transcribe the recording of the interviews. The Otter.Ai software uses artificial intelligence to transcribe real-time meeting notes from recordings (Otter.Ai, 2022). Thereafter, the data familiarisation step followed, where the transcripts were read and re-read to identify any recurring comments and correct errors that may have emerged from the automated transcription process.

b) **Phase two:** This phase involved the generation of initial codes. All transcripts were uploaded to the Nvivo code creation software, and these codes were generated from the common phrases or sentences found in the transcribed interview data (as shown in Figure 3-1).

Interview Extract (Reference)	Initial Codes	Final Codes
A major benefit of RPA adoption is speed to market, for example, you know, if a customer is in the market for a new policy, whichever insurer can respond to their request quickest and automate that process. RPA allows insurers to have a competitive advantage over the insurer that waits for a call or request from whatever channel from a prospective client	Speed to Market Automated processes. Competitive Advantage	Relative Advantage

Figure 3-1: Coding qualitative data - extract from Participant B's interview transcript

c) **Phase three:** Thereafter, the initial codes generated were collapsed into single “final” codes to align with the factors as identified in the conceptual framework under the Technological, Organisational and Environmental factors (as shown in Figure 3 1). The use of abductive reasoning allowed for the grouping of final codes under three TOE themes that represent the propositions of the study.

d) **Phase four:** This step involved reviewing the themes developed in stage three above by separating, combining, and discarding some themes. This study adopted the Guest et al. (2020) method of determining and assessing thematic saturation in qualitative research. This method recognises new codes emerging from the interview data until data saturation is reached and calculates the “new information threshold”. The findings of the data saturation method used in this study are found in Chapter 4.2.3.

e) **Phase five:** The final step involved the translation of the analysis into a report with a complete story of the data emanating from the themes defined and named in phase four.

3.8 Quality assurance

3.8.1 *Transferability*

Transferability refers to the attempt to generalise study findings and apply them to different circumstances and contexts (Moon et al., 2016). It must be noted that this study did not seek to generalise the findings to all financial institutions but to make sense of the factors influencing RPA adoption which are limited to the insurance industry in South Africa.

3.8.2 *Credibility*

Credibility is built through a prolonged engagement in the field, persistent observation, triangulation exercise and a search for negative instances that

challenge the research's propositions (Nowell et al., 2017). For this study, credibility fit was ensured through the following actions.

a) **Member-checking** – a copy of the transcript of the interview was shared with the participants as a check or confirmation that their views were accurately interpreted and for the participants to provide additional insights if necessary.
b) **Triangulation of sources** – the study involved interviews with both insurers (who serve as RPA clients) and RPA vendors to obtain different perspectives regarding RPA adoption in the insurance industry.

3.8.3 *Dependability*

Dependability refers to the consistency and reliability of the research findings and the degree to which research procedures are documented, allowing someone outside the research to follow, audit, and critique the research process (Moon et al., 2016).

a) **Inquiry audit** – auditing was done through engagements with the supervisor to obtain an external opinion regarding the data collection and analysis, and guidance on how to draw conclusions from the findings.
b) **Data consistency** – to check for carelessness and mistakes during the collection and interpretation of the data, a data consistency table was used to ensure that the study is free from errors.

3.8.4 *Confirmability*

Confirmability of a study requires the researcher to demonstrate how findings have been interpreted and how conclusions were drawn (Nowell et al., 2017). For this study, the reasons for the selected theoretical frameworks, chosen methodology, and analytical choices have been present throughout the study. However, establishing the confirmability of the study requires dependability, credibility, and transferability to be achieved first (Korstjens & Moser, 2018).

Reflexivity – a reflexive journal was kept throughout the data collection and analysis process, where the contents of the semi-structured interviews were summarised to showcase any overlapping themes that appeared in the reflexive notes.

3.9 Ethical considerations

In alignment with the ethical rules and conduct stipulated by the university for research involving humans, and although this study posed minimal to no risk to the participants, ethical clearance was obtained before the commencement of the data collection process (see Appendix D). The following ethical considerations were observed:

3.9.1 *Voluntary participation*

A virtual introductory meeting was conducted to inform the potential participants about the purpose of the study and other information about the data collection method (see Appendix A). Participants were further advised on the voluntary nature of the study, and that, should they feel uncomfortable at any time during the interview they had the right to terminate their participation in the research.

3.9.2 *Consent*

Upon their verbal agreement to participate in this study during the introductory meeting, written consent from the participants was sought before the interviews were conducted. The consent form (see Appendix B) was emailed to participants after the introductory meeting with the attachment of the interview guidelines for the semi-structured interview.

3.9.3 *Confidentiality and anonymity*

Confidentiality refers to the measures taken by the researcher to safeguard the data collected from participants of the study from the discovery of others, whereas anonymity describes the condition where the identity of the participants is not

known to other researchers (Barrett & Twycross, 2018). In this study, the records of the data collected were stored securely (password-protected laptop and backed in cloud storage). The names of the participants and their organisations were kept anonymous in this study.

3.10 Limitations

The limitations or challenges of this study are structured under the following sub-sections.

a) **Research methodology –** The main disadvantage of this research design is that the nature of epistemology is often subjective, and its interpretive stance can be viewed as incompatible with the logical and objective stance found in most ICT studies. However, Mwadulo and Odoyo (2020) put forward that the phenomenological approach provides a sociological perspective in uncovering the attitudes of people and the root cause behind complex problems in ICT studies.
b) **Sample size –**The participants of this study represent a small sample size of the target population; participation was limited to insurance organisations that have adopted RPA and excluded those who had not yet adopted the technology.
c) **Limited prior research on the topic –** While there has been an uptake on RPA adoption and implementation studies globally, literature has revealed a lack of prior studies on this topic from a South African insurance perspective.
d) **Timeframe –** the timeframe available to conduct this research was constrained by the due date as stipulated by the university. Consequently, this study was limited to a cross-sectional design that allowed for a quick data collection method over a short period.

CHAPTER 4. RESEARCH FINDINGS AND DATA ANALYSIS

4.1 Introduction

This chapter presents the findings of the research and the analysis of the data collected from the semi-structured interviews with the thirteen participants in this study. The data derived from the interviews was collated to determine the factors influencing the adoption of robotics process automation (RPA) in the South African insurance industry.

The conceptual model (TOE-TAM-DOI model) was used as a guideline in identifying the influencing factors, but six interviewees argued that change management and the cost relating to the technology are deemed to be appropriate factors that will influence the adoption and acceptance of RPA in an insurance organisation. Recent literature also provided a scant number of adoption model examples including change management and cost as factors influencing the adoption of RPA within an organisation.

The section is structured into three sections: Section 4.2. Outcomes of the thematic analysis; Section 4.3. A presentation of the findings; Section 4.4, 4.5. and 4.6, a narration of the findings derived from the interviews in line with the research questions, and lastly, Section 4.7 concludes this chapter.

4.2 Thematic analysis

Thematic analysis was conducted to understand the participants' experiences and views concerning the antecedents and factors influencing the adoption of RPA within the South African insurance industry.

4.2.1 *Coding*

Using NVIVO code creation, the total number of codes generated per participant is listed in Table 4-2, with each participant's transcript generating fourteen (14) codes and above. This is indicative of the richness of the interview data collected.

Table 4-1: Summary of initial codes per participant

Participants	Industry Classification	Codes
Participant A	Insurance	20
Participant B	RPA Vendor	19
Participant C	RPA Vendor	18
Participant D	RPA Vendor	20
Participant E	Insurance	16
Participant F	Insurance	17
Participant G	RPA Vendor	16
Participant H	RPA Vendor	16
Participant J	Insurance	15
Participant K	Insurance	14
Participant L	Insurance	14
Participant M	Insurance	16

4.2.2 *Themes*

Semi-structured interviews conducted followed predetermined codes to test the conceptual framework, but the flexibility of the interview structure allowed for new codes to be generated. Therefore, based on the data gathered from the participants, two emerging codes were introduced that were initially not considered in the conceptual framework.

In terms of organisational factors, **a) Change Management** code is introduced as a factor and **b) Technology Awareness** code has been included as a factor under technological factors. Further research was conducted to validate the inclusion of these factors in the framework. As seen in Chapter **Error! Reference source not found.**, there is corroboration in the revised literature reviewed that supports technology awareness and change management as factors influencing the adoption of RPA in the South African insurance industry.

Table 4-2: Summary of themes

Themes	Codes	Sources (No. of Participants)	References
Antecedents	Customer Experience	12	21
	Cost Savings	7	9
	Streamlined Processes	10	24
Technological	Relative Advantage	12	49
	Complexity	12	32
	Compatibility	12	25
	Cost	11	26
Organisational	Management Support	11	21
	Skills	12	36
	Strategy	12	46
	Change Management	6	22
Environmental	Competition Pressures	11	23
	Government Regulations	10	25
	Vendor Support	12	33
Challenge	Technology Awareness	4	11

In descending order, technological factors (143) are the most referenced, with the relative advantage being the most referenced code (factor); followed by organisational factors and environmental factors with 125 and 81 references, respectively.

The antecedents' theme (referenced fifty-one times) was not generated and was not to prove or test whether these are the drivers of RPA adoption within the South African insurance industry, but to understand whether there are shared conditions that insurers believe are driving the adoption of RPA within the South African insurance landscape.

4.2.3 *Theoretical saturation*

According to Guest et al. (2020), saturation is reached when the "new information threshold is equal to and less than 5%, and for this study, the same parameters were applied.

Table 4-4 reveals the following: (i) 22% of new codes were generated after 6 interviews, (ii) an additional 4% of new codes were generated after the 10 interviews (</=5% threshold) which indicates adequate data saturation was reached and (ii) 0% new information threshold was reached at interview 11. At interview 12, it became evident that saturation was reached as no new information was identified, thus the interviews were concluded for this study.

Table 4-3: Summary of themes and codes

Interview Number	1	2	3	4	5	6	7	8	9	10	11	12	Total
New Codes per interview	6	5	7	5	3	2	1	1	1	0	0	0	31
New Codes in run				23		5	3	2	2	1	0	0	
% Change over the base						22%	13%	9%	9%	4%	0%	0%	

4.3 Findings

For a true reflection of the participants' perspectives and experience of RPA adoption within the insurance industry, the participants' verbatim quotes observed in this section may contain some grammatical errors.

4.3.1 *Results on the potential antecedents of RPA adoption.*

Antecedents to technology adoption within an organisation can be divided into two groups: external and internal drivers facilitating the adoption of new technology. The study analysed the antecedents using both documents (SA insurance industry RPA use cases) and the findings obtained from the RPA vendors and insurers during the interviews.

Table 4-4 illustrates some of the antecedents of RPA adoption from some of the top SA insurance organisations as identified in their RPA use case reports. Pseudonym were given for the insurance organisations, in line with the ethical considerations for the collection of data. .

