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Examining Factors Influencing the Adoption of e-HRM in the South African Public Sector: An Integrated Diffusion of Innovation (DOI) Theory and Trust Perspective

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University of the Witwatersrand

Faculty of Commerce, Law and Management

School of Economics & Business Sciences

"Examining Factors Influencing the Adoption of e-HRM in the South African Public Sector: An Integrated Diffusion of Innovation (DOI) Theory and Trust Perspective"

A dissertation submitted in partial fulfillment of the requirements for the degree of Master of Commerce in Information Systems at the University of the Witwatersrand, Johannesburg

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ABSTRACT

The increase in the use of technology by organizations to transform the Human Resource Management (HRM) function to be more strategic has changed the way employees interrelate and perceive the HRM. For instance, the implementation of technological innovations in human resources has gradually replaced the old traditional face-to-face, manual, and paper-based interactions between employees and their respective HRM personnel. These technological innovations include the use of real-time web-based HRM portals or applications, also known as, the electronic human resource management (e-HRM) to facilitate the employer-employee HRM processes.

Furthermore, successful implementation of e-HRM has potential benefits of elevating the value of human resource function (Grant & Newell, 2013) to be that of a strategic business partner (Bondarouk, Schilling & Ruël, 2016), thus reducing time the HR function spends on administrative tasks. However, the diffusion of these technological innovations (e-HRM) into HRM practices and the realization of its potential benefits will depend on whether the employees of a firm are willing to adopt and optimally utilize the technology. It is for this reason that this study was undertaken.

The purpose of this study is to investigate the determinants of e-HRM adoption in the South African public sector. Additionally, this study draws on the Diffusion of Innovation Theory (DOI) and contemporary literature on user trust in technology to develop and test a theoretical model of the factors influencing the South African public sector employees' adoption of e-HRM.

Moreover, this study took a positivist approach and an online survey method was used to obtain the empirical data. The empirical data was collected from a sample of 173 employees of the Road Accident Fund (RAF), a state-owned entity. The results show that there is an overall adoption of e-HRM amongst the RAF employees. Correlation analysis showed that the RAF employees perceived relative advantage, compatibility, complexity, observability, voluntariness, and trust to have a significant direct effect on e-HRM adoption. Additionally, the results showed that trialability had a significant impact on e-HRM adoption on its own but not in the presence of the aforesaid independent variables. In closing, this study serves as a guide for examining factors contributing to e-HRM adoption. In addition, it affords the public sector decision makers with

insights into plausible dynamics that are most likely to be enablers and inhibitors of e-HRM adoption.

Keywords: *E-HRM, Electronic Human Resource Management, Diffusion of Innovation Theory, Trust, Perceived Voluntariness*

DECLARATION

I declare that this research report is my own, unaided work except as acknowledged in the text. It is being submitted for the degree of Master of Commerce in Information Systems to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination at this or any other university.

Signed: _____

Mxolisi Abednego Phiri

31 January 2019

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Last but not least, I dedicate this piece of work to my late grandmother ***Gogo Samaria Miriam na-Nkambule Masina*** who always believed in me and my abilities to succeed in life.

∞∞∞∞∞∞∞∞— *To God be the glory* —∞∞∞∞∞∞∞∞

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LIST OF ABBREVIATIONS

DOI/IDT – Diffusion of Innovation Theory

EHRM – Electronic Human Resource Management

ESS – Employee Self-Service

HR/HRM – Human Resource/Human Resource Management

HRIS – Human Resource Information System

HRIT – Human Resource Information Technology

ICT – Information and Communication Technology

IS/IT – Information System/Information Technology

PCA – Principal Component Analysis

PCI – Perceived Characteristics of Innovation

PCU – Personal Computer Utilization

RAF – Road Accident Fund

SOE – State Owned Entity / State Owned Enterprise

TAM – Technology Acceptance Model

TOE Framework – Technology, Organization and Environment Framework

TOP Framework – Technology, Organization and People Framework

TPB – Theory of Planned Behaviour

TRA – Theory of Reasoned Action

UTAUT – Unified Theory of Acceptance and Use of Technology

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CHAPTER ONE: INTRODUCTION

1.1 Background

The advent of information technology and its constant evolution have become so pervasive and it has infiltrated both our private and professional lives (McWhorter, 2010). This technological permeation has made it difficult to think of any contemporary organizations (Orlikowski & Scott, 2009) and/or individuals that do not to rely on it to perform their daily tasks. These persistent changes and evolution of technologies in the knowledge economy put together with the rapid speed of globalization and market competition have pushed organizations to depend heavily on information technology (IT) more than ever before. Not only does this reliance on technology help firms acclimatize to these developments, it also helps firms gain competitive advantage (Chang, Chang & Wang, 2011; Lucas, Agarwal, Clemons, El Sawy, & Weber, 2013; Mithas, Tafti & Mitchell, 2013).

Furthermore, the use of IT systems has significantly permeated if not impacted on organizations. It has radically transformed organizational processes in so many different ways with the human resource management (HRM) being no exception (Kavanagh, Thite, & Johnson, 2015; Parry & Tyson, 2011; Strohmeier, 2007). According to Fink, Yogev and Even (2017), most organizations invest in IT based on the belief that it would enable their organizations to align and support their strategic business goals. Additionally, it is believed that IT investment would also provide management support for quick decision-making and information-sharing (Rubin & Rubin, 2013). Therefore, the use of IT in human resource (HR) can be seen as a strategic mechanism that empowers HR managers with tools necessary to respond quickly to the ever-changing global markets. However, technology alone cannot ensure that firms realize the promised benefits thereof. This is due to the fact that at the core to any organizational success and survival is the management of a firm's assets – these are employees or people (Fulmer & Ployhart, 2014). The other organizational asset is the performance of its human resource (HR) function and how it adds value to the organization. To achieve performance of HR, the employees would need to be engaged and motivated to adopt the new technology being implemented. The following section explains the significance of ICT in enabling the HRM function to optimally perform its duties within the firm.

1.1.1. Human Resource (HR) and Electronic Human Resource Management (e-HRM)

The human resource management (HRM) is concerned with the management of human capital within an organization. Its purpose, amongst others, is to enable firms to increase their productivity and performance (Paauwe, Guest & Wright, 2013). Moreover, e-HRM enables firms to achieve competitive advantage (Grant & Newell, 2013; Ruël & Van der Kaap, 2012) through a proactive approach to the administration of and engagement with its employees anytime and anywhere. With the dawn of the knowledge economy taking centre-stage, the attraction and retention of intellectual capital is increasingly becoming a strategic weapon for most organizations (Alias, Noor, Hassan, 2014; Lin & Tang, 2016; Thite, 2004). It is for this reason that the human capital and/or personnel management will continue to be an integral part of any corporate strategy for a firm to be competitive.

Over the years, the role of HRM has transmuted from its traditional definition of personnel management to the contemporary role of strategic HRM (SHRM). This transition has compelled decision-driven organizations to become more creative and look for alternative solutions that would add value and efficiency through the use of IT. The use of advanced technological solutions by firms has further transformed the manner in which the traditional HR function operates and interacts with business. For example, the usage of e-HRM innovation has elevated the worth of the firm's HR function (Grant & Newell, 2013; Parry, 2011) from being an administrative function to be that of a strategic business partner (Bondarouk, Schilling & Ruël, 2016; Heikkilä, 2013; Panayotopoulou, Vakola, & Galanaki, 2007; Parry & Tyson, 2011). This has enabled HRM to focus less on administrative duties and rather focus on recruiting, developing, and retaining skilled employees for the firm (Ensher, Nielson & Grant-Vallone, 2002; Marler & Fisher, 2013).

Through e-HRM, traditional HR administrative activities have been delegated to managers and employees themselves in a form of employee self-service tools. As a result, firms have reported significant reductions in organizational cost and time (Panayotopoulou et al., 2007). Consequently, this has been realized through a large scale of transactional HR activities being automated, standardized and centralized. This automation of HR processes has enabled the transformational aspect of HRM to flourish and focus on being an essential business function as well as being a strategic partner (Ulrich & Dulebohn, 2015; Bondarouk & Ruël, 2013) and a business driver.

Accordingly, it has empowered the HR personnel to deliver better services to all of its stakeholders (Stone & Dulebohn, 2013). Furthermore, this transformational aspect promulgates the HRM to be an accepted service provider within the firm other than the mere advice-giving partner. Additionally, it alters the roles of the company's employees and managers to be that of customers and consumers of the HRM's services and products.

Current studies indicate that there are various definitions of e-HRM. However, extant literature shows that a number of research papers seem to gravitate around the use of two commonly cited definitions of e-HRM (Strohmeier, 2009; Strohmeier & Kabst, 2009; Strohmeier, 2007; Ruël, Bondarouk & Looise, 2004). The earliest definition which gained popularity amongst the researchers described e-HRM as an organizational tool for executing HRM policies, practices and strategies via the support and utilization of web-based technologies (Ruël et al., 2004). This definition was framed again to reflect on both the technological and organizational environment. Strohmeier (2007) redefined e-HRM as the use of IT to network and support two or more users in their shared execution of HR duties. Based on these definitions it is apparent that e-HRM is broad term describing the use of ICT to enable HRM department to perform its functions. The purpose of introducing e-HRM was to automate and relieve the HRM functions from its traditionally administrative duties so that it could focus on being a strategic asset of a firm (Marler & Fisher, 2013).

Extant literature on e-HRM by top journals in HR and IS shows that numerous studies focused on factors affecting the adoption and/or consequences of e-HRM between multinational companies in developed economies (Strohmeier & Kabst, 2014; Strohmeier & Kabst, 2009; Holm, 2014), and mostly concentrated on the post-implementation issues (Van Geffen, Ruël, & Bondarouk, 2013). Conversely, there is still a theoretical gap on the full understanding of such factors and their related consequences (Bondarouka, Parry & Furtmueller, 2017) which forms part of the basis for this study. In addition, very few studies of this nature have been conducted within the South African context, hence providing the researcher with an opportunity to test the generalizability of the results obtained by previous studies conducted in developed economies using a different setting, i.e. a developing country like South Africa.

These findings, however, may be difficult to be generalized to both public and private sector companies operating in a developing country like South Africa because of the major differences that exist between these two settings.

Moreover, developing nations continue to be severely affected by the structural and institutional challenges in as far as e-HRM adoption is concerned. For example, the use and implementation of ICT is limited by inadequate and expensive telecommunication infrastructure as opposed to those of developed nations (Gallego, Gutiérrez, & Lee, 2015; Humphrey, Mansell, & Paré, 2003). Furthermore, other studies showed that lack of adequate resources also constrain developing countries in terms of IT adoption (Hameed, Counsell, & Swift, 2012). Accordingly, it is imperative to examine the factors affecting the adoption of e-HRM from the perspective of a developing country. Additionally, limited (*if not the lack of*) theoretical literature underpinning the adoption of e-HRM in an emerging setting is a challenge that this study seeks to close the gap on.

Lastly, extant literature shows that it is important to take cognizant of cultural differences when implementing new technologies in different contexts (Reynolds & Valentine, 2011; Hofstede, 2009; Hofstede & Hofstede, 2005). Taking into consideration the fact that the majority of e-HRM adoption researches were conducted with organizations in developed economies, the current study investigates this phenomenon from the perspective of an emerging economy. With regards to some of the possible barriers to technology adoption discussed above, this study found it imperative to investigate factors affecting the adoption of e-HRM in a developing context through the lenses of diffusion of innovation theory. Additionally, this study further tests the relationship between the perceived characteristics of innovation, perceived voluntariness, trust and the e-HRM adoption.

1.1.2. Study Context – South Africa

South Africa's 2030 vision overtly embraces technology through publication and legislation as outlined on its government's National Development Plan (South African Government, 2012) and related white papers (Department of Telecommunications and Postal Services, 2016). This study investigates the factors affecting the adoption of e-HRM by a state-owned entity (SOE) called the Road Accident Fund (RAF) which falls under the South African government's department of transport within the public sector domain. The RAF is a statutory body mandated by the South African legislature to payout claims incurred as a result of road accidents on behalf of the

department of transport. The South African Constitution makes provision for every road users who are inside the precincts of South Africa, to be compensated for any loss or damage that occurred as a result of negligent and/or unlawful driving of motor vehicles (Road Accident Fund Act of 1996). It is through the act of the South African Parliament that the Road Accident Fund (RAF) was established as a juristic agent of the government to administer and provide a social insurance cover to all users of the South African roads on behalf of the department of transport and the state.

The core objective of the RAF is to offer an insurance cover and compensation to all road users who have been injured and/or families of victims who died as a result of motor vehicle accidents that occurred inside the precincts of South Africa. In addition, this cover is based on a common law of delict or fault-based system whereby it requires that the claimants or people involved in a motor vehicle accident to prove that the damages or losses incurred did not occur as a result of their own negligence or wrongdoing – rather, someone was at fault or caused the accident. Once it has been proved that the claimant was not at fault, the RAF would then compensate them only for loss or damage inflicted as a result of bodily injury or death while indemnifying the person responsible for the accident. Inherently, the system design suffers from a lengthy litigation process in paying out exorbitant claims fees based on attorney determined scales, high frequency of accidents occurring in the country, and thus leading to the RAF running out of funds in order to meet its juristic mandate in compensating accident victims.

1.1.3. E-HRM Systems at the Road Accident Fund (RAF)

e-HRM was first introduced in 2008 at the Road Accident Fund through the deployment of phased SAP ESS modules such as the leave management module. The management's purpose of starting with this module was to enable all RAF employees to capture and view their leave days on a web portal without the intervention of HR personnel. Further enhancements on the system were introduced and implemented such as the performance management module in 2011. This module built upon the capabilities of the previous module and enabled RAF managers and employees to capture their performance contracts and scores online. Despite these modules having been in operation for a very long time, there seem to be challenges in their operability and adoption, and HR is constantly involved in resolving these mundane issues which defeats the whole purpose of an e-HRM system.