Table 4-4: RPA implementation use cases in the South African insurance industry

Organisation	Facilitating conditions (antecedents)	Results post-adoption of RPA	Authors
"S" Insurance Ltd	a. To improve productivity and performance in finance. b. To improve customer experience	a. Productivity improved 8 times more on automated processes. b. Cost saving of approx. R340k every quarter through finance automated processes. c. 2000 claims settled per day with automation.	(UiPath, 2020b)
"OMI" Insurance Ltd	a. Drive operational efficiency. b. To improve customer service and increase customer satisfaction	a. Run over 800k transactions via automated processing with no human interventions. b. NPS score achieved a 30% improvement.	(Christopher, 2020)
"D" Insurers Ltd	a. Change in SA's consumer behaviour due to Covid 19.	a. Building customer loyalty through the integration of RPA and AI on the vitality platform	(Carew, 2022)

When asked about the key antecedents driving RPA adoption within the SA insurance industry, the participants' perceptions were not holistic. However, in all cases, the participant identified customer experience cost savings and streamlined processes as key antecedents influencing the adoption of RPA.

a) Enhancing customer experience

All participants (12) agreed that enhancing customer experience was the main driver of the adoption of RPA.

> *"Automating back and front-end processes to speed service delivery to customers is one of the strategic goals of many insurance organisations", as suggested by Participant B.*

There were some suggestions (by six participants) that the changing customer behaviour is highly influenced by the newer service offerings introduced by Insurtechs. Many customers are now expecting automated and efficient digital interactions with insurers.

Talking about this customer experience issue, one participant reported:

> *"[..] in the short-term insurance industry, the rise of Insurtechs such as Naked Insurance, for instance, which has adopted RPA and AI, has created a shift in the underwriting process. Customers especially generation Zs are now expecting much quicker onboarding and claims processes which have put pressure on insurance incumbents to adopt RPA and all these newer techs to meet their needs." – Participant E*

In addition to the pressures from the younger generations, other participants highlighted that the pandemic also influenced the shift in the customer experience.

> *"I think Covid-19 has shown the insurance industry that customers want a more immediate type of service model, that is digitally enabled with automated streams and touchpoints. And obviously, these customers' expectations are the main drivers for adopting RPA, as RPA allows insurers to serve their customers 24/7 at a faster pace, thus enhancing the overall customer experience." – Participant F*

b) Rapid cost savings

A common view among participants was that the adoption of RPA will bring about rapid cost savings for insurance organisations. Seven (7) participants suggested that rapid cost savings were another major antecedent of RPA adoption in the South African insurance industry. Commenting on RPA's rapid cost-saving opportunities, one of the participants said:

> *"One of the major drivers that influenced our organisation to adopt RPA is the massive reduction in cost and staff required to complete specific tasks. For example, we had twelve and a half FTE (full-time equivalent) processing commercial motor claims being cut down to four FTE by introducing an RPA solution in that area. This resulted in 30% cost savings of FTE costs." – Participant L*

While the majority attributed cost savings to reduced labour expenses, one participant commented:

> *"An attraction point for adopting RPA is that the technology reduces human errors. In our organisation, we believed that by adopting RPA, we would*

derive cost benefits and that the bots will allow us to mitigate costly data errors and automate the accounts payable and payments reconciliation process." Participant F

Another participant commented on the reduction of payments issued to fraudulent claims,

"We wanted to adopt a technology that will allow us to reduce operational costs whilst increasing risk mitigation in our finance department. RPA presented a case of automating payments but also allowing us to detect fraudulent claims ahead of payment." – Participant K

c) Streamlining business processes

For instance, ten (10) participants identified insurance business processes as time-consuming and repetitive manual tasks occurring across multiple disparate systems. One participant stated:

"[…] our major motivator for adopting any RPA software solution is to replace [and] maintain mundane tasks performed daily by our Staff." – Participant L

Another participant said:

"One of the drivers that influenced us to adopt RPA is that the technology speaks to multiple activities simultaneously, typically in the areas where there isn't enough capacity – it's alleviated the pressure of those mundane, repetitive and multiple tasks, so employees can then focus on urgent tasks." –Participant A

There were some suggestions that the data collected by insurance organisations is more compatible with the required datasets for automation.

One participant commented:

"Insurance is prone to adopt RPA due to the nature of their business processes when compared to the manual processes from let's say the Manufacturing industry. Insurance and banks deal with numeric data that is mostly stored in digital platforms or databases, so it is easier to automate those processes, hence you see a greater propensity to adopt RPA." – Participant B

Others suggested that the pandemic accelerated the adoption of RPA in the SA insurance industry. One participant commented:

> *"Covid influenced most insurance organisations to implement RPA, with insurers seeking business continuity despite having most of their employees working from home. COVID accelerated the adoption of RPA across all industries within the financial sector." – Participant D*

The documents were analysed to check the consistency of antecedents of RPA relevant to the South African industry. What stands out in

Table 4-5 is that the antecedents identified by the participants were consistent with the findings of the literature review, Chapter 2.6.1

Table 4-5: Potential antecedents to RPA adoption in the South African insurance industry

Potential antecedents to RPA Adoption	**Data Sources**
Enhanced Customer Experience	• 12 Participants • 3 Documents
Streamlining business processes (operational efficiencies)	• 10 Participants • 2 Documents
Rapid Cost Savings	• 7 Participants • 0 Documents

4.3.2 *Technological factors*

Based on the data gathered, it is evident that the technological theme is the most referenced. Under this theme, all key findings relate to relative advantage derived from the adoption of RPA, the perceived level of complexity, compatibility of RPA with existing IT infrastructure, and processes and all costs associated with the adoption of the technology.

a) Relative advantage

For RPA, the relative advantage of RPA adoption in the insurance industry is wide-ranging and well-understood by all twelve (12) participants of this study. As

the most referenced factor across all themes, the perception of relative advantage as an enabling factor to the adoption of RPA in the insurance industry was unanimous amongst the participants.

The perception of the participants on how RPA works, and the benefits derived from its adoption are considered significant in driving adoption growth within the insurance industry. The main benefit of RPA understood by all participants is its ability to mimic human actions in completing a task.

> *"[…] it is effectively a digital workforce that gets created to emulate human actions by performing the end-to-end tasks; its adoption is essential from an operational point of view." – Participant C*

> *"RPA bots to be able to take over a lot of these human manual tasks like executing administrative routine tasks in a standardised and error-free manner […]. And the outcome translates to things like increased efficiency, better data quality …". – Participant G*

It was the view of eight (8) of the participants that RPA acts as a digital workforce that cooperates with human employees to achieve operational excellence through freeing up employees from time-consuming and repetitive tasks, and giving them the bandwidth to focus on innovative and higher-value projects, as suggested by another participant:

> *"It takes the mundane, repetitive tasks out of the human resources worklist so that they can focus on tasks that add more value." – Participant A*

The benefits derived from RPA adoption are beyond just mimicking human actions, as suggested by one of the participants:

> *"There are add-on benefits from adopting RPA, like increased customer satisfaction, streamlined process, improved productivity and efficiency, and the brand value that gets elevated." – Participant B*

Apart from the operational benefits that are recognised as the core value proposition of RPA, six (6) participants also highlighted the indirect effect of RPA adoption on making an organisation more attractive to customers. For instance, two participants stated that:

"[…] if a customer is in the market for reinsurance, whichever insurer can respond to my request instantly, either when my policy lapses, or just before it comes up for renewal and possibly automate that whole process… they have got competitive advantage versus the insurer that waits for a call or request from whatever channel from a prospective client to authorise a policy renewal." – Participant B

"[…] it is a competitive advantage [and] is great in terms of quality, and speed of service. I think RPA has proven to be highly effective at increasing dramatically the service turnaround time." – Participant D

In perceiving the relative advantage as an enabling factor to the adoption of RPA within the insurance industry, all participants agreed that the advantage obtained from the implementation and use of RPA has a positive influence. One participant stated that the benefits of RPA are significant factors influencing the adoption in an insurance organisation.

"[…] These are the major enabling factors that a lot of insurance companies look into when it comes to the adoption of RPA" – Participant D

Another participant mentioned that:

"[..] the relative advantage of RPA is an enabler and the reason for that is the benefits derived from the usage and the cost savings are real and can be measured. So, it does make it easier to adopt." – Participant C

Answers to research questions 2.1 and 2.2 – is the relative advantage of RPA perceived as having a positive or negative influence on the adoption of RPA in the South African insurance industry? – are shown in Table 4-6 below. The answers show the results of how relative advantage is perceived. What stands out in this table is that all participants of this study perceived relative advantage as an enabling factor to RPA adoption in the insurance industry.

Table 4-6: Results on how participants perceived relative advantage as a factor in RPA adoption.

Factor	Positive Influence	Negative Influence
Relative Advantage	**12 Participants**	**0 Participants**

b) Complexity

Most of the participants perceived RPA as a less complex software technology that allows for much more rapid configuration and deployment.

> *"[..] it's easier to deploy RPA than most traditional IT software, as it doesn't require a dependency or deep technical expertise." Participant D*

It is the view of four (4) of the participants that the complexity of RPA begins with the type of RPA solution selected. One of the participants explains the following:

> *"[..] you do get RPA platforms that are very much targeted towards, like developers, but then also low code solutions that are quite easy to use, and you don't need any training on." - Participant C*

Insurers have observed that the complexity of RPA is heavily dependent on the complexity of the process to be automated and the existing system in which it will be deployed.

> *"I think RPA as it stands is not a complex piece of software. I think the complexity comes in on the application that you are building on top of… if your underwriting processes are complex then automating them will be difficult." - Participant A*

Another participant describes how the complexity of a process also influences the automation process.

> *"Complex process requires more elements to automate, and some require longer process times." – Participant L*

Three (3) participants suggest that the business model and the size of the organisation lead to complicated business processes making the automation process complex.

One participant said:

> *"I think certain companies that have more complex distribution and stakeholder touchpoints will find it more difficult to implement … you've got so many different types of intermediaries…it becomes a little bit more challenging to define the automation process requirements." – Participant F*

Another commented:

> *"The complexity of RPA depends on the size of the organisation which impacts the resources available, and the standardisation of processes to be automated." – Participant H*

It is the view of both the insurers and vendors that RPA as a stand-alone software technology is not complex to configure or use; however, as suggested by one participant:

> *"[…] the complexity of the process, and the skill set that you've got at your disposal will influence the perceived level of complexity of RPA." – Participant B*

In some cases, these variables such as process discovery and having the right talent with RPA skills influence the complexity of RPA, which may have financial implications for the organisation and can be viewed as a barrier.

> *"The lack of skills is a complexity of RPA that costs…such costs include outsourcing the configuration and initial set up of technology and paying high salaries to attract talent with the right skillsets." – Participant F*

In one case, the participant thought that:

> *"RPA is a complex technology and I think its complexity acts as a barrier in the adoption …it needs people who understand automation and have some experience in re-engineering processes. And to have those resources available in an organisation is scarce, especially amongst smaller insurers with limited resources and capital." – Participant M*

The participants expressed differing views on the influence of the complexity of RPA on the adoption in the South African insurance industry. The viewpoints raised indicate that as a stand-alone technology compared to other automation solutions available in the market, RPA is less complex and easy to deploy;

however, three participants suggested that the nature of insurance processes and the different types of business models (direct lines or broker distribution lines) needed to be considered as variables influencing the complexity of RPA.

Table 4-7 below shows the results of how the participants of this study perceived the influence of complexity on RPA adoption. From this data, we can see that complexity was perceived as an enabling factor to RPA adoption by most of the participants.

Table 4-7: Results on how participants perceived the complexity of RPA as a factor in its adoption.

Factor	Positive Influence	Negative Influence
Complexity	**9 Participants**	**3 Participants**

c) Compatibility

Ten participants described RPA as a nonintrusive technology that sits on a side as plug-on tech and complements the existing IT infrastructure within the SA insurance industry.

> *"RPA's compatibility with most IT infrastructure is a great advantage, especially for insurers operating in legacy systems." – Participant B*

Six participants explain that its compatibility with any system might be attributed to how technology functions, stating that RPA works as a communication integration between multiple legacy systems.

> *"A powerful automation tool that facilitates the interaction of different systems and transfer of information between systems. It is an essence or, that allows a computer-programmed Bot to do what a human would do on the computer." – Participant C*

Little to no change to the existing IT landscape is a major consideration for insurers wanting to adopt new technology. However, two (2) participants argued that despite being characterised as a lightweight technology, RPA has some

complexities and issues that may make it not compatible with all data collected by insurers.

One participant explained that:

> *"[…] we have to encourage our brokers and clients to submit information in a structured format because handwritten notes and poor-quality pictures are not compatible with RPA." – Participant A.*

Another participant commented that:

> *"I don't think RPA will be compatible; it would require a lot of investments to be made to upgrade processes and system… almost every claim process incorporates unstructured data information, such as images, adjuster or assessor notes that are not suitable for automation." – Participant M*

Data leakage and theft were major concerns for insurers when implementing RPA in their organisations. In their accounts of the RPA adoption journey at a different stage, all participants expressed that a common question was raised; "What risks could RPA introduce to the organisation's current IT systems?"

From a vendor perspective, one participant explained the security measures that had been introduced to RPA solutions to mitigate risk:

> *"[…] we've managed to assign unique IDs to each bot and created authentication credentials for each bot account; encryption codes can also be assigned to the data, and these measures even work on old legacy systems." – Participant B*

From Table 4-8, it can be seen that by far the majority of participants perceived compatibility as an enabling factor.

Table 4-8: Results of how participants perceived compatibility as a factor in RPA adoption.

Factor	Positive Influence	Negative Influence
Compatibility	**10 Participants**	**2 Participants**

d) Perceived cost

A recurrent theme in the interview was the perception amongst the participants that cost influences the adoption of RPA in the insurance industry. While some of the participants described “cost” as licensing costs involved in acquiring RPA, others included varying costs associated with the maintenance of technology. There were contradicting views among the participants as to whether the cost factor had a positive or negative impact on the adoption of RPA in the insurance industry.

From a vendor perspective, one participant suggested that there were cost expectations regarding RPA.

> *“People think that RPA should be cheap, that is just a view I get from many of the insurance clients … because it is kind of new technology in the market … RPA still has a low perceived concept of brand value.” – Participant B*

Partnered with the cost expectations is the geographical element that was raised by the participants. Six participants stated that most RPA service providers (examples given were UiPath and Blue Prism) were located offshore, thus introducing some credit constraints for local clients.

> *“[…] it is expensive in terms of the software licenses that are costed in pounds, or euros or dollars. And so, the high licensing costs are susceptible to those dollar fluctuations.” – Participant D*

This view was echoed by another participant who explained the influence of cost on the adoption of RPA.

> *“[...] currency conversion becomes a challenge for us, and it is subjected to continuous fluctuation…which makes the technology expensive for some insurers.“– Participant B*

The majority of participants agreed that cost was an enabling factor to the adoption of RPA in the South African insurance industry.

> *“I believe the high costs are what have hindered some organisations from adopting the technology. And you know, insurance is the business of risk and RPA can be a risky investment.” – Participant C*

"[…] costs associated with RPA have been a huge barrier for most mid to smaller insurance organisations." – Participant D

Interestingly, there were some suggestions that RPA service providers were considering affordable RPA solutions to reduce the cost barrier. For example, one participant said:

"Vendors have got more creative in offering robotic automation as a service and as a managed service, which can then be implemented as operating costs on a monthly subscription basis and avoid all of the upfront capital investments required for big infrastructure investment and large volumes of license acquisitions." – Participant D

Another participant gave an example:

"We have RPA bots that are only utilised for two hours a day in our areas, so a license is provided for that utilisation only, so it is like service on consumption solution." – Participant A

When asked whether they perceived cost as an enabling or hindering factor to RPA adoption in SA's insurance industry, Participants A and D agreed that the costs associated with RPA implementation had a negative influence, despite alternative RPA cost solutions presented by vendors.

Only a small number of participants felt that the cost could have a positive influence on the adoption. Talking to that perception, one participant said:

"The organisation needs to see the return on investment (ROI) derived from RPA adoption. I mean, if the possible ROI is not presented clearly to them, there is no point even in adopting new technology. So, we do not see cost as a barrier if the ROI is clear and measurable." – Participant G.

In agreement to cost being an enabler, one participant gave an example:

"When we introduced RPA in our environment it was hard costs. But to think to date, we have saved and resaved … roughly about three million to four million operational costs with our current bots during the past few years." – Participant L

Another participant alluded to the notion of overlooking the initial costs:

"Sometimes the cost of RPA can be traded off due to the different benefits derived from using or implementing the technology in the insurance industry." – Participant J

In contrast to the perceptions of the majority, two participants perceived cost to be an insignificant factor in the adoption of RPA. One participant stated:

"[...] that the license cost didn't necessarily influence whether we proceed or not with the adoption of RPA." – Participant A.

And another participant commented:

"In terms of RPA adoption, I think the cost should not be like your main reason for the adoption or non-adoption of the technology… especially if the company is serious about moving towards digital transformation." – Participant M.

What is interesting about the perceptions found in Table 4-9 is that two participants perceived cost as having no significant influence on the adoption of RPA by insurers. It was suggested by the majority that cost had a negative influence on RPA adoption within the SA insurance industry.

Table 4-9: Results on how participants perceived the cost as a factor in RPA adoption.

Factor	Positive Influence	Negative Influence	Not Significant
Perceived Cost	**3 Participants**	**7 Participants**	**2 Participants**

4.3.3 *Organisational factors*

The organisational theme was the second most referenced theme. The factors identified in this theme can be linked to variables internal to the organisation that can influence the adoption. These included management support, strategy, the skills required, and the emerging concept of change management in the adoption of RPA.

a) Management support

A common view among participants was that management support was an enabling factor to the adoption of RPA by SA insurers. These views surfaced mainly about the perceived significant role management plays in the adoption process of new technology within an organisation. As one participant put it:

> *"Management support plays a major facilitating role because, in any IT adoption process, you need a project sponsor in the form of an executive or senior manager. So yes, buy-in from management is important for RPA adoption." – Participant E*

This view was echoed by another participant who said:

> *"Management support is the single most important factor for the success of any RPA program. To have the correct level of business sponsorship is particularly important, and to have management involved and have the support of it [during] the whole RPA journey is crucial." – Participant D*

Surprisingly, seven (7) participants indicated that management support was more crucial if coming from technical managers as opposed to business managers, as the RPA adoption affected the IT departments.

> *"Technical decisions come from, the IT team or the specialists. As they are more knowledgeable about how a new technology works, it is add-on functions or features….it is the technical managers that address technical challenges that an organisation will face with a new technology solution. Hence support from technical managers is the main facilitating factor from a business perspective." – Participant G*

The majority of the participants felt that RPA had strong management support in the insurance industry. Ten participants described management support as a significant factor that positively influenced the adoption of RPA. As one participant said:

> *"Management support played a major facilitating role; they helped throughout the adoption process and not just in management areas only but spreading the message of RPA adoption across other areas…to grow the concept of automation within the organisation." – Participant A*

Only two participants expressed how management support could also act as a barrier to RPA adoption, as one participant commented on how the support might be subjective to the managers' understanding of the benefits derived from the adoption of new technology.

> *"We experienced delayed buy-in from management, due to the newness of technology within the insurance landscape. There were questions: How does this technology address our current business problems? How will it improve business outcomes and add value on a business level?... there was a lot of pushbacks from managers." – Participant G*

Another participant alluded to management support being subject to the manager's knowledge and interest in the technology:

> *"Managers can act as a barrier to the adoption of RPA, especially if managers have little knowledge about the technology. We found in our organisation that most of the C-level managers did not know much about the functions of RPA, hence they can become reluctant to adopt until a successful piloting stage was conducted with measurable results." – Participant J*

Table 4-10 indicates that the majority of the participants perceived management support as an enabling factor to the adoption of RPA within the SA insurance industry.

Table 4-10: Results on how participants perceived management support as a factor in RPA adoption.

Factor	Positive Influence	Negative Influence
Management Support	**10 Participants**	**2 Participants**

b) Skills

Differing perceptions existed about the skills needed to deploy and use RPA. In one case, the participant thought that:

"RPA requires some skills like language coding skills, database designing skills … to understand RPA algorithms and be able to modify the tasks set for the bot." – Participant M

Another opposed the notion of RPA requiring specific skills and said:

"RPA is relatively easy to configure and doesn't require technical specialist skills to do so. It is a low-code technology that certainly makes it an enabler compared to technologies like AI." – Participant D

When asked about how skills influence the adoption of RPA, the majority of the participants agreed that the lack of skills had a negative influence on the adoption of RPA within the South African insurance industry. Commenting on the skills shortage, two of the participants said,

"There is a lack of RPA skills. And I do not just think from an insurance industry perspective, I just think from an automation perspective, I think the technology is so new, that there are not hundreds of talents with the advanced RPA development skillsets in South Africa." – Participant A

"Current insurance organisations do not necessarily have RPA skills, due to the automation not being an insurance core processes and a new technology in the South African market…the lack of skillsets might be viewed as a hindrance to the adoption." – Participant B

Another reported problem was that of difficulties in hiring skilled RPA talent in the current labour market. One participant said:

"We have been through this recruitment process of hiring RPA-skilled talent a few times, and we struggled to get enough RPA developers. There is way too little of them for what the market needs between banking and insurance." – Participant F

A key concern identified by the participants was how the lack of skills is driving strong dependency on external vendors.