Currently, the RAF uses both the manual (*i.e. paper based*) and e-HRM systems to manage all of its employees' records, organizational processes, and activities. This organization intends to fully automate its HR processes so as to do away with any manual systems at its disposal, thus, enabling the HR department to focus fully on organizational strategic goals. One of the e-HRM tools commonly used by the RAF is the employee self-service (ESS) web-portal supported by SAP (SAP Netweaver). This tool is mostly used for the support of operational and relational activities of e-HRM. These activities include, but are not limited to, administrative functions such as payroll and supporting business processes like training. Most employees of RAF use this tool to conduct their HR related activities even though it is not mandatory to use it as some employees prefer to do things the old manual and traditional way. For example, some employees still use paper forms to submit their leave requests to HR while there is a system in place to do that. Moreover, this e-HRM system is not fully operational as some activities still require HR's manual intervention. For instance, performance management processes such as *performance reviews* are still conducted on paper between line-managers and employees and then later captured on the web portal.

Furthermore, this organization's business operation is constrained by a number of challenges. These challenges range from manual paper-based systems, insufficient technical resources, lack of integration between the various disparate systems (both internal and external), user-system trust, dependency on legacy systems and obsolete technologies that have reached the end of support from proprietary vendors. Also, these challenges will be conflated in the near future as the RAF is in a process of changing its operations to align and prepare itself for an imminent migration to a new policy legislation called the Road Accident Benefit Scheme (RABS). This policy induced migration requires the use of technology to be at the forefront of the RAF business model. However, this technological evolution would still require human intervention and an improved customer experience for it to succeed. In addition, the employees of the RAF who will be using this technology should feel comfortable using it and trust that it performs reliably and yields high-quality information (Bondarouk & Ruël, 2009).

1.2 Background to the Problem

Globalization and market uncertainty have pushed firms to look for innovation (Roberts, Galluch, Dinger & Grover, 2012) in order to survive the volatile business environment. This turbulence has led to some organizations investing millions of Rands/Dollars on newer technological innovations with a view to gain competitive advantage (Lucas Jr. et al., 2013; Laudon & Laudon, 2011) in the modern knowledge economy. However, these technological innovations cannot operate in a vacuum, they need to be integrated with and operated by human beings. For this interaction to be successful there needs to be a grounded theoretical apprehension of factors affecting the adoption and use of such technological innovations by the human capital. E-HRM, as a technological innovation, is aimed at automating and integrating HRM processes, practices and policies with IT. E-HRM is further touted to elevate the value of HRM from being an administrative function to be a strategic business partner delivering strategic advantages (Bondarouk, Schilling & Ruël, 2016). Additionally, e-HRM promises to deliver an electronic solution for the HRM function. This solution allows HRM to modernize and solve its main operational (*e.g. payroll, personnel data management, etc.*), relational (*i.e. e-recruitment, e-performance, etc.*) and transformational (*i.e. strategic knowledge management, strategic re-orientation, etc.*) aspects which have attracted attention from many organizations (Marler, 2009; Panagiotis, 2014).

Moreover, literature shows that the use of e-HRM could allow firms to gain efficiency and effectiveness through standardization and centralization of its HR processes (Marler & Fisher, 2016). However, for firms to realize these potential benefits they need to communicate their strategies with employees who will be affected by such systems in order to build trust relations. Other studies have shown that once employees are onboard and involved in the implementation of e-HRM initiative, they will start feeling confident in using and trusting the employee self-service (ESS) web-portal system as a tool for electronic delivery of HR services aimed at improving their interaction with HR. This study uses the diffusion of innovation theory to extrapolate some of the key factors impacting on the adoption of e-HRM systems. Although the application of this theory has proven to be robust over the years, a user *perceived trust* construct was added in the proposed model to address some of the shortcomings associated with the use of this theory.

1.3 Problem Statement

Presently at the Road Accident Fund, both the manual and electronic human resource systems are used fairly equally. Management at this state-owned entity (SOE) intends to fully automate and digitize its human resource processes through e-HRM – at the moment, e-HRM usage at the RAF remains partly voluntary. However, there seems to be challenges in terms of employees of this company trusting management as well as trusting the IT automation of their traditional HR activities, processes, and practices. This is evidenced by the introduction of various e-HRM tools and initiatives as a means of facilitating the interaction, engagement, and communication between this SOE and its employees. In order for this SOE's management to realize the net benefits of successfully deploying e-HRM systems within their organization, they must ensure that factors affecting user adoption, customer experience and user engagement are addressed. This is due to the fact that employees often complain about using the various e-HRM systems as being a waste of their time because of lack of system training, system complexity system bugs, and poor communication and change management. It is for this reason that management should constantly engage their employees and show them the potential benefits and value that could be derived from a successful adoption and implementation of a new system such as e-HRM (Parry, 2011).

Furthermore, extant literature on e-HRM shows that various studies were conducted in developed economies focusing on the factors that influence the adoption and/or consequences of electronic human resources between multinational corporations (Holm, 2014; Strohmeier & Kabst, 2014; Strohmeier & Kabst, 2009), and mostly concentrated on the post-implementation issues (Van Geffen, Ruël, & Bondarouk, 2013).

Thus, this study addresses the research gap by investigating the determinants of e-HRM adoption in a developing economy like South Africa through the lenses of an integrated diffusion of innovation theory juxtaposed with trust in e-HRM technology as a determinant factor. Additionally, this study further examines the extent of these factors influencing the adoption of e-HRM as well as their relationships with the perceived characteristics of innovation, perceived trust in e-HRM technology, perceived voluntariness and the e-HRM adoption. Lastly, this study proposes a conceptual model to be used when adopting e-HRM innovations within the South African public sector context.

1.4 Purpose of the Study

The purpose of this study is to examine the determinants of HRM innovation influencing the adoption, diffusion, and exploitation of e-HRM technology within the public sector by focusing on the South African Road Accident Fund employees. Furthermore, this study aims to examine the relationship between the Diffusion of Innovation Theory constructs, perceived user trust in e-HRM technology, perceived voluntariness of system use, and the e-HRM innovation adoption in the Human Resource Management (HRM). Lastly, an integrated Diffusion of Innovation and trust model is proposed for use in future research on the adoption e-HRM within a developing country context.

1.5 Research Questions

The SOE under investigation has implemented the first few phases of the enterprise resource planning tool, i.e. SAP Netweaver's employee self-service (ESS) web-portal, a couple of years ago but still there seems to be glaring resistance to use the e-HRM system by the employees. It is for this reason that the researcher intends to delve deeper into the subtle reasons behind this resistance by examining, *possibly missed*, factors affecting the adoption of this strategic e-HRM innovation.

Since this study aims to investigate the determinants of e-HRM adoption within the public sector of a developing economy like South Africa, then this study seeks to answer the following research question:

- To what extent do trust, perceived voluntariness, and the diffusion of innovation characteristics affect the adoption of e-HRM in the public sector in South Africa?

1.6 Research Objectives

In order to answer the aforesaid research question, this research study undertook the following research objectives:

- Test the Diffusion of Innovation model developed by Rogers (2003).
- Examine the relationship between relative advantage and the intention to adopt e-HRM in the public sector

- Examine the relationship between compatibility and the intention to adopt e-HRM in the public sector
- Examine the relationship between complexity and the intention to adopt e-HRM in the public sector
- Examine the relationship between trialability and the intention to adopt e-HRM in the public sector
- Examine the relationship between observability and the intention to adopt e-HRM in the public sector
- Examine the relationship between trust in technology and the intention to adopt e-HRM in the public sector
- Examine the relationship between perceived voluntariness of e-HRM use and the intention to adopt e-HRM in the public sector
- Examine whether the abovementioned relationships are influenced by external factors defined herewith as controls (e.g. age, qualification, job grade, office, years in current position, years of experience in current organization, computer usage, proficiency in e-HRM usage, e-HRM services usage, e-HRM delivery channel and time spent using these e-HRM services)

1.7 Intended Contribution of the Study

1.7.1 Contribution to Theory

There appears to be a lack of a grounded theoretical underpinning on the e-HRM literature (Bondarouk, Parry & Furtmueller, 2017). Therefore, this study aims to contribute to theory by integrating the perceived characteristics of innovation (PCI), perceived voluntariness, and perceived trust in e-HRM technology into a conceptual model so as to assess their relationship and influence on the holistic realization of the HRM innovation in the South African public sector state-owned-entity of a developing economy. Lastly, this study proposes a new and/or adapted conceptual model to be used when adopting e-HRM innovation.

1.7.2 Contribution to Practice

The practical implication of this study is that it shows the significance of perceived trust in technology and the nature of perceived system voluntariness which can be useful for guiding practitioners to focus on improving e-HRM adoption, i.e. by focusing on improving trust in e-HRM system using targeted management guidelines. Furthermore, this study helps identify potential determinants of e-HRM adoption constructs in relation to other previously identified determinants of technology acceptance as perceived by the public sector employees that could hinder the successful adoption of a strategic e-HRM innovation.

1.8 Delimitations of the Study

This study has several delimitations that need to be acknowledged, and they are listed as follows:

- There are three dimensions of trust (i.e. social, interpersonal, and technological). Out of these three dimensions, this research explores the technological one.
- Due to limited literature on factors affecting the adoption of e-HRM within the developing context, this study relies on extant literature based on what has been covered in other developed countries.
- This study is conducted on RAF employees who work in the Gauteng province of South Africa.

1.9 Conclusion

This chapter introduced the study by first outlining its background and context. The background and context in this chapter provided a definition of e-HRM as well as the types of e-HRM systems used at the RAF. Additionally, gaps in extant literature were discussed and an outline of how this current study aims to fill the gaps was provided. The purpose and objectives of this study were also outlined. Lastly, the significance of this study was discussed in terms of its contribution to theory and practice. The delimitations of this study were also highlighted.

1.10 Structure of the Report

Having defined the problem, purpose, and overarching objectives of this study, it is therefore imperative to present a synopsis of this study as follows:

Chapter One: Introduces the study's background and context, problem statement, purpose and the objectives, intended contributions as well as the delimitations of the study.

Chapter Two: This chapter reviews the extant literature relative to e-HRM technology adoption. Furthermore, various technology adoption frameworks that exist are outlined and the diffusion of innovation theory was chosen as an appropriate model for this study based on its predictive power. It is used henceforth in this study to examine the factors affecting the e-HRM technology adoption within the South African public sector. Additionally, the chapter defines trust and perceived voluntariness and their roles in technology adoption. Lastly, the study proposes a research model and its related hypothesis which will be tested later on in chapter four.

Chapter Three: This chapter deliberates on the research methodology that will be used in this study. A positivist paradigm was chosen as the study seeks to test the relationship between the perceived characteristics of innovation, trust, perceived voluntariness of system use and the e-HRM adoption. In closing, the research design and ethical considerations that underpin the data collection process are discussed.

Chapter Four: This chapter presents the results of the collected empirical data. At the very outset, this chapter provides the results of the pilot study. Subsequently, the background to the process of the survey distribution and data collection is discussed. This is followed by a brief discussion on how the data was statistically cleaned. Additionally, this chapter provides a synopsis of the background to the respondents' demographic details. Thereafter, this chapter will present the test results for both reliability and validity measures of the various perceived characteristics of innovation, trust and voluntariness constructs as well as their correlations through regression. Finally, this chapter concludes by testing the proposed hypotheses.

Chapter Five: This chapter facilitates a discussion on the findings and data analysis as carried out in the previous chapter with its corresponding hypotheses. Furthermore, it synthesizes the results relative to the identified hypotheses underpinned by extant literature as well as the literature

deliberated on in chapter 2. The first part of this chapter deliberates on the extent of e-HRM adoption by the South African public sector. The second part of this chapter categorizes the hypotheses as supported and partially supported hypotheses.

Chapter Six: This chapter concludes the study by presenting: - (1) a summary of the findings, (2) a brief discussion of key contributions which the study supplements to the body of knowledge on the subject of e-HRM adoption within the public sector environment, and (3) implications for practice. Finally, this chapter concludes by outlining this study's limitations as well as suggesting possible recommendations for future research.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

E-HRM studies are found in various areas of research like IS, psychology, management, human resource management, organizational behaviour and marketing (Bondarouk, Parry, & Furtmueller, 2017). This study uses journal articles obtained from the aforesaid multi-disciplinary research areas. With regards to the literature review process, a database search on Google Scholar and EBSCO Host was performed to attain the primary source of information. The reason for using these databases was to search for previous literature relating to HR technologies, more specifically looking for academic journals, published books and peer-reviewed articles. To find the relevant articles, the following keyword search terms were used: 'e-HRM', 'e-HR', 'HRIS', 'electronic human resource management', 'digital HRM', 'electronic human resource', 'electronic HRM', 'human resource information system', 'online HRM', 'online human resource management', and 'virtual HRM'.

In order to examine contemporary developments in the e-HRM literature, this study only focused on articles with 'e-HRM' as their crucial area of research. Upon reviewing the articles, it became evident that to a great extent, research in e-HRM has been extensively conducted in developed countries (Holm, 2014; Strohmeier & Kabst, 2014; Strohmeier & Kabst, 2009). In addition, literature review shows that research in this field falls within two streams. The first research area is fixated on factors impacting on the successful adoption of e-HRM whereas the last one looked into the consequences of using e-HRM. Scholars such as Tornatzky & Fleishcher (1990) developed a framework called Technology, Organization and Environment (TOE) in order to understand the enablers and inhibitors of technological adoption at a firm level. However, in the e-HRM literature they have a similar concept called the TOP framework (i.e. *technology, organization and people factors*) (Bondarouk et al., 2017). A study conducted by Bondarouk et al. (2017) found that the people factors construct of the TOP framework to be a significant factor influencing the adoption of e-HRM. These people factors were listed as trust, innovative and visionary leadership, technology skills, change management, and communication (Bondarouk et al., 2017).