As one participant said,

"I do believe RPA skillsets are a barrier for many insurance companies. Generally, there are fewer people with an RPA skill, which implies that they will then need to outsource every time there is an issue with the RPA

applications, which is going to be cost prohibitive for the company." – Participant M

Another participant described the heavy reliance on vendors as early-stage measures to ensure initial success and viewed the adoption of RPA as an opportunity to upskill employees in the insurance industry:

"The skill set is 80% outsourced initially… you find that when RPA is introduced in the organisation, internally they were not ready to train the people, so they contract externally but after some time when the RPA implementation is stable then they upskill internal staff." – Participant H

While RPA skills were agreed to be a barrier to the adoption, three of the participants suggested the skills gap presented partnership opportunities for insurers. One of the participants said,

"I do strongly believe that you can upskill people on RPA. And, you know, where more advanced skills are required, there are implementation vendors in the market to partner with. So, skills should not affect your decision to adopt RPA." – Participant D

Another participant described the skills gap as because RPA is an emerging technology rather than a skill shortage within the organisation.

"The newness of the technology in SA causes the skill gap where most insurers are still exploring their capabilities and building the business cases. Hence, these companies need to seek assistance from a vendor to implement RPA and close the skills and capabilities gap." – Participant G

As shown in Table 4-11, the majority of the participants perceived skills as a barrier to the adoption of RPA within the South African insurance industry.

Table 4-11: Results on how participants perceived the skills as a factor in RPA adoption.

Factor	Positive Influence	Negative Influence
Skills	**3 Participants**	**9 Participants**

c) Strategy

The feedback from the interviews described RPA adoption to be both an operational and strategic need for insurers. Most participants felt that the decision to adopt RPA was a strategic choice for insurers in line with the digital transformation of the industry. For example, one of the participants said:

> *"Adopting RPA is a strategic imperative to increase efficiency, and operational impact, may it be revenue generation, or to increase savings for the organisation." – Participant B*

Six participants viewed the strategy as an organisation's RPA plan that outlines the automation of a single insurance process or the whole automation journey.

> *"An RPA strategy is a roadmap that you're aligned to; it has key outcomes that you can measure and assess. So having a strategy helps the organisation to know if you are on track or not with the RPA adoption, then if [you] don't have a strategy you're going to struggle in terms of maximising your ROI." – Participant F*

> *"[…] a clear outline on what processes we need to automate and how the automation will affect our current staff, the impact on the business processes. I think the strategy is an enabling factor to the adoption of RPA." – Participant J*

Concerns regarding the implications of not having a strategy were highlighted. One participant commented:

> *"[…] the lack of strategy affects the understanding of RPA capabilities because, without a strategy, we tend to think that everything can be automated." – Participant A*

> *"[…] you also get to eliminate some of the processes that do not need to be automated … because some of the processes that even though they can be automated they will still require 50% human interaction." – Participant H*

Few of the participants perceived strategy to be instrumental in the widespread adoption of RPA within an organisation.

> *"For organisations that take a strategic approach in RPA adoption, you have the support of the leaders of the organisation, a clear understanding of*

benefits that can be extracted, the efficiencies of 30% to 40% that can be gained. You will also find leaders that will drive an enterprise-wide adoption..." – Participant D

"[..] When the adoption of RPA within the insurance organisation occurs without a strategy, we observed RPA implementation remain as siloed initiatives." – Participant H

In addition, one participant advised that the strategy should focus on automating single or two processes to reduce failure in RPA projects.

"What is critically important for the success of an RPA project is to focus on one or a few processes, so that you get early returns and then you can roll out the program across various processes once you have your business case." – Participant D

When asked about the influence of strategy on the adoption of RPA in insurance, there were no strong views from participants that indicated strategy as a significant factor influencing RPA adoption.

"I think the strategy is crucial to driving organisation-wide attitude towards the use of RPA; however, it is not your first point of action before you adopt RPA." – Participant M

"RPA is a new technology to the SA insurance market, so expecting organisations to have a strategy before the adoption might become a problem because no one might know how to develop that strategy internally." – Participant J

Interestingly, there were only three participants that perceived strategy as an enabling factor to RPA adoption, while nine participants viewed strategy as a "nice to have" before the adoption; however, having little to no significance to the decision to adopt. Emerging themes were found around the strategy, which was that it acts as an implementation guideline or could be used as a measure of the success of the RPA adoption against business objectives.

Table 4-12: Results on how participants perceived the strategy as a factor in RPA adoption.

Factor	Positive Influence	Negative Influence	Not Significant
Strategy	**3 Participants**	**0 Participants**	**9 Participants**

d) Change Management

Another interesting observation to emerge from the interviews was the influence of change management on the RPA adoption process. In their accounts of the RPA adoption journey, four participants alluded to the notion that the confusion of what RPA is came through when the information of RPA adoption cascaded down to lower levels, where some employees perceive the RPA to be actual "robots" or some futuristic technology that would replace them.

> *"People misunderstand what RPA is, hence, we faced major resistance initially. It was important from a management perspective to communicate to people that the intention with RPA adoption is not to get rid of people." – Participant A*

Participant B also highlighted that resistance could come from management.

> *"There was major resistance even from the management until we proved that we could reduce people's workload in the accounts payable department. We initially started with the first process of the POC process, where a robot took three hours to do the same work that twelve people were doing in two weeks."*

From an RPA vendor perspective, participants felt that vendors should employ change management techniques when communicating what RPA is, its impact on the organisations, and the benefits derived from adopting it.

> *"I think having a change expert in the RPA vendor team is your best opportunity to succeed. The expert will be able to speak to both the articulation and interpretation of what RPA is and the risk of job loss mitigated because it's not what RPA is about." – Participant E*

The inclusion of change management in the RPA adoption journey is sometimes overlooked, as one of the participants commented:

> *"[…] change management piece is critically important and often gets overlooked, organisations fail to understand what impact RPA adoption will have on some of the job functions and employees' satisfaction." – Participant D*

From a user perspective, one participant said that change management initiatives rolled out were aimed at changing the mindset of the personnel that would be highly impacted by the adoption of RPA.

> *"[…] switching off the manual process was kind of difficult because it became second nature to our employees, again, some didn't see the benefits of RPA. We locked the manual process, to encourage and enforce the adoption of RPA." – Participant A.*

Six participants that raised change management during their interviews felt that resistance to change was human nature; however, if not managed properly, it could have dire implications on the organisation in terms of service delivery and non-use of the new technology. Table 4-13 shows that change management was perceived as an enabling factor to the adoption of RPA within the insurance industry.

Table 4-13: Results on how participants perceived change management as a factor in the RPA adoption process.

Factor	Positive Influence	Negative Influence
Change Management	**6 Participants**	**0 Participants**

4.3.4 *Environmental factors*

a) Competition pressures

According to Rawashdeh et al. (2022), organisations operating in a similar business environment will exert pressure on one another. In their study, they

suggested that an organisation's intention to adopt RPA was influenced by its competitors and the desire to obtain a competitive edge (Rawashdeh et al., 2022). The participants of this study unanimously agreed that the SA insurance industry operated in a competitive environment that pushed players to adopt digital technology to maintain market share and competitive advantage.

This view was echoed by one of the participants who said:

> *"Competition pressures have been one of the main drivers for RPA adoption. There is an accelerated or aggravated approach by more insurers in adopting RPA to remain competitive, we see big SA insurance players partnering with UiPath and Blue Prism." – Participant B*

Some participants further suggested that the competitive pressures were not limited to direct competitors but included indirect competitors such as Insurtechs and micro-insurers who had significantly intensified the competition, strengthening the case for RPA adoption for incumbents.

> *"[…] insurers are pressured to pivot and adapt against their digitally inclined competitors such Insurtechs, more so the short-term insurers if they hope to achieve continuous growth and to capture the market share." – Participant G*

Interestingly, the competition pressures influencing the adoption of RPA were observed to be more significant on short-term insurance than long-term insurance. As one participant said,

> *"short-term insurance has a more propensity to adopt RPA than long-term insurance, as short-term insurance offers quite competitive products." – Participant E*

Another participant commented*,*

> *"In short-term insurance, you must be easy to do business with, to keep customers happy. So, automating all those customer touchpoints is essential, whereas long-term insurance has complicated processes which involve medical processes and that will always need human input to complete." – Participant K*

There were some suggestions that pressures from the industry were not limited to competitors but would also include how customers perceived an organisation against its competition. Talking about this notion, a participant said:

> *"[…] there's pressure from your customers, who are saying they won't be taking a policy with an insurer that's going to take five or six days to settle claims and would move to an insurer who can settle claims within 24 hours. These customer expectations drive the adoption of RPA as more insurers understand automation will enable them to deliver services faster." – Participant M*

In agreement, another participant highlighted that:

> *"[…] all insurance organisations have a strategic focus on the customer, so as a company, we need to keep our customer needs happy. This means enhancing the customer experience through the adoption of RPA because we understand that operating in a very manual manner could lead to a high churn of customers or a low conversion rate." – Participant J*

When asked about the influence of competitive pressures on the adoption of RPA insurance, one participant said:

> *"There is a higher uptake on RPA in insurance, competition pressures are the major reasons why insurers are adopting RPA but also, insurers starting to realise the benefits of RPA in optimising their processes, how to assist them to reduce cost and become more efficient." – Participant D*

A minority felt that the RPA adoption rate has been slow, despite the highly competitive pressures existing in the insurance industry.

> *"SA insurance companies have a more conservative approach to RPA adoption and bringing these new technologies into their businesses, there is a lagging effect despite the fear of falling behind relative to the competition." – Participant C*

Table 4-14: Results on how participants perceived competition pressures as a factor influencing RPA adoption.

Factor	Positive Influence	Negative Influence	Not Significant
Competition Pressures	**10 Participants**	**0 Participants**	**2 Participants**

b) Government regulations

Opinions differed as to whether government regulations influenced the adoption of RPA in the South African insurance industry, whilst the majority (10 participants) mentioned that there were no current regulations on RPA in South Africa. It was evident that the majority of the participants viewed government regulations as a non-significant factor in the adoption of RPA by SA insurers.