A lot of studies on trust in technology artefacts have sparked interest amongst the IS researchers. However, there is limited literature conducted to determine the attributes of trust affecting and

influencing the user's decision to trust technology (Vance, Elie-Dit-Cosaque & Straub, 2014). Furthermore, extant literature indicates that trust as a construct of the aforesaid *people factors*, has a positive effect on the adoption of e-HRM (Bondarouk et al., 2017; Bissola & Imperatori, 2014). In fact, the use of e-HRM by employees was found to reflect an organizational structure of power and politics. For example, if there is no engagement and commitment between employees and their HRM, then trust is compromised. Therefore, any envisaged HRM innovation such as e-HRM may not be fully adopted because of mistrust. Additionally, literature further shows that employees' trust in technology could affect the productivity and performance of a firm (Gould-Williams, 2003; Dirks & Ferrin, 2002). This finding consequently elevates employees as a valuable organizational asset in the transformation of the HRM practices (Bondarouk, 2011; Bondarouk & Ruël, 2013).

Lastly, supplementary studies have raised both social and ethical concerns about the use of e-HRM with regards to employees' privacy and security threat, hence calling for further studies on this topic (Stone, Stone-Romero, & Lukaszewski, 2006). For example, researchers have questioned the possibility of these systems being used as monitoring tools which could be invasive of employees' privacy as compared to the traditional ways of handling HR matters between employer and employee. Therefore, based on the findings of the reviewed literature it is apparent that more research is required on the effects of trust on e-HRM adoption especially within the IS field in general, and in a developing context in particular. It is for this reason that this study seeks to close this knowledge gap by examining the determinants of e-HRM adoption as well as testing their relationship with the perceived characteristics of innovation, perceived voluntariness of system use and perceived trust in e-HRM technology.

2.2. Types of e-HRM

The human resource department has always been inundated with various forms of organizational data to process, manage and store. These data vary from historical to latest policies, payroll, day-to-day activities, and personnel data management, e-performance, e-learning, and e-recruitment, strategic knowledge management, and organizational change processes (Lepak & Snell, 1998). It is for this reason that the human resource information technology (HRIT) was introduced to enable the HR to store and retrieve information as an electronic database. This capability ensured that HR data could be easily accessed by anyone with the right roles within the firm at anytime and

anywhere using web-based applications. However, there seems to be a number of terminologies used to describe the use of information technology (IT) within the human resource (HR) discipline, with e-HRM being fairly interchangeably used with HR Information System (HRIS) (Haines & Petit, 1997), virtual HR (Lepak & Snell, 1998), web-based HRM (Ruël, Bondarouk & Looise, 2004), and intranet-based HR (Bondarouk & Ruël, 2009). Some of the most cited terminologies are: e-HRM, HRIS and Virtual HR. Firstly, the electronic human resource management (e-HRM) is defined as the application of IT used by an organization in a networked environment to support two or more employees in performing their shared HR activities (Strohmeier, 2007). Therefore, the emphasis on e-HRM is about the HR department internalizing its activities to such an extent that all employees have an easy access to their HR services as long as they are connected on the network, i.e. internet, intranet or any other kind of network as defined by the organization. Furthermore, e-HRM allows the HRM to perform operational or administrative tasks such as running the payroll, updating and maintaining personnel data among other things; perform relational tasks such as the use of self-service systems or portals to engage with the HR; and lastly perform transformational tasks such as the deployment of strategic activities of HRM.

Secondly, the human resource information systems (HRIS) refers to the use of system to obtain, store, manipulate, retrieve, and distribute organizational HR information (Kavanagh, Gueutal & Tannenbaum, 1990). Additionally, Kavanagh et al. (1990) argues that HRIS does not only cover the computer aspect of HR, in fact, it is also comprised of people, policies and procedures, and data. Therefore, HRIS is solely focused on systems and processes that are used by HR practitioners as opposed to the electronic functionality (e-HRM) of HRM. Thirdly, a Virtual HR is defined as a network-based system built upon relationships via the use IT to enable organizations to “acquire, develop and deploy intellectual capital” (Lepak & Snell, 1998). These relationships and/or partnerships could refer to service level agreements with third parties in terms of outsourcing of HR activities using a network. Through virtual HR, it is apparent that all HR activities are handled and/or outsourced to a third party using external platforms. Therefore, based on the aforementioned definitions, it is ostensible that the e-HRM is an all-encompassing definition of the variations within the HR profession and the use of IT.

A few definitions of e-HRM exist in the academic literature. However, literature review shows that there are two most cited definitions of e-HRM, and these are from Strohmeier (Strohmeier,

2007; Strohmeier, 2009; Strohmeier & Kabst, 2009) and Ruël et al. (2004). This study adopts Ruël et al.'s definition of e-HRM as the utilization of web-based information technology channels to automate and implement organizational HR policies, processes and strategies (Ruël et al., 2004). Since e-HRM systems service different audiences and/or stakeholders of the HRM function, it is therefore categorized and grouped into three types (Lepak & Snell, 1998), namely, operational, relational, and transformational. The following section briefly discusses all three types of the electronic human resource system.

2.2.1. Operational e-HRM

This function is responsible for managing all basic transactional and administrative activities of the human resource management (Lepak & Snell, 1998). These include (*but not limited to*) payroll, day-to-day activities, and personnel data management. The advent of e-HRM has benefitted the HRM function in several ways. For example, literature shows that firms who adopted e-HRM reported positive benefits such as cost reduction and increased efficiency and productivity (Marler, 2009; Ruël et al., 2004). This means that there would be less HR officers performing basic administrative activities of the HRM department. Thus, this result further shows a significant transformation of the HRM function towards achieving its goal of becoming a strategic business partner (Bondarouk, Schilling & Ruël, 2016; Heikkilä, 2013; Panayotopoulou, Vakola, & Galanaki, 2007; Parry & Tyson, 2011).

2.2.2. Relational e-HRM

This function denotes all the activities that are meant to maintain working relationships between HRM function and other related stakeholders. According Lepak and Snell (1998), HRM activities performed under this function include (*but not limited to*) e-performance, e-learning, and e-recruitment. Therefore, the relational e-HRM function plays a significant role in the HRM lifecycle as it allows employees, irrespective of their job title, to be able to interact with their respective HR activities through automated self-service applications, such as SAP NetWeaver Portal also known as ESS, for capturing leave and viewing payslips. Consequently, the HRM officer can focus on doing other strategic organizational activities.

2.2.3. Transformational e-HRM

This type of e-HRM refers to all strategic activities of HRM (Lepak & Snell, 1998). These include (*but not limited to*) strategic knowledge management, strategic competence management, strategic re-orientation, and organizational change processes (Lepak & Snell, 1998). Moreover, this function is concerned with creating linkages between HRM activities, strategic management processes, and strategic organizational objectives (Ruël et al., 2004; Poisat & Mey, 2017). Therefore, the transformational aspect of e-HRM is pivotal in the overall organizational development because it allows the firm to develop integrated policies and practices that seek to achieve organizational strategy through the efficient controlling of the company's valuable assets, i.e. the human asset (Martin-Alcazar, Romero-Fernandez & Sanchez-Gardey, 2005) – consequently, transformational e-HRM supports strategic alignment between the organization and HRM.

2.3. Trust and e-HRM

There are various definitions of trust that exist in literature. Some researchers define trust as a person's choice to willingly depend on another person/party based on the shown attributes of the other person/party (Rousseau, Sitkin, Burt, & Camerer, 1998). Based on this definition, it is apparent that trust plays a significant role in all relationships (Montague, 2010), and including those situations characterized by uncertainties (Luhmann, 1979). Studies conducted within the IS field indicate that the majority of research done on the trust phenomenon focused on the "*trust in people*" aspect instead of the "*trust in technology*" aspect (McKnight, Carter, Thatcher, & Clay, 2011). Moreover, these studies in the main, examined how trust in people influenced the adoption and acceptance of technology (McKnight et al., 2011). A case in point involves extensive studies that investigated the role of trust in internet vendors (Kim, 2008; Lim, Choon, Lee, & Benbasat, 2006; Gefen, Karahanna, & Straub, 2003) and technology acceptance. Additionally, all the studies mentioned above indicate that there is a significant relationship between trust in people and a person's choice to use new technology. However, very little literature exists that examine the effects of trust in technology on the adoption thereof.

Since trust involves relying on another person and tolerating some form of vulnerability that a particular action/task may or may not complete, this study is focused on trust perceptions held by

the RAF employees towards the adoption of e-HRM technology. Trust formations are crucial in the RAF context because of the associated risks involved should the e-HRM system prove to be unreliable and/or malfunctioning. For instance, a risk in this environment involves employees' confidential and personal data falling into the wrong hands due to the e-HRM innovation not properly secured or ring-fenced against any unauthorized access. Other studied have shown that when there is risk, trust must be obligatory (Pavlou, 2003; Mayer, Davis, & Schoorman, 1995). In other words, the presence of trust diminishes the likelihood of perceived risk in individuals (Pavlou, 2003). In addition, literature shows that trust in technology is important in influencing technology beliefs and behaviour (McKnight et al., 2011). In other words, the RAF employees should believe and trust that the e-HRM system is reliable and accurate for them to trust it. Therefore, if the RAF employees believe that the e-HRM system cannot be trusted to perform its functions consistently and reliably then they are more likely not to adopt the innovation. In closing, this study seeks to apprehend the antecedents of trust relative to the adoption of e-HRM systems.

2.4. Theoretical Background

2.4.1 Technology Acceptance

Technology has revolutionized the way organizations conduct their businesses. Not only has it enabled organizations to automate their business processes, but it has also been used as a strategic tool (Parry, 2011) to provide organizations with a competitive edge over its rivals. Having realized the benefits that could be achieved through purposeful use and deployment of technology, some organizations invest millions of Rands/Dollars on newer technological innovations to deliver better value products and services (Ababneh, Shrafat & Zeglat, 2016). With these investments being committed, there comes the question of whether or not the introduction and/or use of the newly acquired technology will yield favourable outcomes – i.e. will it be adopted by the company's employees? To reflect on this question, the literature shows that technology use and acceptance dominates the discourse of most researchers in the IS field (Venkatesh et al., 2003).

To understand users' intentions to use a new IT gadget, from an individual, organizational and technological perspective, researchers have proposed various theoretical frameworks and models that help identify critical factors affecting the successful adoption of such a technology. Furthermore, the Technology Acceptance Model (TAM) developed by Venkatesh and Davis (2000) is derived from Ajzen & Fishbein's theory of reasoned action (TRA) which views

individual's behavioural intention as controlled by their attitude towards using a particular information technology and its perceived usefulness (Ajzen & Fishbein, 1980).

Previous studies have been widely using TAM and it is regarded as a good predictor of individual's behavioural intention to use an information system (Lee, Kozar & Larsen, 2003). In TAM, two main constructs are found to be influencing an individual's behavioural intentions to accept and use technology (Venkatesh & Davis, 1996). These constructs are the perceived usefulness (PU) and the perceived ease of use (PEOU). Furthermore, researchers went on to examine eight (8) existing models and theories to identify and integrate the characteristics that explain individual's behaviour and attitude concerning technology adoption (Venkatesh et al., 2003). Additionally, the unified theory of acceptance and use of technology (UTAUT) was proposed as a theoretical model to be used when explaining individual's behaviour and attitude towards technology adoption (Venkatesh, Morris, Davis & Davis, 2003).

2.4.2 Theory of Diffusion of Innovation (DOI)

The diffusion of innovation theory brings to the fore the significance of communication (Rogers, 2003; Rogers, 2004) and peer networking or exchanging of information as determinants of innovation adoption. Several definitions for an innovation have emerged from different researchers. Rogers defines innovation as an idea that could be perceived as new by individuals and/or firms adopting it (Rogers, 2004; Rogers, 2003; Rogers, 1995). Other researchers have defined innovation as the process of generating, accepting, and implementing new ideas, processes, products and/or services (Thompson, 1965). These two definitions can be interpreted to imply that an innovation should not only be viewed as a final product but an idea, practice and/or process. These definitions further highlight that an innovation does not have to be something completely new in the eyes of the adopting individual or firm. Additionally, Rogers further argues that diffusion is a practice whereby an invention is conversed thorough certain channels during a particular period between participating members of a community (Rogers, 2004; Rogers, 2003). Therefore, innovation diffusion refers to the decision-making process when individuals or organizations adopt a new idea or product. There are four factors that influence the adoption process (Rogers, 2003), namely:

- the innovation attributes,

- the communication channels,
- time,
- and lastly, the social system (Rogers, 2003).

In other words, the theory suggests that innovation can be graphically represented in a bell-shaped graph postulating that in most of the time very few people would be interested in a new idea and possibly adopt its use. The more individuals and/or firms talk about the innovation and share their experiences with their peers the more people become aware of the innovation, thus leading to its mass development or production. With time the innovation permeates and diffuses across the social community until it reaches a point of saturation.

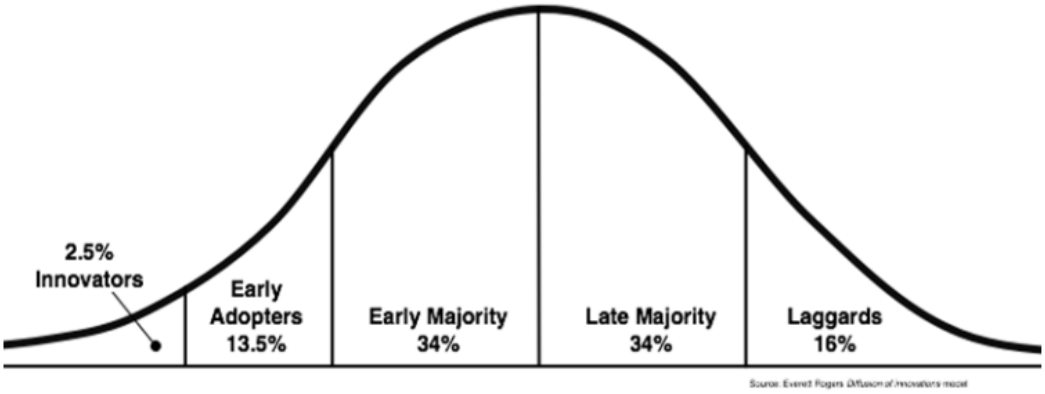
Additionally, Figure 1 below shows five (5) categories of innovation that can be used to classify individuals or organizations who adopt an innovation:

- innovators,
- early adopters,
- early majority,
- late majority,
- and laggards.