One participant stated:

> *"I do not think the current South African regulatory landscape caters for RPA, so I believe government regulations have no significant influence on whether insurers adopt or do not adopt RPA." – Participant J*

However, some participants expressed concerns regarding whether data privacy and protection laws such as the Protection of Personal Information Act (POPIA) influenced the adoption of RPA by insurance organisations. The question below illustrates the regulatory considerations of some insurers:

> *"Regulatory considerations for issues surrounding the RPA, mainly related to data privacy. Many insurers were concerned about if the automated data get stored in the RPA system. For RPA solutions with cloud deployment, are there cyber security measures in place?" – Participant D*

Following the concerns of POPIA compliance due to potential data leakage, one participant commented:

> *"It is important for insurers to understand that RPA is configured in a way where the bots do not consume information/ data and store it, rather it automates the real-time processing of the data and stores it externally. This ensures that the data is not compromised and from a technology security stack, RPA development is compliant with all security regulations that*

secure vaults require. I would not refer to government regulations as an inhibitor but rather as a consideration, as it is not a risk factor." – Participant B

Another commented:

"I think the popular regulation consideration in RPA is around on-premises storage versus cloud. And yes, a lot of RPA tools can be deployed on the cloud and require POPIA considerations that need organisations to thoroughly evaluate security and compliance issues." – Participant H

Interestingly, only two (2) participants indicated that the adoption of RPA assisted in processing legal compliance tasks by ensuring the accuracy of data. As one participant put it:

"When dealing with the processes that require compliance with legal regulations such as credit checks and claims registrations. In those cases, adopting RPA is seen as very useful to the organisation, as the automation will speed up those processes and reduce errors and misinterpretations of law requirements." – Participant L

Table 4-15: Results on how participants perceived government regulations as a factor influencing RPA adoption.

Factor	Positive Influence	Negative Influence	Not Significant
Government Regulations	**2 Participants**	**0 Participants**	**10 Participants**

c) Vendor support

According to Rogers (2003), technology vendors play a significant role in promoting the adoption of new technology. In the interviews, it was suggested that vendor support could come in two forms; **a) pre-sale support** which occurs before the purchase or licensing of RPA and **b) post-sale support** which occurs after the adoption of RPA, and this assistance includes maintenance and update services.

It was highlighted by the participants that a clear distinction is made in terms of RPA vendors. The comment below illustrates the type of RPA vendors available in the market:

> *"RPA Software vendors provide the technology and all the technical updates related to RPA, whereas RPA Implementation vendors have experience beyond just the technical, but in terms of the strategic alignment between RPA and business, these vendors can assist with the organisational change management process, ensure successful delivery of RPA projects, also help determine the internal organisational capabilities that can help set the organisation up for success in the RPA adoption process." – Participant D*

The participants generally demonstrated their understanding of the support vendors should provide insurance to ensure a successful RPA adoption process.

For example, one participant said:

> *"[..] we come in as the RPA experts, we work alongside the insurance business process experts, to identify and map out their processes, we will then later upskill the employees on the how to use software efficiently. Should they encounter challenges, we also offer continued support throughout the implementation." – Participant C*

The relationship between vendor support services and the selection of vendors is interesting because six participants stated that the variety of support services offered by the vendors determines whether they get contracted or not.

As one participant commented:

> *"Due to the limitations we as an insurance company have with understanding the technology, in our vendor selection process, the type of support services offered by the RPA vendor/partner was a crucial requirement for our organisation." – Participant A*

Another participant reported that:

> *"To be selected as an RPA vendor partner for an insurance organisation, you must have the minimum requirements in terms of resources, pre-sale and post-sale services, and training certification that requires annual updates." – Participant B*

Strong evidence of RPA implementation success was found when insurers partnered with RPA implementation vendors in the adoption process. One participant stated:

> *"[…] investment towards partnering with RPA vendors allowed insurers to see the return of investment in a shorter timeframe opposed to upskilling their staff which may take longer, 6-12 months to master the technology." – Participant B*

In support, another commented:

> *"…we've seen the greatest success in RPA projects when insurers partner with external vendors who are very experienced at positioning the program, who understand the industry strategic alignment and can identify the best opportunities for automation, quantify and articulate the business cases for those opportunities." – Participant D*

When asked about the perceived influence vendor support may have on the adoption of RPA in insurance, one participant said:

> *"Vendor support is an enabler and an absolute requirement for the success of the RPA adoption journey." – Participant L*

Other responses to this question included:

> *"Most insurance organisations are shying away from the open-source type of software, because of the support question. So, partnering with a vendor who has a proven record track record in terms of RPA technical expertise and support is important for the successful adoption of RPA and makes the adoption journey easier for insurers." – Participant E*

Another participant suggested that:

> *"Vendor support is sometimes one of the deciding factors for most insurers to adopt RPA because most of them seek to have an 'automation buddy' that will help along the RPA journey. So, if there are no post-sale support services provided, they might not adopt an RPA solution from that vendor." – Participant G*

The participants were unanimous that vendor support is an enabling factor to the adoption of RPA within the insurance industry as shown in

Table 4-16.

Table 4-16: Results on how participants perceived vendor support as a factor in RPA adoption.

Factor	Positive Influence	Negative Influence
Vendor Support	**12 Participants**	**0 Participants**

Research questions 2.1 and 2.2 aimed to identify the factors that were perceived to have a positive and negative influence on RPA adoption. However, the conceptual framework presents a mediation relationship that found the perceived usefulness and ease of use of RPA explains the relation between the independent variables (TOE and DOI factors) and the decision to adopt RPA.

4.3.5 *Perceived ease of use (PEOU) and perceived usefulness (PU)*

Perceptions differed as to whether RPA is an easy-to-use technology, but most of the participants described RPA as user friendly and simple to implement. Whilst a few participants (2) expressed concerns about the lack of RPA-skilled talent in insurance organisations, this was attributed to the perceived over-reliance on vendor support and the view that certain programming skills were required for the automation of complex business processes. One participant commented:

> *"RPA is easy to implement; however, for the organisation to effectively benefit from the adoption – internal skilled resources need to be able to leverage the technology for the benefit of the organisation." – Participant G.*

A positive correlation was suggested between the perceived usefulness of RPA and the number of RPA in insurance use cases available. Six (6) participants shared that, for many organisations, the perception of RPA being useful in the insurance environment was influenced by second-hand information. For example, one participant said:

> *"Our interest in RPA strengthened after we researched the role and use cases of RPA in insurance, that was when we obtained a better understanding of its usefulness in our organisation." – Participant L*

A common view amongst the vendor participants (5) further suggested that as RPA gained popularity in the South African financial market, more organisations perceived it to be useful in assisting them with their digital transformation journey. This view was echoed by another participant who said:

> *"We (organisation) observed a growing industry-wide acceptance of RPA as the number of successful implementation cases were shared publicly; some insurers found RPA useful after their digitally inclined competitors had already deployed it." – Participant B*

When asked about how the perceived ease of use and usefulness of RPA affected their decision to adopt RPA, the participants were unanimous in the view that both PEOU and PU had a significant influence on their decision to adopt RPA. As one participant put it:

> *During our trial implementation of RPA, we (the organisation) were able to determine if the technology was the best fit for the organisation and uncover potential implementation bottlenecks." – Participant L*

4.4 Summary of Chapter 4

In this chapter, the findings from the interview research were presented and a thematic analysis was conducted to uncover the participants' perceptions of the factors influencing the adoption of RPA in the South African insurance industry as identified in the conceptual framework. In summary, the findings show the following:

4.4.1 *Technological factors*

From a technological perspective, the participants were unanimous in the view that relative advantage has a positive influence on the adoption of RPA. Opinions differed when asked about the influence of complexity and compatibility; however, over half of the participants agreed that both factors had a positive

influence on the adoption of RPA. It was suggested that RPA is a simple technology to use, and its non-invasive nature makes it compatible with legacy IT systems. Interestingly, a new technological factor emerged from the interviews – most of participants suggested that perceived costs of RPA had a significant influence on the adoption.

4.4.2 *Organisational factors*

The organisational perspective suggested that management support plays a fundamental role in the acceptance and the ultimate adoption of RPA in an organisation. All the participants agreed that support from management was a positive influence on the adoption and set the tone for how the rest of the organisation perceived RPA to be a useful technology. The findings suggest that the South African insurance industry has a shortage of skilled RPA talent, hence the over-reliance on outsourcing RPA developers. Whilst a few of the participants suggested that having a strategy had a positive influence on RPA adoption as it assisted insurers to select the correct processes for automation, the majority suggested that strategy had no significant influence on the adoption. The findings also provided insights into the importance of change management in the adoption of RPA, and it was suggested that change management had a positive influence on the adoption of RPA.

4.4.3 *Environmental factors*

From an environmental perspective, the findings indicate factors such as competitive pressures and vendor support are positive influences on the adoption of RPA, whilst the current government regulations have no significant influence. In summary, the participants suggested insurers might have regulatory concerns with the adoption of RPA, but that the SA regulation landscape did not have laws on RPA.

4.4.4 *Summary of findings*

In summary, these findings suggest that there is an association between the factors identified in the conceptual framework and the adoption of RPA. While most of the propositions of this study were confirmed by the participants, it was also apparent from the findings that perceived cost and change management were factors deemed to have a significant impact on RPA adoption. Table 4-17 presents the summary of findings based on the propositions presented in this study.

Table 4-17: Summary of Findings

Propositions	Influence on PEOU	Influence of PU
P2a: Relative advantage is positively associated with the perceived usefulness (PU) and perceived ease of use (PEOU) of RPA.	Supported	Supported
P2b: Complexity is positively associated with the perceived ease of use (PEOU) of RPA.	Not Supported	–
P2c: Compatibility is negatively associated with the perceived usefulness (PU) and perceived ease of use (PEOU) of RPA.	Supported	Supported
P3a: The current skills in the South African insurance industry are negatively associated with the perceived ease of use (PEOU) of RPA.	Supported	–
P3b: Management support is positively associated with the perceived usefulness (PU) of RPA.	–	Supported
P3c: Strategy is negatively associated with the perceived usefulness (PU) of RPA.	–	Not Supported
P4a: Competition pressures within the SA insurance industry are positively associated with the perceived usefulness (PU) of RPA.	–	Supported
P4b: Vendor Support is positively associated with the perceived usefulness (PU) and perceived ease of use (PEOU) of RPA.	Supported	Supported
P4c: South African government regulations are negatively associated with the perceived usefulness (PU) of RPA.	–	Not Supported

CHAPTER 5. DISCUSSION OF THE FINDINGS

5.1 Introduction

The findings of this study are discussed in this chapter. The chapter is divided into three sections: First, the interpretation of the findings is presented under the three main themes: technological, organisational, and environmental and compared with extant literature. Second, the findings are linked to the research questions of this study. Thereafter, the last section concludes with a reaffirmation of the propositions of this study.

5.2 Interpretation of findings

As suggested in section 2.7.4, an integrated model was used to understand the factors perceived to have an influence on RPA adoption within the SA insurance industry. Using empirical evidence from the participants of the study, the analysis focused on how participants perceived the factors identified in section 2.8 – a conceptual framework. Surprisingly, the analysis also revealed two new factors – perceived cost and change management – as having a significant influence on the adoption of RPA.

5.2.1 *Antecedents to RPA adoption*

The first research question in this study sought to determine the antecedents to RPA adoption within the South African insurance industry. Referring to the first proposition of this study (***P1:*** *High volume of manual processes, demands from customers and competition intensity are the key antecedents to RPA adoption in the insurance industry),* the findings revealed that the drivers for RPA adoption differed for each organisation. However, these findings, while preliminary, suggest that there may be a few common antecedents driving the adoption of RPA which may include the need to enhance customer experience, improve operational efficiencies, and obtain rapid cost savings. In accordance with these findings, Pillay and Njenga (2021) found that insurers seeking to lower operational expenses by optimising their business activities were adopting digital innovations such as AI, chatbots and RPA to assist

them. In their study, it was also established that inefficiencies in customer services such as onboarding and claims processes were prompting more and more insurance companies to adopt digital technologies to help better serve their customers. Furthermore, in support of the findings of this study, Oza et al. (2020) suggest that there is a paramount need for insurers to eliminate repetitive manual processes, and an increased demand for digital services by customers which has presented a strong case for the adoption of automation technology (e.g., RPA).

However, in contrast to the findings of this study, Lanfranchi and Grassi (2022) suggested that the COVID-19 pandemic acted as the main catalyst in driving the insurance industry towards the adoption of innovative technologies.

5.2.2 *Technological factors*

a) Relative advantage

As mentioned in the literature review, the relative advantage of RPA for insurers exceeds beyond improving operational efficiency and accuracy in business processes, but also frees up employees from repetitive tasks and allows them to focus on value-added tasks (Kaur, 2022; Lamberton et al., 2016). Consistent with the literature, participants in this study cited numerous benefits of RPA in the insurance value chain, and one of the major benefits is the elimination of mundane, repetitive tasks through the adoption of RPA, which has created space for insurance employees to focus on creative and innovative projects.

From a broad perspective, the relative advantages of RPA in insurance are twofold, for both customers and the organisation. It is perceived that the adoption of RPA will lead to numerous benefits such as enterprise scalability and availability (24/7 presence) (Amr, 2022); increased operational agility and efficiency in processes (Yarlagadda, 2018); reduced costs through the automation of repetitive tasks (Neutrinos, 2021); improved customer experience (Oza et al., 2020); and improving compliance process and accuracy (Vijaya et al., 2019). This study acknowledges that relative advantage has a positive influence on both the perceived usefulness of RPA and the decision to adopt RPA.

b) Complexity

According to Rogers (2003), complexity is defined as “the degree to which a new technology is perceived as relatively difficult to understand and use”. The participants of the current study drew comparisons between traditional automation and RPA and found the latter to be less complex and perceived to be easier to use. The findings of this study also suggest that most insurers that relied on traditional automation procedures were faced with integration issues, which involved integrating front-end and back-end systems to perform pre-defined tasks, whereas with the use of RPA seamless integration was observed as the technology adopts a platform-agonistic approach to automate tasks across multiple systems. Taken together, the findings reflect those of Umakanthan et al. (2022), who also found that RPA is easier, more adaptable, easy to integrate and requires less effort than traditional automation.

It is interesting to note that, in this study, the majority of the participants found process selection and the type of RPA solution used as the major contributors to the complexity of RPA. In accordance with these findings, a study by Lamberton et al. (2016) that examined the impact of robotics, RPA, and AI on the insurance industry found that process selection impacts the complexity of RPA. In their study, they found that targeting overly complex processes for automation and picking the wrong process are the common reasons cited in failed RPA projects. Therefore, selecting a single smaller sub-task of a business process to automate at a time lessens the complexity and increases the chances of successful RPA implementation (Goris, 2019).

c) Compatibility

Rogers (2003) defines compatibility as the “degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters”. As mentioned in the literature review, RPA is characterised as a non-invasive technology with minimal to no change requirements in the existing IT landscape (Lacity & Willcocks, 2020). The findings of this study support the literature, as the participants found that compatibility had a positive influence on perceived usefulness, as RPA was found to be consistent with

existing legacy IT systems operating in SA insurance organisations. This finding corroborates the ideas of Rawashdeh et al. (2022), who suggested that organisations would be willing to adopt RPA if they believed it fitted their current work and existing IT architecture.

Another important finding for compatibility of RPA was that some participants suggested that insurance processes prone to automation such as claims and underwriting involved the processing of both structured and unstructured data which might not be compatible with RPA. Choi et al. (2021) match those incompatibility concerns observed in this study. In their study, they found that processing of unstructured data such as handwritten notes, images, and multiple format files were a challenge for RPA, and it was suggested that RPA needed to be augmented with optical character recognition (OCR) and natural language processing (NLP) to be able to convert the unstructured data to an RPA-readable format (Choi et al., 2021). Sobczak (2021) further identified high-quality digital data as an important success factor for RPA implementation programs. With that being considered, this study confirms that there is a positive relationship between compatibility with PEOU and PU of RPA; however, it is important for insurance organisations to take necessary measures to ensure that their data formats and processes are compatible with RPA.

d) Perceived cost

Cost relates to how expensive the technology or innovation is (Tornatzky & Klein, 1982 as cited by Rogers, 2003). In this study, perceived costs emerged from the analysis, and across all interviews, the participants commented on the costs involved in the adoption of RPA. Costs associated with RPA adoption included license costs, implementation costs, maintenance, and additional investments made towards upskilling employees in RPA (Choi et al., 2021). One of the key findings was that the costs perceived by participants were found to have an adverse influence on the adoption of RPA within the South African insurance industry. Similarly, a prior study also found perceived cost as a major influencing factor in the adoption of RPA, and at the same time, a negative influence on adoption especially in emerging economies (C. Sharma et al., 2022). It was also

suggested that the cost of RPA was critical in the selection of the RPA tool (Kumar et al., 2021).

The findings of this study also indicate that the influence of the cost of the technology on the decision to adopt or reject RPA was dependent on the firm size and its financial risk appetite. These findings agree with those of Kumar et al. (2018), who suggested that the perceived costs of new technology have minimal effect on larger organisations due to their financial flexibility and availability of resources.

5.2.3 *Organisational factors*

a) Management support

Prior studies have noted the importance of management support in facilitating the adoption of RPA within an organisation (Sharma et al., 2022; Tew, 2019; Lamberton et al., 2016). The findings of the study found management support to be pervasive throughout the adoption process of RPA. Participant A explained that the support from managers had a multifaceted impact on the adoption of RPA: **a)** it reflects participation and commitment of managers in embracing newer technologies; and **b)** it has a positive influence on perceptions of low-level staff towards RPA. These findings corroborate the ideas of Sharma et al. (2022), who signify that role management is a key factor in driving and communicating the adoption of RPA throughout the organisation.

It was also suggested that, in some cases, scepticism and resistance were found in managers with little knowledge of RPA. A possible explanation for this might be that of Participant J, who explained that it was difficult to get initial buy-in from managers when there was a fear of information asymmetry. It was therefore suggested that a trial implementation (pilot) needs to be conducted before management endorses the new technology. This reflects the views of Stople et al. (2017), who also found that demonstrating the capabilities of RPA builds trust in the technology and wins over management.

b) Skills

Contrary to expectations, this study did not find skills to have a positive influence on the perceived ease of use and adoption of RPA. A possible explanation for this might be attributed to the perceived lack of skilled RPA talent available within the insurance industry. Since Calitz et al. (2021) state that RPA is a new technology to many industries, organisations should implement RPA training and skills development programs to reduce the skills barrier in the adoption process. This is also supported by Lamberton et al. (2016), who established that upskilling an employee enables first-hand experience and ensures that there is technological knowledge transfer throughout the organisation. However, this does not appear to be the case within the SA insurance industry, as this study found that the skills remained a barrier to RPA adoption because organisations outsourced RPA-skilled talent from vendors rather than upskilling internal staff, thus creating a heavy reliance on vendor support.

It is somewhat surprising that no specific skills were identified by the participants as important for RPA adoption, as opinions differed, with some suggesting that there were no specialised IT skills required whilst others thought that for organisations to uncover the full potential of RPA, the RPA users needed to have some technical and business skills.

c) Strategy

According to Rawashdeh et al. (2022), strategy describes a company's RPA strategy plan that outlines the automation journey. This may involve a single automation process or a complete transformation. There was some variance in the findings as to whether strategy had an influence or no influence on the adoption of RPA. Whilst the majority saw strategy as having no significant influence on the adoption, a few participants argued that the adoption of RPA was a strategic approach that required some sort of prior planning. Lacity and Willcocks (2020) found that it was critical to begin a technology adoption journey with a clear vision and plan, and in their earlier research, they also suggested that having a strategy enabled an organisation in determining where and how RPA could be deployed within the organisation.

Although participants shared how the adoption of RPA changed the existing business strategy, and disrupted back-office functions and operational services, there were no strong views that supported strategy as a significant factor influencing the adoption or non-adoption of RPA. The analysis further indicated that strategy was perceived as a “nice-to-have” element in the RPA adoption journey rather than a requirement. However, three participants argued that the presence of an RPA strategy within an organisation enabled management and/or change agents to communicate the expected changes as a result of RPA adoption to the employees, thus improving the acceptance of the technology within an organisation.

Although little evidence was found in the literature that examined the relationship between strategy and technology adoption (Rawashdeh et al., 2022), an alignment of the strategy to the change management process was found in this study.

d) Change management

An interesting finding to emerge from the analysis was change management. Concerning change management, six participants mentioned its role in the RPA adoption process. This finding is supported by previous studies that found change management as a positive influence on the acceptance and use of RPA by organisations (Wallace, 2022; Sobczak, 2021; Willcocks et al., 2019). Change management is identified as a key success factor for RPA implementation programs (Willcocks et al., 2019). In their study, Willcocks et al. (2019) explained the role of change management in RPA projects as a strategy used to minimise any negative effects of technological change within the organisation, whereas poor change management in the RPA adoption process can have negative consequences externally and internally.

This study found that poor change management in the RPA adoption process influenced the workforce. The analysis highlighted that some organisations faced adoption challenges which involved employees resisting and derailing the adoption process, projects failing due to bots not functioning as intended, and change-averse organisational culture. Sobczak (2021) states that the

implementation of RPA without an effectively communicated change plan affects not only the technological infrastructure of the organisation but also impacts the workforce. This is supported by Wallace (2022), who found that the success of RPA implementation would require a change management process to positively influence the organisational culture into accepting the new technology. Based on the interview data, it was perceived that embedding a people-centric change plan into the RPA adoption process that addresses the human side of change and gradually introduces RPA technology would create positive perceptions about RPA in the wider organisation.

5.2.4 *Environmental factors*

a) Competition pressures

Zhu and Kraemer (2006) define competition pressure as “the degree of pressure that the company feels from competitors within the industry”. In reviewing the literature, competition pressures were found to have a significant and positive influence on the adoption of new technology (Rawashdeh et al., 2022; Gangwar et al., 2015). The findings of this study evidenced normative isomorphism in insurers adopting RPA, with the entrance of Insurtechs, micro-insurers and other industry pressures. Most of the participants (10) suggested that RPA adoption in the insurance industry had become a strategic necessity that enabled insurers to maintain a competitive edge and expand their customer base. This is in line with Siderska (2021), who found that the competitive edge derived from RPA adoption correlated positively with the perceived usefulness of the technology.

b) Vendor support

According to Rogers (2003), the role of vendors is significant in creating awareness and encouraging the adoption of new technology. With regard to RPA, vendor support can come directly from software vendors or consultants (also referred to as implementation partners). The latter, mostly partners with insurance organisations, can ensure the success of RPA projects (Schlemmer et al., 2022). The findings of this study indicate that vendor support plays a critical role in RPA adoption and has a positive influence on the perceived ease of use of RPA. These

findings are supported by Rawashdeh et al. (2022), who found that the assistance obtained from vendors safeguards the intended RPA projects against adoption, implementation, and maintenance challenges.