In closing, to explain why some innovations were more successful while others failed and/or were not even adopted, Rogers (2003) further identified five (5) distinct attributes of innovation as follows:

- relative advantage,
- compatibility,
- complexity,
- trialability,
- and observability.

These characteristics were identified in order to help business leaders evaluate the innovation traits when considering to embark on innovative changes. Therefore, this study examines whether the HR innovation concept of e-HRM has permeated enough for public sector employees to feel confident in using and trusting the system as a tool for electronic delivery of HR services.



Source: http://blog.leanmonitor.com/early-adopters-allies-launching-product/

Figure 1: Adopter categorization of innovation (Rogers, 2003)

2.4.3 Comparison of Theories/Models

Researchers argue that technology acceptance should not be viewed as a continuous process of decision making towards the use of technology which is mostly influenced by both internal and external factors (Venkatesh et al., 2003; Venkatesh & Davis, 2000). Literature shows that various theories and/or models are proposed, developed, and used to examine factors affecting technology acceptance and use (Venkatesh et al., 2003). These theories/models have led some researchers to focus on individual adoption of technology whilst others focused on the organizational adoption level (Venkatesh et al., 2003). The current study focuses on factors affecting the adoption of e-HRM in the public sector by the RAF employees at the individual level. Therefore, only theories/models that delineate the individual users' decision to adopt technology will be compared. Upon conducting a literature review it was shown that these theories/models are related to each other and are potential candidates for this study. The following theories/models were identified to best explain technology adoption and acceptance at an individual level: Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model TAM/TAM2, Unified Theory of Acceptance and Use of Technology (UTAUT) and Innovation Diffusion Theory (IDT).

2.4.3.1. Theory of Reasoned Action (TRA)

This theory was first developed by Fishbein and Ajzen (1975) for sociological and psychological studies. Through this theory, an individual's behaviour is used to explain their behavioural intentions to use technology. For example, this theory suggests that human behaviour can be predicted with certainty and explained three cognitive components, namely, attitude, social norms and behavioural intention. Furthermore, this theory posits that the individual's behavioural intention is influenced by attitude toward and subjective norms (Fishbein and Ajzen, 1975). Additionally, this theory views attitudes and subjective norms as key determinants of an individual's behavioural intention to adopt new technology (Karahanna, Straub, & Chervany, 1999).

2.4.3.2. Theory of Planned Behavior (TPB)

This theory builds upon the Theory of Reasoned Action with an additional construct named the perceived behavioural control (PBC) (Ajzen, 1991). TPB postulates that noticeable beliefs about a system have an effect on an individual's behavioural intention thus resulting in an actual behaviour (Ajzen, 1991). Moreover, studies who used this theory found that subjective norms (SN), user attitude (ATT), and PBC to be important determinants of individual's behavioural intention to adopt and use technology (Hsu, Yen, Chiu, & Chang, 2006; Liao, Chen, & Yen, 2007).

2.4.3.3. Technology Acceptance Model TAM/TAM2

This theory was first developed by Davis (1989) centered on the TRA and TPB. This theory explains the critical elements influencing user acceptance of technology. This theory identified two constructs as key determinants affecting a person's intent to use technology, namely, the perceived usefulness (PU) and perceived ease of use (PEOU). Moreover, literature shows that PU significantly affects the user's intention to adopt technology (Davis, 1989) as well as the user's intention to continue using the system (Agarwal & Karahanna, 2000; Venkatesh, 2000). Additionally, literature further shows that the PEOU construct influences both the PU and adoption intention (Davis, 1989). Despite TAM being widely used, it has certain limitations that need to be acknowledged, such as its generality and parsimony (Dishaw & Strong, 1999). It is against this background that the extended TAM model was introduced. TAM2

had social influence processes constructs and cognitive instrumental processes added on to help increase it predictive power.

2.4.3.4. Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT identifies performance expectancy (PE), effort expectancy (EE), and social influence (SI) as significant factors influencing the intention to use a technology/system (Venkatesh, et al., 2003). Furthermore, facilitating conditions are also identified as factors that affect usage behavior (Venkatesh, et al., 2003). Additional variables are incorporated into the model as moderators, and they are: gender, age, experience, and voluntariness of use (Venkatesh, et al., 2003). Originators of this model indicate that UTAUT can explain up to 70% of the variation in user acceptance of a technology (Venkatesh et al., 2003). Moreover, literature reviews UTAUT became one of the most widely cited theories in the literature of user acceptance.

2.4.3.5. Innovation Diffusion Theory (IDT)

This theory allows researchers to study technology adoption either at organizational or individual level. IDT uses four elements of diffusion process to make sense of an innovation adoption. These components are innovation, time social systems, and communication channels (Rogers, 2003). In order to explain the process of diffusion, Rogers (2003) identified five attributes of innovation to be the key determinants of an individual's technology adoption, and these involve a person's perception about the relative advantage, compatibility, complexity, trialability, and observability of an innovation (Rogers, 2003). Literature shows that there is a significant relationship between these determinants and other studies of technology adoption and use (Kim & Crowston, 2012). For example, other studies have shown that there is a positive relationship between relative advantage and attitude (Agarwal & Prasad, 2000); compatibility had effect on perceived usefulness (Bhattacherjee & Hikmet, 2007); complexity also had a negative effect on adoption intentions (Son & Benbasat, 2007). In addition, there are also similarities between the constructs of IDT and those of other theories/models. For example, the constructs of compatibility-observability-trialability used in IDT are similar to the facilitating conditions found in UTAUT. Similarly, observability shares the same attributes as the result demonstrability.

Additionally, IDT is counted amongst the top theories used for studying and understanding technology adoption as well as apprehending the mechanisms through which a technological innovation gets disseminated within a community (Rogers, 1995). Moreover, IDT is a comprehensive conceptual framework that examines the influences of socio-technical factors on adoption (Kim & Crowston, 2012). For instance, IDT assumes (*innovation attributes adopter characteristics, communication channels, and the social system*) to be critical factors affecting individuals' choice to adopt e-HRM systems. In addition, a 20 year literature review of the IDT by Li & Sui (2011) indicates a considerable research progress being achieved by this theory as it has been applied to new research fields and it continues to provide a theoretical direction on the diffusion of newer innovations. This finding discloses that the IDT is a flexible theory that can be applied to any setting. Apart from the limitation highlighted about e-HRM literature lacking a theoretical grounding (Bondarouk, Parry & Furtmueller, 2017), the fact that there are limited studies focusing on trust in technology (McKnight et al., 2011), and the use of IDT constructs by other theories mentioned above, the diffusion of innovation is considered an appropriate theoretical framework underpinning the examination of South African public sector employee's adoption of e-HRM because of its maturity, robustness and flexibility to maintain its predictive power regardless of the field wherein it is applied. This study's research model and its related hypotheses are developed.

2.5. Research Model

An organizational adoption of innovation is considered as a process whereby a firm collects information about an innovation, forms an opinion about it, decides on whether to adopt or reject it and finally implements it (Rogers, 2004; Rogers, 2003). During this process, numerous determinants may influence the RAF employees' intention to adopt the e-HRM system. To expound on this phenomenon, this study addresses the research question posed earlier in Section 1.5. The research question investigates the following phenomenon:

- "*To what extent do trust, perceived voluntariness and the diffusion of innovation characteristics affect the adoption of e-HRM in the public sector in South Africa?"*

Lastly, the perceived voluntariness of system use (PV), Diffusion of Innovation Theory (DOI) constructs were adapted and integrated with Trust in e-HRM system (TT) to in order to develop this study's proposed conceptual model (**Figure 2** below)

Proposed conceptual Model

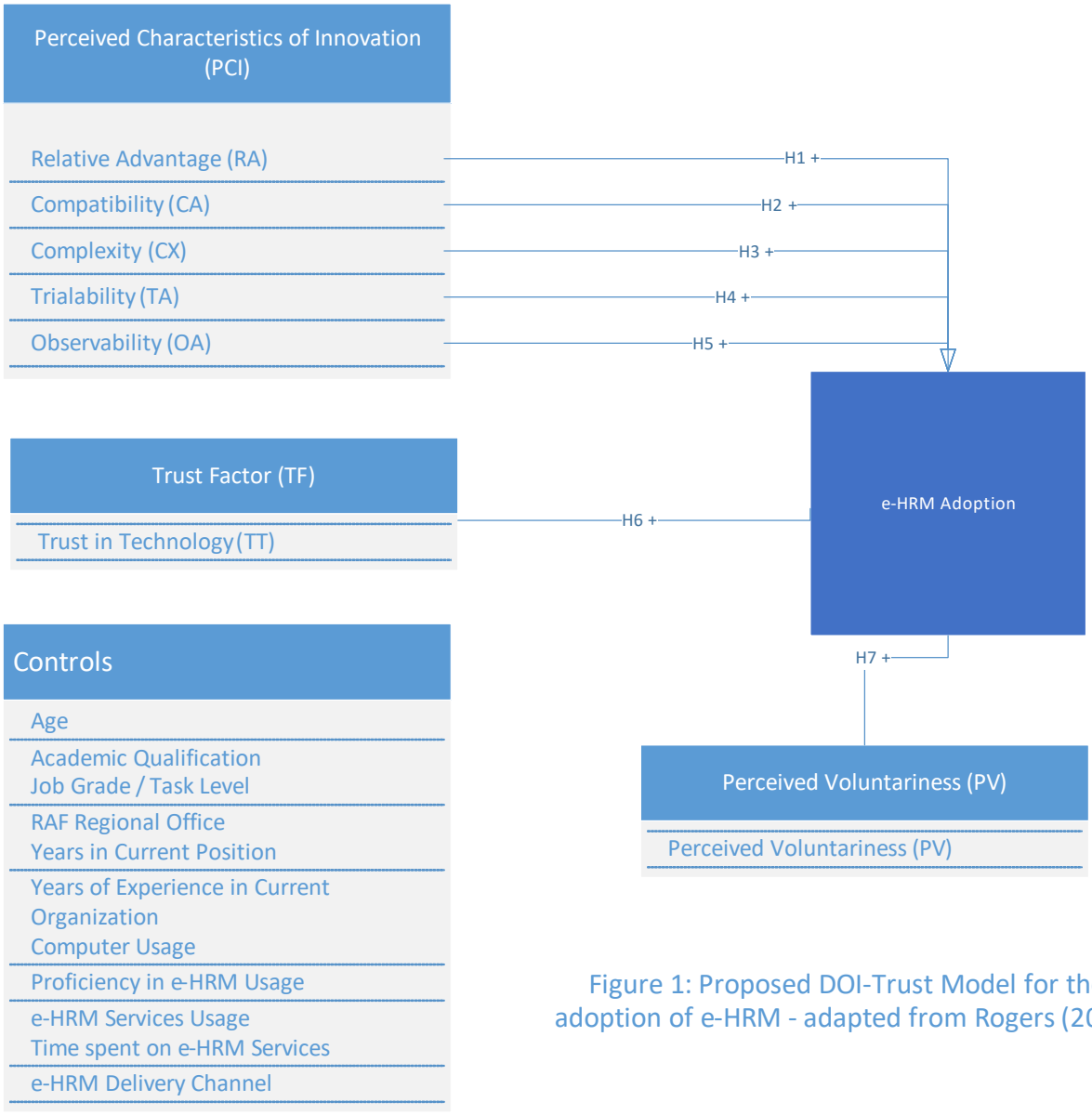


Figure 1: Proposed DOI-Trust Model for the adoption of e-HRM - adapted from Rogers (2003)

Figure 2: Proposed DOI-Trust model for e-HRM adoption

2.6. Research Hypothesis

The dependent variable in this study is the individual adoption of e-HRM innovation by the South African Public Sector employees of the RAF. This section firstly discusses the dependent variable which is referred to as the adoption of e-HRM by the South African public sector employees. Thereafter, a discussion of the independent variables (perceived characteristics of innovation, perceived voluntariness, trust in e-HRM system, and the control variables) is presented.

2.6.1 e-HRM adoption by the South African Public Sector employees

Due to the increase in external forces such as globalization and market uncertainty, organizations have turned to innovations as a solution for survival (Roberts et al., 2012). This has resulted in turbulence which has led some organizations investing millions of Rands/Dollars on newer technological innovations with a view to gain competitive advantage (Lucas Jr. et al., 2013). However, these investments do not take into account whether the firm's employees will adopt or resist these innovations. Additionally, these management investments do not consider the effect of social context (*i.e. geographical location, culture, development, etc.*) on the user's decision to adopt or reject these innovations. The choice of whether an individual will adopt an innovation and the duration it takes to reach such a determination has sparked a lot of interest amongst researchers in the various fields (Straub, 2009). Moreover, organizations tend to introduce new systems and integrate them with existing systems, thus forcing some level of adoption on employees. Some companies may not state explicitly that using a particular technology is mandatory, yet they expect their employees to use it. However, studies conducted in both mandatory and voluntary settings which used both the UTAUT and the TAM found that there was no difference between these two settings (Venkatesh et al., 2003; Venkatesh & Davis, 2000) in as far as the individual's decision to adopt new technology is concerned. Additionally, other studies show that users working on voluntary conditions reported high levels of system use and understanding because they work at their own pace without interference from management (Guo & Zhang, 2011; Moore & Benbasat, 1991). Nevertheless, a study conducted by Guo and Zhang (2011) found that users of technology who are compelled to utilize a technology spend most of the time and effort resisting the use of the new system thus reducing the chances of it being adopted and used optimally.

Although decisions about integration of new innovations rest with management, the successes and failures of such initiatives entirely rests with the individual employee's adoption patterns (Straub, 2009). In other words, individual adoption is the decision of the RAF employees to either accept or reject the e-HRM innovation (Straub, 2009). Thus, management places an expectation that the employees must adopt and use the newly acquired technology and fulfill their mandated tasks. Therefore, it is imperative to recognize the individual's traits and behaviour towards technology adoption. Furthermore, literature shows that numerous studies were carried out to examine the adoption of new technology with the main focus on the technological aspects of the invention (Straub, 2009; Venkatesh et al., 2003). However, other studies suggest that an individual's attributes must be considered when introducing a new innovation (Agarwal, 2000; Sun & Zhang, 2006; Xu & Gupta, 2009). Additionally, this proposition is based on the premise that not every individual responds the same way when dealing with and/or adopting an innovation. Lastly, in this study, the dependent variable (e-HRM adoption) is defined in terms of usage. This is attributable to the fact that the e-HRM is already in use by the RAF employees. This dependent variable will be tested against the influence of the perceived relative advantage, compatibility, complexity, trialability, observability, perceived voluntariness, and perceived trust in e-HRM technology.