An interesting finding regarding vendor support was that of the six participants who demonstrated how the variety of support services offered by vendors impacted their popularity amongst insurers, as many insurance organisations opted to partner with vendors who provided the most support (training, installation, maintenance, system updates, etc). The study also found that continuous support received from vendors positively influenced the usefulness of the technology and encouraged the continuance of RPA use.

c) Government regulations

The insurance industry is a highly regulated industry (OECD, 2017) and organisations operating in the strictly regulated environment have low technology adoption (Holmberg & Härning-Nilsson, 2020). However, with the trajectory of RPA within the insurance industry, insurers must understand how the law of work impacts the adoption of automation technology, and vice versa (Fox et al., 2021). The study found that the current regulatory landscape in South Africa was lagging behind the adoption of emerging digital technologies, as participants suggested that there were currently no laws regulating the use of RPA in the insurance industry.

Contrary to the outcome of this study, it is worth noting that recent studies by Strumpher (2021) and Wangui (2020) explained the influence of government regulations on technology adoption. In his study, Strumpher (2021) found that South Africa's Protection of Personal Information Act (POPIA) embraced the use of disruptive technologies such as RPA within the financial sector. The study further suggested the POPIA supported the re-engineering and automation of the existing business process; however, accountability was placed on organisations to ensure the protection of their client data. The earlier study by Wangui which examined the adoption of RPA by Kenyan insurance companies found that regulatory laws by the government did support the use of innovative technologies,

and this was perceived to have a favourable influence on RPA adoption (Wangui, 2020).

One unanticipated finding in this study was that despite the lack of regulatory laws supporting the adoption of RPA, two participants highlighted the regulatory compliance benefit insurers get from RPA adoption. Several studies showed how RPA can be implemented to ensure regulatory compliance, where they explained that the automation regulatory compliance process involves bots triggered to check the accuracy and validate client information, identify noncompliance, and thereafter, generate regulatory reports as opposed to manual checks done by human resources (Oza et al., 2020; Sreeja & Shanthini, 2018; WNS, 2018). Despite these promising findings, the study has been unable to demonstrate the influence of government regulations on the adoption of RPA within the South African insurance industry. So, the question remains as to how government regulations influence RPA adoption within the insurance industry.

5.3 Summary of Chapter 5

This chapter presented a discussion of the findings of this research. Firstly, the common antecedents driving RPA adoption within the insurance industry were highlighted. Thereafter the factors influencing the adoption of RPA were presented in the three contexts: technological (relative advantage, complexity, compatibility) organisational (skills, management support, strategy) and environmental (competition pressures, vendor support and government regulations). Two factors that emerged from the findings were further discussed and linked to the literature.

5.3.1 *A revised conceptual model*

According to the discussion above, two factors that emerged from the empirical data were to be incorporated into the framework due to their significant influence on the adoption of RPA, hence a revised conceptual framework is presented in Figure 5-1.

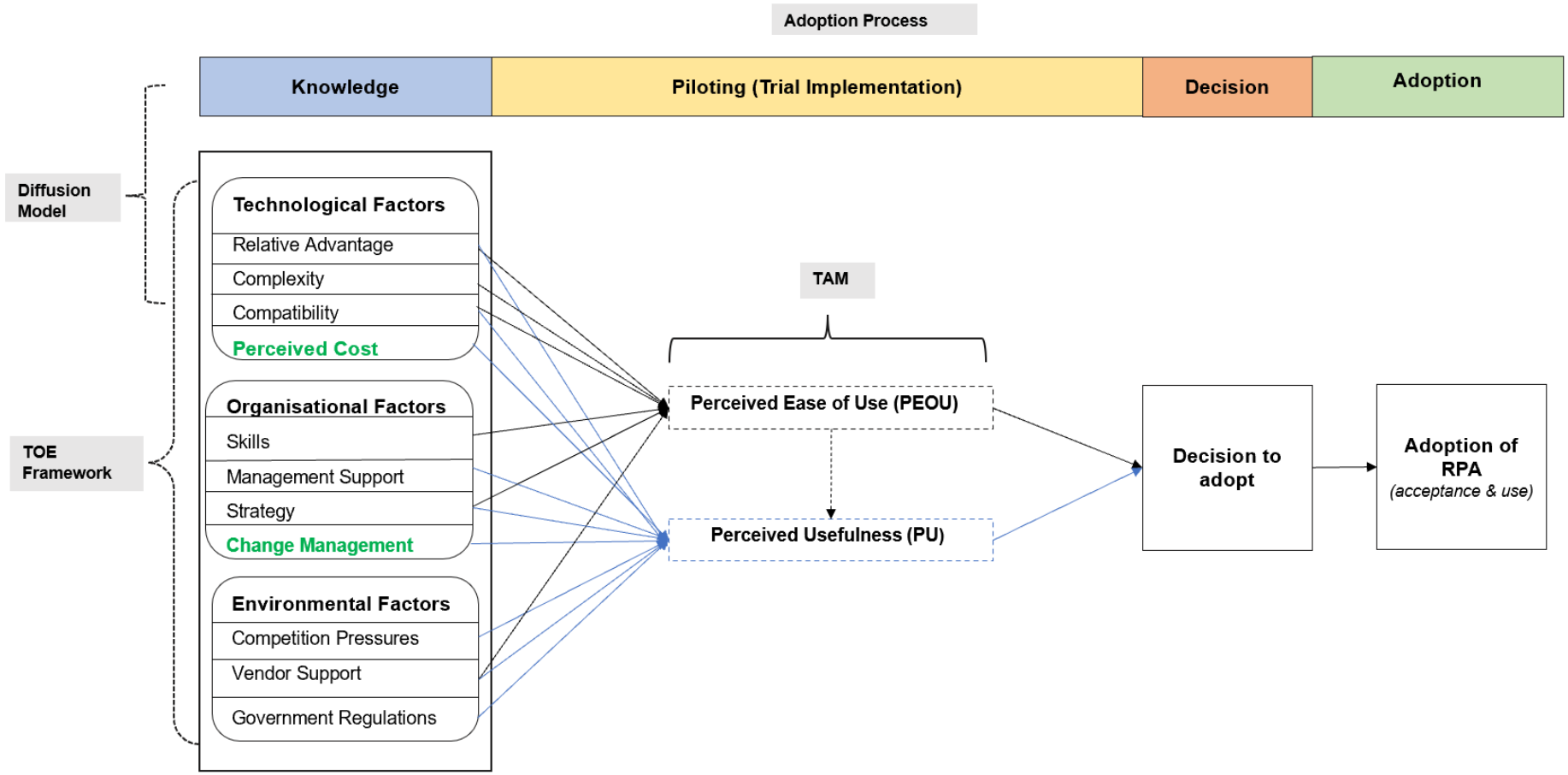


Figure 5-1: Revised TOE-DOI-TAM Conceptual Framework

CHAPTER 6. RECOMMENDATIONS AND CONCLUSION

6.1 Introduction

This chapter is divided into four sub-sections. Firstly, an integration of the findings of the study with the research questions will be presented, followed by contributions and limitations of this study, a case for further research, and lastly the recommendations and conclusion.

6.2 Linking to the research questions

The study investigated the antecedents and factors influencing the adoption of RPA in the South African insurance industry. Additionally, the study set out to determine which factors have a positive and negative influence on RPA adoption. Based on the research questions, this study both contributes to and confirms the findings of existing literature.

a) **RQ 1.** *What are the potential antecedents to RPA adoption in the South African insurance industry?*

In terms of Research Question 1, this study discovered that numerous industry-specific antecedents are centred around the benefits of RPA implementation. The study found that insurance organisations are increasingly turning to automation technologies such as RPA to drive the digital transformation of the industry. It is worth noting that the study found that the high volume of manual processes and presence of legacy systems; rising demands of customers; and high operational expenses were the most cited drivers of RPA adoption by the participants and in the documents reviewed, which aligned with the existing literature (Pillay & Njenga, 2021; WNS, 2018; Lamberton et al., 2016).

b) **RQ 2.** *What factors influence the adoption of robotic process automation (RPA) in the South African insurance industry from a technology, organisational and environmental perspective?*

One of the more significant findings to emerge from this study is that change management was found to be a significant factor influencing RPA adoption in the South African insurance industry. This extends the organisational constructs in the previous study of Tornatzky and Fleischer (1990). The findings of the study contribute to the existing knowledge of integrating adoption models to provide a comprehensive understanding of new technology adoption at an organisational level.

c) **RQ 2.1.** *Which factors are perceived to have a positive influence on RPA adoption by the South African insurance industry?*

The adoption of RPA assures economic benefits and operational efficiencies for the insurance industry (Katke et al., 2019). This study found a relative advantage to have the most significant influence on adoption. The findings highlighted several benefits of RPA that have positively influenced the trajectory of RPA adoption in the South African insurance industry. These benefits include greater operational efficiencies, improved service quality, cost advantage, and scalability.

d) **RQ 2.2.** *Which factors are perceived to have a negative influence on RPA adoption by the South African insurance industry?*

Based on the findings of this study; perceived costs, lack of skills and change management were perceived to have a negative influence on RPA adoption. The findings discovered that the current shortage of skilled RPA talent in the insurance industry was a deterrent to the adoption of RPA. Additionally, the findings of this study show a strong correlation between poor change management and failed RPA projects. The study acknowledges that RPA adoption leads to a high degree of change within the organisation, which can be seen as an opportunity for insurers to embed a change management strategy in the adoption process to prepare the organisation for the changes and increase the chances of a successful RPA implementation. The costs associated with RPA adoption (licensing, installation, and maintenance) were perceived to be high, a

view that poses a threat to the adoption of the technology due to the economic pressures within the insurance industry post pandemic. Although the study found government regulations as a non-significant influence on adoption, the findings articulated that there are data protection and regulatory considerations that may contribute to RPA adoption challenges in insurance.

6.3 Contributions of the study

The study contributes to the understanding of RPA adoption within the South African insurance industry. The findings present both practical (insurance industry) and theoretical (academic space) contributions.