The following section discusses the independent variables, namely, perceived relative advantage, compatibility, complexity, trialability, observability, perceived voluntariness, perceived trust in e-HRM system and the control variables.

2.6.2 Relative Advantage (RA)

Relative advantage is defined as the degree to which using a new technology is perceived as being better than using its predecessor (Moore & Banbasat, 1991). In essence, perceived relative advantage measures improvements of an innovation when compared to its current features. For example, potential users of an innovation would like to see how the new technology improves their current situations. Rogers's conceptualization of relative advantage is comparable to the *perceived usefulness* construct as identified by Davies (1989) and the *social influence* construct modeled by Venkatesh et al. (2003). These two constructs suggest a similar view that when an employee sees the benefit or advantage of using a new innovation, she/he is more likely or willing to use the

innovation (Davies, 1989; Moore & Banbasat, 1991; Venkatesh et al., 2003). Extant literature found the perceived relative advantage construct to have a significant influence in the adoption of innovation, and it was further found to be the best predictor of technology adoption and usage (Agarwal & Prasad, 1997; Flight et al., 2011; Moore & Benbasat, 1991; Rogers, 2003). This study expects that if the public sector employees of the RAF believe that the e-HRM innovation is useful and will help improving their job performance, then they are more likely to have a strong intention to adopt and use it. Consequently, this study hypothesizes the following:

H1: *Relative Advantage (RA) will have a positive effect on the intention to adopt e-HRM*

2.6.3 Compatibility (CA)

Compatibility is defined as the degree to which an IT innovation is perceived to be consistent with the existing values, past experiences, and the needs of potential adopters (Rogers, 1995). This definition about an innovation emphasizes the significance of presently existing values in a socio-cultural context where the innovation adoption decision takes place. In other words, Rogers (1995) suggests that for an innovation to succeed in a particular society it needs to be compatible with that society's value systems. Therefore, the perceived compatibility suggests that for e-HRM systems to be successfully adopted in a context of a developing economy, it must be compatible with the current values and belief systems of the adopting country. Consequently, in the current study the RAF employees who have a negative attitude towards the innovation due to compatibility challenges might find it very difficult to adopt and use the e-HRM system. For instance, the RAF uses both manual and electronic systems as a means of engagement between its employees and the HRM function. Therefore, the e-HRM system should offer more benefits to the employees and be compatible with the way they perform their duties. This study expects that if the e-HRM innovation is consistent with the existing RAF technologies, culture, and RAF employees' past experience, then the RAF employees would have high intentions to adopt and use e-HRM. Accordingly, this study hypothesizes the following:

H2: *Compatibility (CA) will have a positive effect on the intention to adopt e-HRM*

2.6.4 Complexity (CX)

Complexity is defined as the degree to which an innovation is perceived to be difficult to understand and use (Rogers, 2003). Rogers's conceptualization of complexity is relatively related to the *perceived ease of use (PEOU)* concept identified by Davies (1989). Rogers (2003) further argues that innovations which are perceived to be user-friendly and easy to understand tend to be adopted quicker than the complex ones. This is due to the decisions made by potential adopters when evaluating the benefits of the innovation against its usage complexities (Premkumar & Potter, 1995). Based on Ruël's definition of e-HRM (*i.e. use of IT to automate HRM processes and practices*) (Ruël et al., 2004), it is possible that some non-IT inclined users might find it difficult to use this e-HRM innovation thus increasing the levels of uncertainty and mistrust amongst the employees with regards to management decision to introduce the technology and the capability of the innovation itself. Therefore, in this study it is hypothesized that:

H3: *Complexity (CX) will have a positive effect on the intention to adopt e-HRM*

2.6.5 Trialability (TA)

Trialability is defined as the extent to which an innovation can be experienced on a restricted period (Moore & Benbasat, 1991). A new technology that is trialable on a limited basis is less likely to cause discomfort to individuals planning to try it out. For example, if the e-HRM innovation has a trial or training version available to the RAF employees, it is more likely to be adopted. A study conducted by Bondarouk on e-HRM adoption in emerging economies found that companies who had greater levels of triability were more likely to adopt e-HRM (Bondarouk, Schilling, & Ruël, 2016). Therefore, this study expects that if the RAF employees are given the opportunity to work on the trial version of the e-HRM innovation (*on the test environment*), then the likelihood to adopt and use such innovation would be higher. Consequently, this study postulates the following:

H4: *Trialability (TA) will have a positive effect on the intention to adopt e-HRM*

2.6.6 Observability (OA)

Observability is defined as the extent to which the results or outcomes of the innovation are visible to others (Roger, 1995). According to Rogers (2003), there is a significant relationship between

the observability or visibility of an innovation and its adoption. For example, since the RAF employees use both the manual and the automated systems to interact with their HRM, it is expected of them to adopt the e-HRM system should they see it to be more productive in terms of enabling them to perform their transactional HR activities. Therefore, some innovations are more visible compared to others (*i.e. manual system vs. electronic system*). Moore and Benbasat (1991) further split the *observability* construct into two additional constructs, namely, the *result demonstrability* and *visibility*. This study expects that if the e-HRM innovation is demonstrable and visible within the RAF work environment, then the RAF employees would have a higher intention to adopt and use it. Based on this theoretical supposition, this study hypothesizes the following:

H5: *Observability (OA) will have a positive effect on the intention to adopt e-HRM*

2.6.7 Trust in e-HRM Technology (TT)

Long-lasting relationships are built upon trust which is built over a period of time and can be easily damaged. As a result, trust should not only be nurtured or embedded in our daily lives, but it should form an integral part thereof, in order for the trading or involved parties to achieve their long term common goals. Moreover, the trust phenomenon has been widely studied in multi-disciplinary research areas. Currently a few definitions of trust as a concept exist within different contexts. However, for the purposes of this study, trust is defined as the extent to which party A is prepared to be influenced completely, and without any doubt, by party B's represented characteristics (Rousseau, Sitkin, Burt & Camerer, 1998). In social-technical systems, there are three (3) dimensions of trust that exists and significant for optimal system use. These are: social trust, institutional trust, and trust in technology (Misiolek, Zakaria & Zhang 2002). In this study, only the trust in technology (TT) dimension is examined.

Moreover, trust is significant in user acceptance of technology where uncertainties exist such as the risk of data loss resulting from system use (Pavlou & Gefen, 2004). Literature shows that people still believe and trust technology (Lankton, McKnight & Tripp, 2015) despite the recent global events where technology users lost their personal data through unauthorized access to institutional websites that they trusted. For example, in the case of Snowden (Landau, 2014) and Facebook (Chaykowski, 2018), there were privacy and security breaches that occurred which

resulted in classified, confidential and private information being leaked to unscrupulous third parties. As a result, similar incidences could potentially influence the RAF employees' decision to trust any technological innovations. Therefore, if the employees of the RAF believe that their institution has taken the relevant measures to protect its environment, its information assets and has deployed the necessary controls to mitigate possible technological threats, then they are more likely to adopt and use e-HRM technology. Consequently, this study hypothesizes the following:

H6: *Trust in e-HRM technology (TT) will have a positive effect on the intention to adopt e-HRM*

2.6.8 Perceived Voluntariness (PV)

Perceived voluntariness refers to the extent to which individuals perceive the use of technology to be out of freewill or voluntary (Moore & Benbasat, 1991; Rogers, 2003). More often than not, when firms deploy new technological innovations, they anticipate that their employees will use it. Some employees often resist and do not comply with the use of these technologies. Prior literature shows that the perceived voluntary construct has a moderating effect on the subjective norm and intention to use technology (Venkatesh & Davis, 2000). This study tests whether the RAF employees perceive their use of the new e-HRM innovation to be voluntary or mandatory which in turn will influence its usage. Thus, this study hypothesizes the following:

H7: *Perceived voluntariness (PV) will have a positive effect on the intention to adopt e-HRM*

2.6.9 Control Variables

The purpose of this study is to determine factors affecting the e-HRM adoption within the South African public sector through the lenses of the DOI, the PV and the perceived trust in e-HRM system. Since e-HRM adoption is the dependent variable, it is therefore most likely to be influenced by other variables besides those that were overtly hypothesized in this study. In effort to test the proposed model with minimal disruptions, this study controls for the following variables:

- regional office where the RAF employees are based,
- the employees' age group,
- the employees' job grade,
- the employees' academic qualification,

- the employees' number of years in current position,
- the employees' tenure, i.e. years of experience in current organization,
- the employees' computer usage,
- the employees' proficiency in using existing e-HRM services,
- and finally, the employees' e-HRM services usage frequency.

These aforesaid variables have the potential to act as precursors of the dependent variable in the proposed model. It is for this reason that they are therefore controlled to mitigate their effect on the dependent variable.

2.7. Summary of hypotheses

In responding to the research question, **Table 1** below describes how this study addresses the question and its objectives:

Mapping research objectives, questions and hypothesis		
Research Questions (RQ)	Research Objectives (RO)	Research Hypotheses (RH)
RQ: ➢ To what extent do trust, perceived voluntariness, and the diffusion of innovation characteristics affect the adoption of e-HRM in the public sector in South Africa?	**RO:** ❖ To determine the factors that lead to the adoption of e-HRM. ❖ To explore and measure the relationship between trust, perceived voluntariness, perceived characteristics of innovation and the adoption of e-HRM.	**RH:** **H1**: Relative Advantage (RA) will have a positive effect on the intention to adopt e-HRM. **H2**: Compatibility (CA) will have a positive effect on the intention to adopt e-HRM. **H3:** Complexity (CX) will have a positive effect on the intention to adopt e-HRM. **H4**: Trialability (TA) will have a positive effect on the intention to adopt e-HRM. **H5**: Observability (OA) will have a positive effect on the intention to adopt e-HRM. **H6**: Trust in e-HRM Technology (TT) will have a positive effect on the intention to adopt e-HRM. **H7**: Perceived Voluntariness (PV) will have a positive effect on the intention to adopt e-HRM.

Table 1: Mapping of Research Objectives, Questions and Hypothesis

2.8. Conclusion

This chapter presented an extant literature review on technology adoption, e-HRM, trust and the impact of mandatory setting versus voluntary environment. Various technology adoption frameworks that exist were outlined and the diffusion of innovation theory was chosen as an appropriate model for this study. A research model together with its supporting hypotheses was discussed. The next chapter discusses the research methodology that underpins the planning, designing and execution this study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

The following section expounds on how this study answers the research question. It delineates the research methodology to be followed to address the research question. It also explains why such an approach and/or research design was suitable for the purpose of this study. Moreover, it describes the data collection methods. Also, in this section, the validity and reliability are discussed. Finally, ethical considerations that this study aims to adhere to are discussed.

3.2. Research Paradigm and Approach

Research methods play an important role in understanding how an object or society behaves. In the absence of these methods it would be difficult to conduct research, to understand the *what, why or how* objects or societies behave in a particular manner. Two research paradigms exist in the in the social science research, namely the *Positivism* and the *Interpretivism*. These paradigms designate the kinds of philosophical beliefs that dictate the way research should be conducted as well as providing a means for the interpretation of such results (Bryman, 2004).

To begin with, the positivist research is concerned about looking for facts and/or causes of the phenomena of nature without considering the subjective state of the individual. These facts or causes are obtained through the application of logical reasoning with the intention of using objectivity to replace guesses, experience, and instinct as a form of investigation (Hussey & Hussey, 1997). Furthermore, positivism assumes objectivity which does not rely on the researcher (Creswell, 1994), and that reality exists whether we are aware of it or not - in other words, the world exists independent of humans (Creswell, 1994). Moreover, the positivism paradigm is supported by relying on the laws and theories because they give a much rich foundation to explain and/or predict possible occurrence of the phenomena being studied. In a positivist research, observations, patterns, and measurements are used to produce and construct models of how the world operates (Bhattacherjee, 2012). Research studies in this paradigm are mainly conducted using pre-existing theories in order to help develop hypotheses. The significance of these hypotheses is that once they are tested and confirmed or refuted, they help the researchers to refine the theory or reality using a structured research design approach (Bhattacherjee, 2012). Lastly,

positivists often use the quantitative method to arrive at logical and objective analysis of the observations and results. The purpose for this activity is to identify patterns for generalizations and universal laws.

Interpretivist research on the other hand seeks to address the oversight or shortcoming inherent to positivist research, that is, the detachment of the researcher from the phenomenon being studied. Interpretivist research posits that social science deals with action and behaviour that are embedded in human minds. This approach suggests that the phenomena and its meanings come from social actors and that reality is produced via social interaction and revision (Bryman & Bell, 2003). Consequently, interpretivists further suggest that there is a need to understand human beings and their decision-making process. A deeper understanding of these behaviours is critical in unlocking the understanding of how individuals interpret their surroundings. Bogdan & Taylor (1975) argue that for researchers to make sense of the meanings of their subject's behaviour, they need to be in their subject's shoes and see things from their point of view. Based on this point, it is therefore difficult to detach or separate the researcher from the object or reality due to the kind of relationship that inherently exists between them. In essence, interpretivists seek to uncover or understand the individual's behaviour from the very same individual's lenses or viewpoint (Hussey & Hussey, 1997). Therefore, this paradigm places a significant thought or emphasis on the subjective state of the individual to gain their meanings as opposed to the measurement. In other words, the social reality of a phenomenon relies on the person's state of mind. Consequently, this approach studies how people perceive the world. Unlike the positivist research, it does not seek to prove or disprove a hypothesis. Instead, it tries to explain how all factors in a particular social context are related and interdependent.

Research methodology or strategy used by positivists involves cross-sectional studies, experimental studies, longitudinal studies, and surveys whereas interpretivists use grounded theory, ethnography, hermeneutics, action research, and case studies (Collis & Hussey, 2003). The current study is informed by a positivist approach which is consistent with its aim to examine the extent of e-HRM adoption amongst the South African public sector employees as well as testing the relationship between the independent variables (perceived characteristics of innovation constructs from the DOI theory, perceived trust in e-HRM technology, perceived voluntariness of system use) and the dependent variable (e-HRM adoption).

3.3. Research Design and Methodology

Before any research work such as data collection and analysis can be carried out, there needs to be a plan or structure detailing how the research project will be conducted – this plan is called the research design (Bhattacherjee, 2012; Oates, 2006). A research design makes certain that the collected empirical data enables the researcher to unlock research questions without any uncertainty or ambiguity (Oates, 2006). In addition, Yin (1989) argues that the research design should be a tool to solve a logical problem instead of a logistical one. Other prominent research design types are experiments, case studies, longitudinal designs, and cross-sectional designs (Bhattacherjee, 2012). The only difference between the research design and the research method relates to the data being collected. More often than not, research designs are mostly associated with quantitative and qualitative research methods (Bhattacherjee, 2012). Accordingly, surveys and experiments are often linked to examples of quantitative research whereas case studies are often associated with examples of qualitative research (Bhattacherjee, 2012). Although using either quantitative or qualitative research methods has its own pros and cons, this study adopts a quantitative approach. The reason for choosing a quantitative approach is based on the verity that quantitative research is logical, objective, uses numerical data, and builds on prior theories with its findings being able to be generalized to a larger population (Maree, 2007). Moreover, this research study attempts to test and predict the strength of the relationships between the perceived characteristics of innovation (*i.e. relative advantage, compatibility, complexity, observability, and trialability*), the perceived trust in e-HRM system, the perceived system voluntariness, and the adoption of e-HRM innovation within the public sector in South Africa.

In closing, this study uses relational design as it aims to test the link between the perceived trust in e-HRM technology, perceived system voluntariness, and the perceived characteristics of innovation constructs of the DOI theory in order to predict the successful adoption of an e-HRM systems. Relational designs aim to investigate the link or connection between two or more variables (Bhattacherjee, 2012). This study used a structured questionnaire because by their nature questionnaires are much easier to distribute and manage (Oates, 2006). Additionally, questionnaires provide anonymity and confidentiality, and are more economical and quicker to conduct than interviews (Oates, 2006).

3.3.1 Data Collection Methods

3.3.1.1 Survey Method

This study's primary data was collected using survey as a method of data collection. In addition, a structured questionnaire was used as this study's survey instrument. The reason for choosing this method is based on literature showing that questionnaires were the most widely used technique to collect data in survey strategies (Bhattacherjee, 2012; Saunders, Lewis, & Thornhill, 2009; Oates, 2006). Moreover, questionnaires provide an efficient means to collect data from multiple respondents. This study's questionnaire was administered using an online mail survey system. Furthermore, the survey development was based on the objectives of the study supplemented with survey instruments that were tested and used in previous studies. The purpose for using previous survey instruments was to help improve content validity of the measures.

3.3.1.2 Operationalization, Measurement, and Instrument Construction

The questionnaire used in this study intended to capture the RAF employees' perceptions of the characteristics of the e-HRM innovation, their trust beliefs, as well as their perceptions of voluntariness of system use and the impending usage intentions. This study further included demographic questions as part of the control variables (*i.e. regional office where the RAF employees are based, the employees' age, the employees' job grade, the employees' academic qualification, the number of years in current position, the years of experience in current organization, their computer usage, proficiency in using e-HRM services, and e-HRM services usage frequency*). The questionnaire items are presented from **Appendix D** and Data Coding used in this study is also available from **Appendix K.**

Before this study could test the hypotheses, the study needed to operationalize the concepts that have been defined to capture the identified problem or phenomenon. According to Bhattacherjee (2012), operationalization is defined as the process of outlining how a variable construct will be measured. In other words, it is the procedure used to measure the concepts being studied. Error! Reference source not found. Research Construct, Conceptual Definitions, and Literature Source (*Operationalization of concepts*) in **Appendix** L captures all the variables that are used in this study to show how each of these concepts are operationalized in order to answer the research question.

3.3.1.3 Sampling and Respondents

There are two approaches to sampling that are mostly used in the social science research and these are probability sampling and nonprobability sampling (Bhattacherjee. 2012). The former refers to everybody in the population having an equal chance of being selected in the sample, while the latter refers to elements in the population being selected based on availability or convenience (Bhattacherjee. 2012). Due to the nature and limited scope of this study, a snowballing, non-probability sampling approach was adopted because it is quick and flexible in terms of accessing the right respondents from the RAF that would be within reach of the researcher.

3.3.1.4 Population

The objective of this study is to examine factors influencing the adoption of e-HRM systems within the South African public sector given the presence of the perceived trust. The overall national number of employees at the RAF is approximately 2500. However, this study only focused on the individual RAF employees (*as a unit of analysis*) based in Pretoria (*Menlyn and Centurion offices*) and Johannesburg offices in the Gauteng Province of South Africa as its target population.

3.3.1.5 Sampling Frame and Approach

Oates (2006) defines a sampling frame as a possible list of participants from which a sample can be drawn. In this study, a sampling frame was drawn from the RAF employees based in Centurion, Menlyn and Johannesburg offices. An email list with all employees from the abovementioned three regions of the RAF was compiled and sampled. A convenience sampling technique was used as it enables ease of accessibility, availability and geographical proximity to the potential participants given the time constraints and purpose of this study (Oates, 2006). On the email invitation, a brief description of the purpose of the investigation was stated as well as a making access to the link to the Google Form online survey available.

The key informants in this study were the RAF office-based employees (*both management and general workers*) who have access to the organization's pre-configured mailing list and e-HRM applications. These informants were people who have had access to RAF's existing e-HRM applications and/or systems so that their contribution to the study could be meaningful. A total of 1000 employees were sampled from the aforesaid regions. Furthermore, this sample comprised of

250 employees from Menlyn office, 300 employees from Johannesburg office and 450 employees from the Centurion office. According to Bhattacherjee (2012), a response rate of between 15% and 20% is representative enough in a mail survey. Additionally, a short survey which contains 42 questions taking no more than 15 minutes to complete was compiled. This total duration of between 5 and 15 minutes was communicated to the sampled respondents on the email requesting them to participate. Since the responses were not coming through, the researcher spoke to a few colleagues that he knows from the 3 sites, encouraging them to pass on the survey to their colleagues as well, hence the snowballing.

3.3.1.6 The Research Instrument

A close-ended structured questionnaire was used in this study as the research instrument. Additionally, an email was used to send out invitations to a purposively selected RAF mailing list with employees residing in the RAF's Johannesburg, Centurion and Menlyn offices inviting them to participate in an online survey. An online survey tool called Google Forms was used to accurately record the empirical dataset. Once the closing date for completing the online survey had lapsed, the dataset was transferred into a statistical tool such as SPSS for further data analysis. A five-point Likert scale was used for most of the questions in the research instrument to measure each of the model's independent variables, with options ranging from 1 being "Strongly Disagree" to 5 being "Strongly Agree". A neutral option (i.e. "Prefer not say") was made available to not frustrate and discourage the respondent from completing the questionnaire (Bailey, 1982). See **Appendix D** in the **Appendix** section for the research instrument used in this study. Data was collected for about 4 weeks from the 3 sites mentioned above. Moreover, the instrument is applied to the study's constructs: relative advantage, compatibility, complexity, observability, trialability, perceived trust in e-HRM technology, perceived voluntariness and e-HRM adoption. Lastly, the measurement scale is adapted from existing instruments proposed by Atkinson (2007), Bhattacherjee & Premkumar (2004), Dupagne & Driscoll (2005), Livari (1996), Moore & Benbasat (1991), Teo, Srivastava, & Jiang (2008), McKnight et al. (2011), McKnight et al. (2002), Venkatesh et al. (2003), Venkatesh & Davies (2000).

3.3.1.7 Pre- and Pilot Testing

Over and above the use of literature as grounds for making sure of content and face validity of the measurement scales, a pre-test was carried out using a convenience sample of senior lecturers at the Department of Information Systems at the University of Witwatersrand, South Africa. The purpose of carrying out a pre-test in this study was twofold. First, it was to enable the researcher to uncover any ambiguity that may arise from the survey instrument. Secondly, it was meant to ensure that the participants understood the survey instruments. The input and recommendations received from the IS lecturers assisted in the refinement of the instrument. Moreover, this feedback received from the pre-test was used when preparing a revised survey instrument to be used in the pilot testing phase. According to Bhattacherjee (2012), it is important for researchers to conduct a proper pilot testing as this could help identify possible problems in the research design or instrument, thereby ensuring that valid and reliable measurement instruments are used.

Furthermore, a pilot-testing exercise was carried out at the Road Accident Fund (RAF) SOE where the researcher works. A sample of 20 employees was conveniently drawn from the same population as the focal study. An email containing a link to the Google Forms online site hosting the survey instrument was sent to the identified participants. This approach helped the researcher to get a first-hand experience of how the respondents understand and interpret the measurement items in the questionnaire to make changes were necessary before sending out the final survey instrument.

3.3.1.8 Reliability and Validity of the Study

Reliability refers to the correctness of the measuring instrument, in this case; it is the study's survey questionnaire. In other words, reliability is defined as the extent to which research participants can reply to the same questions in exactly the identical manner each time they are being asked (Bhattacherjee, 2012; Ramoo, 2006). Similarly, Zikmund (1997) contends that an instrument is reliable if similar results are obtained over different time periods. To make sure of the quality and reliability of this study, strategies were used in mitigating the risk of bias by increasing the validity of the chosen survey questionnaire. It is common knowledge in the social science that survey research contains elements of participant bias which could pose a risk on the reliability on the data that is collected. Ramoo (2006) argues that research participants tend to be more in agreement on

socially appealing answers and disagree the most on what may seem to be socially undesirable answers – as a result, they end up not revealing their honest opinions. This study was faced with a challenge whereby the respondents may not be honest with their answers as they may have feared victimization from the RAF due to the sensitivity of the study. To mitigate this potential bias, a consent form was used explaining that the survey is anonymous and confidential and other related rights of the participant.

The concepts of reliability and validity are fundamental basics of the scientific method. For every measuring instrument that is used in the data gathering process, both the concepts of reliability and validity of that measure becomes significant, with reliability being directly linked to the validity of that measure. Furthermore, the study used multi-item measures test and/or measure the different variables. The internal consistency measure was used to test and/or measure the different variables. Literature suggests that to be certain on whether each of the study's scale is reliable, its internal consistency needs to be measured using Cronbach's alpha reliability coefficient measure (Bhattacherjee, 2012). If data items have a reliability coefficient of less than 0.60 means that the constructs must be excluded from the instrument (Avlonitis & Panagopoulos, 2005).

A study's validity is defined as the extent to which a measure accurately represents the primary construct that it intends to measure (Bhattacherjee, 2012; Leedy & Omrod, 2010). To ensure that the study's findings remained valid, the researcher needed to ensure that the measures converge to the theoretical constructs as well as test for discriminant validity. Both the convergent and discriminant validity are core dimensions of construct validity (Bhattacherjee, 2012). Convergent validity in this context means that measures which should be related are indeed related. In other words, convergent validity compares two or more measures that are meant to measure the same construct and show that they are related. In addition, discriminant validity in this context refers to a measure of how divergent or dissimilar a variable is to another variable (Bhattacherjee, 2012). Stated differently, discriminant validity simply shows that two or more measures that are not meant to be related are in fact not related (Bhattacherjee, 2012). To ensure that this study's constructs are exceptionally valid, both these two types of validity testing were a precondition from the onset of the study.

Lastly, this study used the Principal Component Analysis (PCA) technique to test for both convergent validity and discriminant validity measure (Bhattacherjee, 2012). Additionally, PCA shows that items meant to measure the same construct are expected to load highly onto the same factor. Previous research survey instruments seeking to address and/or related to this study's question were adapted to meet the current RAF context. The reason for this was to ensure that all identified variables are correctly measured, valid, and reliable as these instruments have been tested by previous research.

3.3.1.9 Hypothesis Testing

Once the data set becomes available, the correlation analysis technique was used to test the relationship between the independent variables (*i.e. PCI constructs, perceived voluntariness and the perceived trust in e-HRM systems*) and the dependent variable (*i.e. e-HRM adoption*). To test the relationship of the constructs of the proposed model, a multiple linear regression analysis (*ANOVA*) was used to determine how best the proposed model fits the data. The dependent variable, *e-HRM adoption,* was tested to see whether the *perceived trust* construct has a significant relationship with it. The same tests were performed with the other variables (*PCI – RA, CB, CX, TA and OA, and PV*). Additionally, a goodness-of-fit for the proposed conceptual model was tested using a statistical measure called R-squared (R^2) because of its predictive power in evaluating how well a linear model fits the observed data. In other words, the use of R-squared statistic in this study helped to fully understand the extent of strength of the relationship between the proposed conceptual model and the response variables.

A statistical F-test of overall significance was used to establish whether the aforesaid relationship is statistically significant. This study further used alpha levels of 0.05 (*i.e. a 95% acceptance level*) and P-values ($p < 0.05$) to help determine whether the predictor variables are statistically significant or not. Lastly, the statistically computed R-squared levels helped explain how much of the variance exist in the results due to the proposed construct. The higher the R^2, the more variance can be explained by the proposed item in the model (Oates, 2006). Beta co-efficients were also used to measure the strength of the various predictors within the model. For example, the higher the beta co-efficient, the more the individual item contributes to the variation in the model (Pallant, 2007).