6.3.1 *Industry*

The findings reported in Chapter 4.3 shed light on the uptake of automation technologies in the insurance industry. Insights gained from this study may be of assistance to the South African insurers seeking to adopt RPA. This study adds a fresh view of RPA adoption in the insurance industry, as it presents a comprehensive standpoint from both insurance professionals and RPA vendors. Additionally, this study provides senior insurance managers, RPA implementation vendors, and other decision-makers (senior technical professionals) within the insurance industry with a better understanding of the factors that influence the adoption of RPA. Though the study identified a list of technological, organisational, and environmental factors, the influence of change management on the adoption is emphasised. The study suggests that for the successful adoption and integration of RPA in insurance organisations, a change management strategy needs to be embedded in the adoption process from the onset to mitigate resistance and educate employees on the technology.

6.3.2 *Academic*

As the pace of RPA implementation within the financial services sector increases, this study contributes to the body of knowledge on RPA adoption by providing a deeper understanding of the phenomenon within the South African insurance

industry. This study highlights and extends the literature on factors influencing RPA adoption using an integrated TOE-TAM-DOI framework (see Figure 2-5) that provides a theoretical foundation for the adoption of new technology at an organisational level. Further research can examine and validate these factors identified in Figure 2-5 and can be used to study the adoption of other automation technologies in the financial services or manufacturing sectors.

6.4 Limitations of the study

This study is exploratory; hence its application is limited and not suitable for generalisation. Although this study is based on a small sample of participants, the findings present a dual perspective that is represented by both RPA vendors that operate in the insurance industry and insurance professionals that have experience with RPA.

6.5 Recommendations for future research

Based on the findings of this study, three possible opportunities can be investigated in further studies. First, the TOE-DOI-TAM conceptual framework proposed in section 2.8 is not exhaustive in its constructs, and therefore calls for testing, validation, and modification of the constructs. Using the framework proposed in this study, further research may be conducted on the enablers and deterrents of RPA adoption using quantitative methods.

Secondly, a similar study may be conducted with a focus on the impact of RPA adoption on employees in the financial services sector. Lastly, the study recognises change management as a significant factor influencing RPA adoption, which previously has not been incorporated in other adoption models such as TAM 1 (Davis et al., 1989; Venkatesh et al., 2003) and TOE (Tornatzky & Fleischer, 1990); therefore, there would be value in conducting research on the role of change management in the adoption process as RPA and other digital technologies such as AI and Machine Learning mature in financial organisations.

6.6 Conclusion

Industry pressures from both competitors and customers have signified the strategic intent for insurers to adopt automation technologies such as robotic process automation (RPA) to maintain competitive advantage, expand their customer base, and increase profits.

This qualitative study investigated the conceptual factors influencing the adoption of RPA. A conceptual framework was developed based on the integration of adoption models in the existing literature. Using the TOE-DOI-TAM framework as the basis for the interview guides, the study gathered empirical data via semi-structured interviews with twelve participants comprising insurance professionals and RPA vendor partners. The slight heterogeneity in the sample provided rich insights into the factors influencing RPA adoption in the South African insurance industry. The findings of this study set out to provide an in-depth understanding of RPA adoption and provide a foundation for insurers to formulate effective strategies for successful RPA adoption projects.

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APPENDIX A: Participant Information Sheet

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

PARTICIPANT INFORMATION SHEET

Dear Prospective Participant

Factors that influence Robotic Process Automation adoption in the South African insurance industry

My name is Namdipha Kunene. I am completing my Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am conducting research on the factors that influence Robotic Process Automation in the South African insurance industry under the supervision of Dr Gregory Lee. This research is expected to collect important information that could influence the uptake of Robotic Process Automation within the insurance industry.

As part of this project, I would like to invite you to take part in a one-on-one interview. This activity will involve open-ended questions that will be divided into four sections, to capture the antecedents; technological factors; organisational factors; and environmental factors influencing RPA adoption in the insurance industry and will take around 45-60 minutes. With your permission, I would also like to audio record the face-to-face or online interview using a digital device. This recording will be stored on a password-protected computer and only the researcher will have access to this recording. It will be deleted after 2 years.

Your participation is completely voluntary and involves no risk, penalty, or loss of benefits whether or not you participate. You may withdraw from the interview at any stage per ethical requirements. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. The interview will be completely confidential and anonymous as no identifiable information will be asked during the interview. With your permission, the data collected from this research project may be used by other researchers in an anonymized format and not disclosed to anyone else. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time.

If you have any questions during or afterwards about this research, feel free to contact me on the details listed below. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,

Researcher:
Namdipha Kunene, 1405197@students.wits.ac.za

Supervisor:
Dr Gregory Lee, gregory.lee@wits.ac.za, (011) 717 3626

APPENDIX B: Consent Form

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Research Participant Consent Form

I, ……., consent to participate in the research on **factors that influence Robotic Process Automation adoption in the South African insurance industry**. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous	YES	NO
I agree that the researcher may use anonymous quotes in his / her research report	YES	NO
I agree that the interview may be audio recorded	YES	NO
I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO

…… (signature)
…… (name of participant)
…… (date)

APPENDIX C: Research Instrument

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Interview Questions

1. **Introductory Questions**

   1.1. Can you briefly describe your current role in the organisation?
   1.2. What is your involvement in the RPA adoption process?
   1.3. Could you briefly define what is RPA?

2. **Antecedents of robotic process automation adoption**
   2.1. Could you describe the role of RPA within the insurance industry?
   2.2. Could you briefly describe the drivers of RPA adoption in the insurance industry?
   2.3. Can you describe at what stage is your organisation on its RPA journey?
      a. Pilot Stage (starting point)
      b. Partial adoption (RPA implemented in one process)
      c. Full implementation (across multiple processes)
      d. Integration (RPA is integrated with other technologies e.g., AI)
   2.4. Could you identify the challenges you have experienced during the RPA adoption journey? What actions were taken to resolve the challenges?

3. **Technology Factors**
   3.1. Can you give an example of key benefits for insurers adopting RPA? And would you say these benefits are enabling more insurance organisations to adopt RPA?
   3.2. Would you describe RPA as a complex technology to use? And how has the complexity of RPA affected its adoption within the insurance organisation?
   3.3. Did find RPA to be compatible with the existing IT infrastructure? If not, can you give an example of any changes to the IT environment that were made to accommodate RPA adoption?

4. **Organisational Factors**
   4.1. Would you describe management support as important for the adoption? Can you give an example of management support facilitating or hindering the adoption process?
   4.2. What influence do you think a RPA strategy has on the decision to adopt RPA within an organisation?
   4.3. How do you think the current skillsets in insurance influence the adoption of RPA?

5. **Environmental Factors**
   5.1. How do you perceive the influence of competition intensity on adoption of RPA?
   5.2. Are there regulatory laws considered when automating the processes? If so, how do you perceive the influence of those regulatory laws on the adoption of RPA in the insurance industry?
   5.3. Does the pre- and post-sale support or training offered by vendors influence the adoption of RPA?? If yes, can you give an example of how the support services have influenced the adoption of RPA by insurers?

6. **Open Discussion**

APPENDIX D: Ethical Clearance

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB1405197/398
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	Factors influencing robotic process automation adoption in the South African insurance industry
Investigator / Researcher	Miss Namdipha Kunene
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed confidentialty.
Issue Date of Certificate	2022-08-17
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

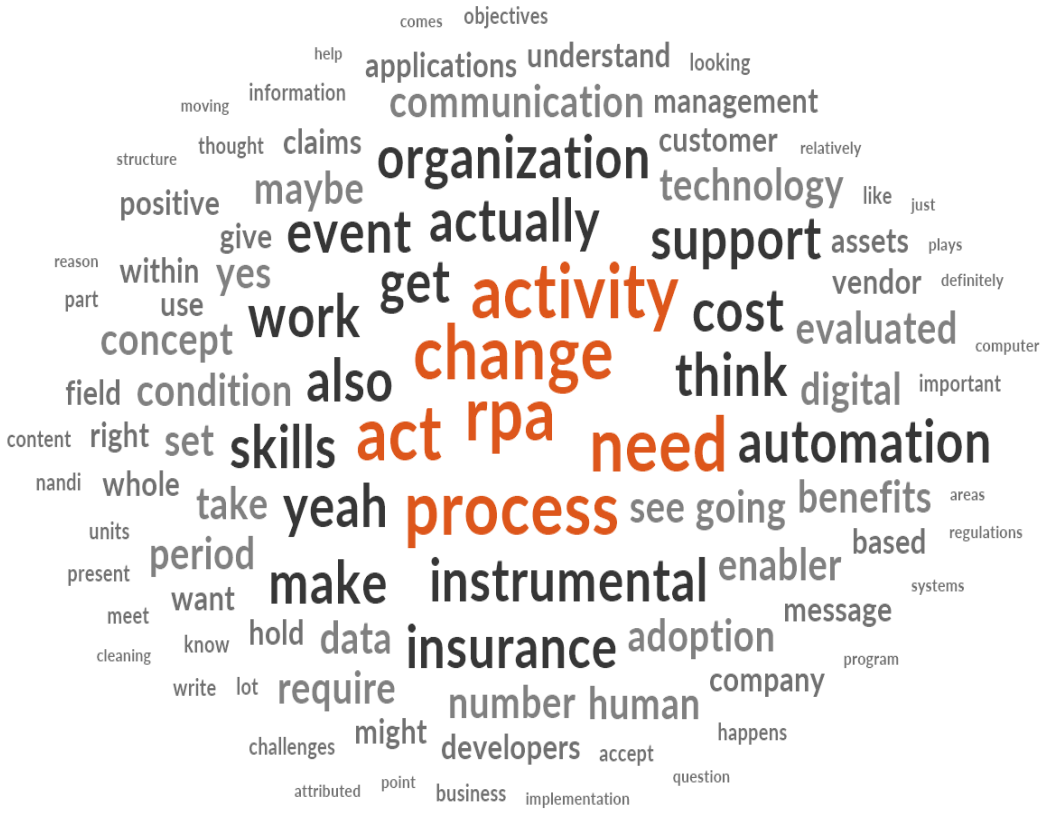
I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

22/08/2022
Date:

APPENDIX E: NVIVO word cloud

Word cloud based on interview transcripts.



APPENDIX F: Thematic Analysis

Codebook generated as part of the thematic analysis process.

Themes	Codes	Descrpion	Files	References
Antecedents		**Drivers to the adoption of RPA by insurers**	**29**	**54**
	Enhanced Customer Experience		12	21
	Rapid Cost Savings		7	9
	Streamlined Insurance Processes		10	24
Environmental Factors		**External factors influencing RPA adoption**	**33**	**81**
	Competition Pressures		11	23
	Government Regulations		10	25
	Vendor Support		12	33
Organisational Factors		Internal (within the organisation) factors influencing RPA adoption	41	125
	Change Management		6	22
	Management Support		11	21
	Skills		12	36
	Strategy		12	46
Technology Factors		**Factors related to the technology that affects its adoption**	**47**	**132**
	Compatibility		12	25
	Complexity		12	32
	Cost of Technology		11	26
	Relative Advantage		12	49