3.4. Ethical Considerations

It is incumbent upon the researcher to ensure that all legal and ethical considerations (Oates, 2006) are observed and addressed when carrying out a research. According to Saunders, Lewis, & Thornhill (2007), research ethics is a moral (if not responsible) way through which a research study must be prepared and conducted from the begin phase to the conclusion by the researcher. Since the primary data of this study was collected from the public sector employees (*i.e. RAF state owned enterprise*), ethics was considered to be of utmost importance. Consequently, this researcher followed the standard ethical procedure as prescribed by the University of the Witwatersrand, Johannesburg through a formal request for a research ethical clearance from the School of Economics and Business Sciences' Ethics Committee prior to the commencement of this study. Furthermore, the research participants or informants of this study were afforded a right to give informed consent prior to completion of the survey. Informed consent means that the participant(s) fully understand what is going to happen during the research process and that they agree voluntarily to the nature of the research (Israel & Hay, 2006). The respondents were also made aware of the following details, that:

- Their participation is voluntary, and potential respondents are invited to participate.
- This study is conducted using an anonymous survey, meaning that their personal details (*e.g. name, surname, contact details, etc.*) are not be on the questionnaire and their responses will remain strictly confidential.
- Since their participation is voluntary, they are free to withdraw from the research at any point in time without fearing for any form of harm, reprisals and/or victimization.
- There were no incentives or risks associated with participation in this study.
- By participating in the study, the informants give the researching team the right to use their responses to make findings.
- The findings of this study will be used for academic purposes and may be disclosed to third parties in a form of a published academic journal.

In closing, an approval to conduct this study was granted by the Ethics Committee of the University of Witwatersrand, Johannesburg and a certificate was issued with protocol number: **CINFO/1171**. A copy of the ethics certificate can be found as **Appendix B**: Ethics Clearance Certificate.

3.5. Limitations and Threats to Internal and External Validity

Data from a research study needs to be reliable and valid for it to be meaningful and add value to both academia and practice. Reliability on the one hand refers to the repeatability of findings (Bhattacherjee, 2012), yielding the same results even when performed by different people. On the other hand, validity addresses the issue of accuracy and credibility of the findings (Bhattacherjee, 2012). For instance, the measuring instrument must measure what it claims to be measuring. Validity can be further broken down into two aspects, namely, the internal and external validity. These two aspects are important in academia because they indicate whether a cause and effect relationship exist (*internal validity)* and whether the observed findings can be generalized (*external validity*). In addition, the internal validity denotes whether the observed change in the dependent variable is caused by the change in the independent variable (Bhattacherjee, 2012). As a limitation, this study is faced with the possibility that the participants may not be honest with their answers to the posed questions fearing disclosure of their honest opinions despite assurances being made to protect their anonymity (*social desirability bias*). For example, the survey was self-completed, therefore, the potential participants may randomly choose answers without properly reading the questions – thus making the data analysis difficult to interpret and generalization of results impossible.

External validity refers to the extent to which the observed associations can be generalized beyond the immediate study and be applied to other people, settings, and times (Bhattacherjee, 2012). Since this study will not be using a random sampling method but a convenience sampling, this is in itself a limitation on the ability of the study to be generalized to the RAF community in particular, and a larger South African public sector population of a developing economy in general.

3.6. Conclusion

This chapter deliberated on the research methodology that was adopted by this study. This includes the research paradigm adopted by this study, the research design, sampling technique, operationalization, data collection and analysis, and the ethical considerations that were followed when carrying out this study. Lastly, this chapter looked at the potential limitations and threats to this study's internal and external validity. The next chapter presents the results obtained from the research methodology undertaken by this study.

CHAPTER FOUR: FINDINGS AND DATA ANALYSIS

4.1. Introduction

The purpose of this study is to examine the factors influencing the adoption of e-HRM innovation within the South African public sector context specifically focusing on the RAF employees. As a result, this chapter delineates the statistical analysis of data obtained through email survey that was administered online using Google Forms. This survey involved employees of a South African state-owned entity, i.e. the Road Accident Fund. A total of 173 responses were received from a targeted population of 1000 RAF employees working in the Johannesburg, Centurion and Menlyn offices. These responses constitute a 17.3% overall response rate for the survey. Out of the 173 respondents, 98.53% completed all of the questions that were asked and only 1.47% have either quit the survey halfway through or have not attempted to answer some of the questions. IBM's SPSS Statistics Version 25 was used to analyze the collected responses from the online survey.

Additionally, this chapter presents the results of the collected empirical data that will be assessed in the deliberation and discussion of the findings which will later be presented in Chapter 5. As a baseline, this chapter provides the results of the pilot study. Subsequently, the background to the process of the survey distribution and data collection is discussed. This is followed by a brief discussion on how the data was statistically cleaned. Additionally, this chapter provides a synopsis of the background to the respondents' demographic details. Thereafter, this chapter will present the test results for both reliability and validity measures of the various perceived characteristics of innovation, trust and voluntariness constructs as well as their correlations through regression. Finally, this chapter concludes by testing the proposed hypotheses.

4.2. Pilot Study

A pilot study was conducted using a sample size of twenty (n=20) RAF employees and was administered through an online survey using Google Forms. A five-point Likert scale was used and converted into numerical as represented in Table 2 below:

Category	Numeral
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

Table 2: Likert scale with numeral values

MS Excel Spreadsheet was used to measure the questionnaire's item scales to establish both the reliability and validity of the measuring scales. The Cronbach's Alpha values of this pilot study were calculated accordingly to ascertain the study's internal consistency of the measuring scales (Zikmund, Babin, Carr & Griffin, 2013:302). Table 3 below depicts the Cronbach's Alpha results of the pilot study.

Construct	Cronbach's Alpha (α)	No. of items/questions
Perceived Voluntariness (PV)	0,491	4
Relative Advantage (RA)	0,619	6
Compatibility (CA)	0,641	5
Complexity (CX)	-0,455	5
Trialability (TA)	0,771	5
Observability (OA)	0,799	5
Trust in Technology (TT)	0,877	4
e-HRM adoption	0,835	3

Table 3: Pilot Study Reliability Tests

The Cronbach's alpha values obtained in the above pilot study confirmed the internal consistency of the measurement scales to be reliable with most values above the requisite threshold of 0.70 (Hair, Sarstedt, Ringle & Mena, 2012) with the exception of PV, CX, CA, and RA. Based on this outcome, the survey instrument was re-calibrated so as to remove any potential ambiguity in the measurement instrument in order to produce a final survey instrument which was later used in this study.

4.3. Survey Distribution, Collection and Data Cleaning

4.3.1 Survey Distribution & Data Screening

This study sampled individuals who use e-HRM systems at the RAF which falls under the broader South African public sector entity. An email with a link to the survey instrument was sent to the RAF employees inviting them to participate in an online survey which was administered using Google Forms. A period of about 12 weeks was spent on data collection starting from the 1st of December 2017 to the 28th of February 2018. A total of 173 responses were received from a convenience sample derived from the targeted population of 1000 RAF employees working in the

Johannesburg, Centurion and Menlyn regional offices within the Gauteng Province of South Africa. The survey took longer than anticipated as it was conducted during a busy festive season and an equally busy financial year-end of the RAF organization. Table 4 below shows how the survey was distributed within the aforesaid regional offices and the resultant response rate for each regional office.

Response Rate of Survey			
Regional Office	**Number Distributed**	**Number Returned**	**Response Rate (%)**
Centurion	450	111	24.7
Johannesburg	300	20	6.7
Menlyn	250	37	14.8
Unspecified Location[1]	0	5	
TOTAL	**1000**	**173**	**17.3**

Table 4: Survey Response Rate

4.3.2 Reverse Coding

Only two (2) of the scale items used to measure the perceived voluntariness (PV1) and complexity (CX1) constructs were negatively phrased, e.g. "*My superiors expect me to use e-HRM system when performing my HR tasks*" and "*I believe that the e-HRM system is difficult to use*" respectively. These scale items were measured on a 5-point Likert scale where 1 = "Strongly Disagree", 2 = "Disagree", 3 = "Neither Agree nor Disagree", 4 = "Agree", and 5 = "Strongly Agree". Therefore, these scale items were subsequently reverse-scored (i.e. 1 = 5; 2 = 4; 3 = 3; 4= 2; 5 = 1) in order for high scores to reflect a lesser degree of a mandatory and complex e-HRM system usage.

[1] *These are respondents who did not wish to specify their office location as either "Centurion", "Johannesburg" or "Menlyn".*

4.3.3 Missing Data

Once all the data were screened, the next step was to identify any missing values in the data set. This study opted to use a 10 % limit for missing data. What this rule means in relation to this study is that, if (*for any reason*) the respondents opted not to respond to any of the questionnaire items, the total number of non-responses should not be over 10 %. In this study, three (3) out of the total of 173 responses were removed due to the violation of this rule – thus leaving the study with only 170 records of meaningful data. A 5-Point Likert scale was used to capture the responses and a mean-replacement strategy was adopted in case of any data missing values less than 10%. A total of 38 instances had one or more (but <=3) items missing from the responses. These missing value items were hypothetically assumed to be random cases and were then imputed by substituting them with a series mean score for each variable. See **Table 17** in the **Appendix L** showing where the number of responses received came from after the data cleaning process was completed.

4.3.4 Outliers

The next step in this data cleaning process was to mitigate the possibility of response bias by detecting and removing outliers. SPSS was used to determine if there were any cases on this study that had standardized scores (z-scores) greater than ± 3 on more than one questionnaire item. However, this study's standardized scores were found to fall within the acceptable range of ± 3 standard deviations of the mean. Consequently, there were no cases of outliers in this study (see **Table 7** showing Skewness and Kurtosis).

4.4. Respondent Profiles and Demographics

4.4.1 Regional Office

The respondents who participated in this study were chosen from the RAF's regional offices based in the Gauteng Province. These office locations were classified as Centurion (Head Office), Johannesburg, and Menlyn. Furthermore, this study sampled 250 employees from Menlyn office, 300 employees from Johannesburg office and 450 employees from the Centurion office. **Figure 3** shows that most of the responses came from the Centurion offices which had a relatively high response rate (24.7%) as compared to the other two regions (i.e. Johannesburg and Menlyn). The probable explanation of this high response rate in Centurion, compared to the other two regions,

is that the sample size was too big in this region relative to the other two and the fact that the researcher is well known in this region as it is his work place.

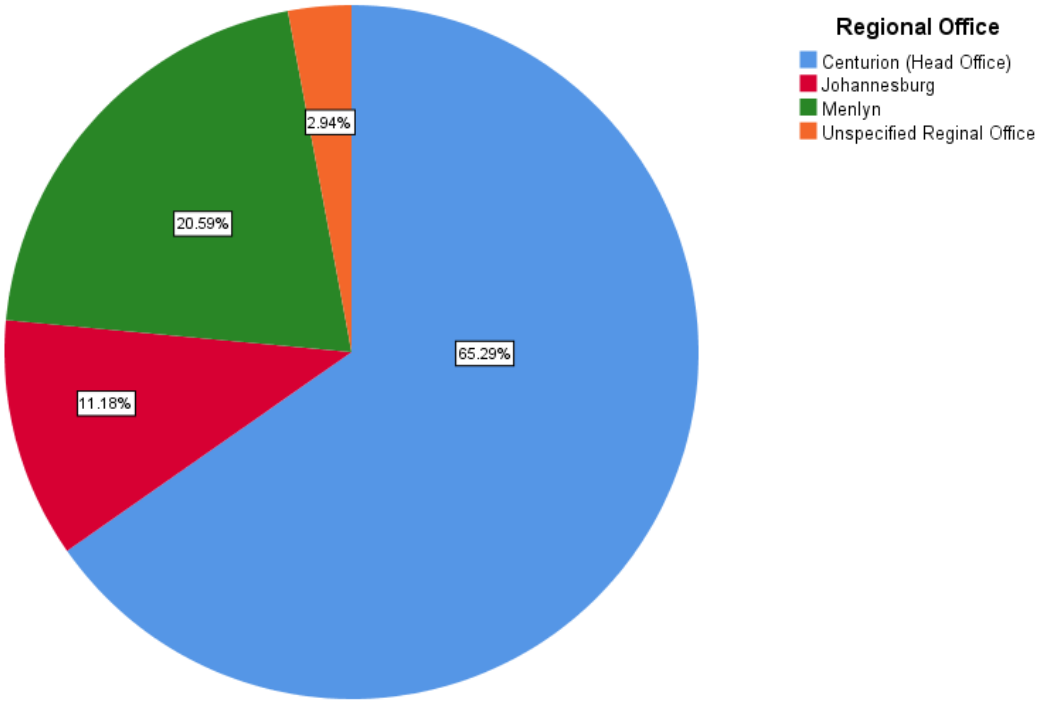


Figure 3: RAF Regional Offices

4.4.2 Age

The age of the respondents ranged from 26 to 60 years and was evenly distributed between the regions. The bulk of the RAF employees that participated in this study fit into the 31-40 years (approx. 48.3%) category. This workforce age range is in line with the findings from the University of Cape Town's Development Policy Research Unit that found the average age of public sector workers to be 41 years old as compared to the private sector's 38 years old (Bhorat, Naidoo, Oosthuizen, & Pillay, 2016). **Table 18** in **Appendix L** shows the detailed outline of the composition of the RAF employees' ages relative to their regional offices.

4.4.3 Job Grade / Task Level

The job grade or task level of the RAF employees was collected as part of the control variables. The job grades were classified as "General worker or Officer (i.e. *Task level 0 – 13*)", "Middle Management (i.e. *Task level 14 – 16*)", and "Senior Management (i.e. *Task level 17 Or Above*)". The purpose for collecting this information is to determine if employee grading had any effect in the manner in which the employees engaged with the e-HRM services that the RAF provides as well as it adoption thereof. Most of the respondents were general workers or officers (67.6%) and mostly from Johannesburg (95%) and Menlyn (89%) offices, followed by those in middle management positions (28.8%) mostly from the Head Office (41%). Only 2.9 % of the respondents that participated in the study were from senior management positions and above. The results reveal that the bulk of employees who frequently use the e-HRM services were from task level 0 - 16 (see **Figure 5 in Appendix**). They mostly used these services for the capturing of leave, overtime, training and/or performance scores. **Table 19** in **Appendix L** gives a detailed summary of the respondent's job grade and/or task level.

4.4.4 Academic Qualification

The bulk of the respondents at approximately 33.5% had a national diploma, 28.8% had a Bachelor's degree, 15.0% had an Honours degree while 9.4% had Matric Senior Certificate only, 8.8% had Master's degree and 2.9% preferred not to specify their academic qualification. In the main, this result shows that the bulk of RAF employees who participated in this study (approx. 87%) had post-matric qualifications across the regions. Furthermore, the results are consistent with a study conducted by the University of Cape Town's Development Policy Research Unit that found public sector employees to be more educated than their counterparts in the private sector (Bhorat et al., 2016). **Table 20** in **Appendix L** gives a detailed breakdown of the RAF employees' academic qualifications.

4.4.5 Years in Current Position

Previous studies have identified job tenure as a significant indicator of the labour market patterns (Statistics South Africa, 2014). Therefore, a correlation between employee's long service, aging workforce, managerial positions, and union membership (Statistics South Africa, 2014) is

hypothesized; this study included this demographic variable as part of the controls. **Table 21** in **Appendix L** shows that the majority of RAF employees across the three (3) regions are fairly new in their current positions ranging between 0 and 6 years. A proportion of 42.4% of the workforce have been at the current position for up to 3 years, 36.5% have been in the same position for a period of between 4 and 6 years while a cumulative 18.3% have been holding the very same position for over 7 years. This suggests that on average, the majority of RAF employees are fairly new in their current positions and confirm the aforesaid findings (see **Table 14, Table 15, Figure 6 and Figure 8** in the appendix section).

4.4.6 Years of Experience with Current Organization (RAF)

This section analyses the median job tenure of RAF employees by demographic variables including regional office and years of experience in current position. The majority of the respondents have been working for the RAF for periods not longer than 6 years (62.9%), meaning that this organization's workforce is fairly new both in the terms of job tenure and current position as depicted in **Table 21** in **Appendix L**. Approximately 11.2% of the respondents indicated that their job tenure with RAF falls within the 7 – 9 years category, 15.9% had been with the organization for periods between 10 and 15 years while only 8.8% of the respondents have been with the RAF for longer periods of between 16 – 25 years. A quarterly labour force survey from Statistics South Africa (2014) found that the median monthly tenure for people aged between 25 and 34 years to be higher than their younger counterparts which support the findings of this study (see **Figure 6 in appendix**). It further showed an increase in the job tenure from 25 to 32 months over the same period for the aforesaid age group. A detailed account of the RAF employee's job tenure is depicted on **Table 22** in **Appendix L** which shows a relatively high proportion of new employees without too much organizational knowledge.

4.4.7 Computer Usage

This section analyses the levels of computer usage of the RAF employees by demographic variables such as the regional office. A cumulative 78.8% of the respondents indicated that their level of experience in terms of computer usage ranged between "*much experience*" and "*very much experience*" categories. This means that the bulk of the respondents were very much appropriate for this study as the successful adoption of e-HRM is dependent upon employees being computer

literate. Researchers have shown a growing pattern of internet access with a staggering 65% share increase in the daily usage of internet amongst the South African internet users (Statista, 2018). As expected, the computer usage levels are most prevalent amongst the youth (refer to **Figure 7** of the appendix) and probably correlated to the aforesaid findings of a surge in internet use among the South African internet users. **Table 23** in **Appendix L** summarizes the respondent's computer usage.

4.4.8 RAF's e-HRM Services Usage

This section refers to the analyses of all the e-HRM systems used within the RAF relative to the respective regions under study. There were subtle differences in terms of respondent's feedback between the sampled regions. The majority of the respondents (40.6%) who happened to be the youth (see Figure 9) indicated that they "*occasionally*" use the e-HRM services and platforms provident to them by the RAF. Equally so, another bulk of respondents (40.6%) also indicated that they "*frequently*" use these services. Only 14.1% of the respondents showed that they use these services "*all the time*" while a fraction of the respondents (2.4%) specified that they have "*never*" used these services. A similar percentage (2.4%) came from respondents who preferred not to specify their e-HRM service usage (see **Table 24** in **Appendix L** for the complete breakdown of the responses). The results show that the e-HRM system is predominantly used by managers and their subordinates, i.e. middle management and general/officers to fulfil their mundane basic tasks such as filing for leave, overtime, training, performance and viewing of pay-slips (refer to **Figure 5** for more details).

4.4.9 Time spent on RAF's e-HRM Services

The greater part of the respondents (82.4%) indicated that they spend anything between 0 and 1 hour per day either browsing or working on the RAF's e-HRM services. As little as 2.4% of the respondents either did not specify the time that they spend using e-HRM services. A similar group of respondents indicated that they spend more than 4 hours on these services. This means that on average, the RAF employees interact with the company's e-HRM technologies daily. This is a good indicator of the respondent's feelings towards the adoption of e-HRM. **Table 25** in **Appendix L** presents the breakdown composition of RAF employees' time spent on e-HRM services.

4.4.10 Proficiency in using RAF's e-HRM Services

Most of the RAF employees (56.5%) who responded to this survey have indicated that they are proficiently "*average*" in the use of RAF's e-HRM services. This group of respondents is closely followed by a significant category of e-HRM users who describe themselves as "*advanced*" users of the system. Having a majority of the respondents indicating that they are either average, advanced or expert users of the system is a good thing in terms of getting their perceptions about the e-HRM adoption as they would not be impaired by their proficiency or lack thereof. **Table 26** in **Appendix L** provides a summary of the composition of the respondent's proficiencies in using e-HRM.

4.4.11 RAF's e-HRM delivery channel preferred and used

The last control variable that this study tried to measure was to determine the respondent's preferred e-HRM delivery channel. The bulk of the respondents (70%) indicated that they preferred using RAF's "*employee self-service portal*" as their immediate e-HRM point of contact. This option was consistent across the three (3) regions. However, some employees (26.5%) still preferred the traditional service delivery channels as a means of engagement when transacting and/or dealing with their HR related matters – see **Table 27** in **Appendix L** for a complete summary of the e-HRM delivery channels preferred and used by the RAF employees. Therefore, a greater percentage of respondents choosing a technological tool over traditional ways to engage with HR will provide a good measure on how they perceive the e-HRM.

4.5. Reliability and Validity Measures

Reliability in this context refers to the accuracy of the study's measuring instrument, i.e. this study's survey questionnaire. Additionally, it looks at the measuring scale's internal consistency to determine whether the measuring items are all measuring the same underlying construct (Bhattacherjee, 2012). The Cronbach's alpha coefficient is used as an indicator of internal consistency. The response scale used in this study was ordinal with categories "*Strongly Disagree* (1)", "*Disagree* (2)", "*Neutral* (3)", "*Agree* (4)", and "*Strongly Agree* (5)".

This study's identified factors influencing the adoption of e-HRM system such as, the perceived characteristics of innovation (PCI), perceived trust in e-HRM technology (TT) and the perceived

voluntariness (PV) of system use were measured using multi-item measures on a five-point Likert scale. These items were retrieved and modified from extant literature with both its content and face validity having been improved through pre-testing and pilot-testing phases of this research.

4.5.1 Research Question Revisited

This study's aim was to investigate the determinants of e-HRM adoption within the public sector of a developing economy like South Africa, and the following research question was asked:

- *To what extent do the perceived trust in e-HRM, perceived voluntariness, and the diffusion of innovation characteristics affect the adoption of e-HRM in the public sector in South Africa?*

Before this research question could be answered (*through a process of testing the hypothesized research model*) by examining the relationships between the PCI, PV and TT constructs, the researcher needed to establish the reliability and validity of the measurement scales used in this study.

4.5.2 Inter-item Analysis

An inter-item correlation was performed on all items to ensure that items which measured a single construct were valid. Furthermore, the assessment of inter-item correlation was performed to ensure that the correlation coefficients were at least above 0.3 for every construct. In this study all items correlated with at least one other item by 0.3 at the very least.

4.5.3 Principal Component Analysis (PCA)

Principal Component Analysis (PCA) or Factor Analysis is a multivariate statistical technique used to transform a set of possibly correlated variables or observations into a smaller set of uncorrelated variables or observations also known as principal components (Solver, 2018). This study used the PCA technique with Varimax rotation for a categorical factor analysis and testing the validity of the collected data items. The PCA approach was chosen because it enables us to see if all items measuring a single a construct load highly on the same principal component or not (i.e. convergent validity). Additionally, PCA enables us to detect if the items have low cross-factor loadings (*i.e. discriminant validity*).

A total of thirty-one (31) items were used to measure the factors influencing the adoption of e-HRM technology in the South African public sector through an integrated Diffusion of Innovation Theory and Trust approach. These items were factor analyzed categorically to test for construct validity and to determine the underlying dimensions as per their respective theoretical construct, namely: Perceived Voluntariness (PV), Relative Advantage (RA), Compatibility (CA), Complexity (CX), Trialability (TA), Observability (OA), Trust in e-HRM technology (TT), and e-HRM adoption. Due to high cross-loading between factors (*i.e. CA vs. RA, e-HRM adoption vs. TT*), it was therefore decided that the factors be analyzed separately on Varimax rotation. **Table 5** below presents the results of the final PCA model.

Factor Loadings from PCA (only loadings above 0.4 are shown**)**

	Perceived Voluntariness	Relative Advantage	Compatibility	Complexity	Trialability	Observability	Trust In Technology	e-HRM adoption
PV1	.604							
PV3	.807							
PV4	.790							
RA1		.718						
RA2		.789						
RA3		.957						
RA4		.874						
CA1			.734					
CA2			.806					
CA3			.895					
CA4			.885					
CX2				.788				
CX3				.729				
CX4				.924				
TA2					.726			
TA3					.818			
TA4					.716			
OA1						.816		
OA2						.768		
OA3						.612		
TT1							.856	
TT2							.765	

TT3							.852	
TT4							.826	
UI1								.887
UI2								.956
UI3								.971
Cronbach's Alpha	0.647	0.898	0.898	0.776	0.740	0.633	0.893	0.956

Table 5: Principal Component Analysis

4.5.3.1. Validity: Test for Convergent and Discriminant Validity

According to Bhattacherjee (2012), convergent validity measures how close or similar a measure is converging to its theoretical construct whereas discriminant validity measures how divergent or dissimilar a variable is to another variable. To ensure that the study's findings are valid, the researcher needed to ensure that the measures converge to the theoretical constructs as well as testing for discriminant validity. Before the factor analysis could be performed on the data set, both the Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy for each variable in the model and for the whole model as well as the Bartlett's Test of Sphericity were carried out. This procedure was conducted to determine if the sample size together with its number of variables were large enough to justify performing factor analysis. A justifiable factor analysis requires that the proportion of variance in the variables that might be caused by underlying factors (*KMO measure*) should be above 0.60 or close to 1.00 and the Bartlett's Test of Sphericity value which relates to the significance of the study should be less than 0.05 ($p < 0.05$). In this study, the factor analysis procedure was supported by both the KMO and the Bartlett's Test of Sphericity as shown in **Table 6** below.

Construct	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity (p-value)	df	Approx. Chi Square
Relative Advantages (RA)	0.802	0.000	6	445.580
Compatibility (CA)	0.727	0.000	6	475.758
Complexity (CX)	0.735	0.000	6	242.924
Trialability (TA)	0.725	0.000	6	169.166
Observability (OA)	0.683	0.000	6	137.219
Trust (TT)	0.798	0.000	6	392.964
Perceived Voluntariness (PV)	0.688	0.000	6	154.084
e-HRM Adoption	0.756	0.000	3	559.172

Table 6: KMO and Bartlett's Test

4.5.3.2. Reliability: Test for Internal Consistency using Cronbach Alpha

Once both the convergent and discriminant validity conditions were tested, this study needed to further confirm the internal consistency reliability of the measurement scales. The Cronbach Alpha technique was used to measure the reliability of internal consistency of the measurement scales (Bhattacherjee, 2012). A Cronbach Alpha value of 0.70 or higher is considered reliable (Bhattacherjee, 2012). However, in this study both the perceived voluntariness and observability constructs had alpha values below 0.70. The reason for retaining both the PV and OA constructs with low Alpha values was that their inter-item correlation means were above the acceptable range of -0.3 and +0.3, *i.e. PV (mean = 0.355) and OA (mean = 0.305) respectively*.

4.5.4 Composite Scores

Prior to performing correlation analysis and multiple regressions, this study needed to reduce its multiple scale items into a single composite or summated score. Composite scores were calculated for all the multi-items that were not dropped (i.e. relative advantage, compatibility, complexity, trialability, observability, voluntariness, and trust). These composite scores were calculated by

adding together the entire item constructs thereafter dividing them by the total number of items for that particular construct. These composite scores were subsequently used in testing for the normal distribution of the data.

4.5.5 Normal Distribution Testing

To ensure that the data set is well modelled by a normal distribution, the Skewness, Kurtosis and standard deviation were computed for each of the composite scores calculated above. Variables are considered valid if their Skewness and Kurtosis values range between -1 and +1, -3 and +3 respectively. In this study, all the variables had both the Kurtosis and Skewness values that were within the acceptable range thus making it possible for the correlation analysis to be performed - see **Table 7** below:

Construct	No. of items	Min	Max	Mean	Variance	Standard Deviation	Skewness	Kurtosis
Perceived Voluntariness (PV)	4	2	5	3,7485	0,525	0,72441	-0,123	-0,368
Relative Advantage (RA)	4	1	5	4,0103	0,682	0,82567	-1,084	1,679
Compatibility (CA)	4	1	5	3,8725	0,594	0,77073	-0,952	1,585
Complexity (CX)	4	1,75	5	3,8426	0,494	0,70270	-0,358	0,376
Trialability (TA)	4	1	5	3,4025	0,736	0,85778	-0,406	-0,209

Observability (OA)	4	1,5	5	3,3642	0,431	0,65659	0,157	0,655
Trust (TT)	4	1	5	3,8760	0,575	0,75838	-0,940	1,931
e-HRM Adoption	3	1	5	4,1990	0,624	0,79016	-1,754	4,961

Table 7: Skewness and Kurtosis Results

4.6. Hypothesis Testing

4.6.1. Correlation Analysis

A correlation analysis is used to measure the strength of relationships through correlation coefficients (Pallant, 2005). Thus, the Pearson product-moment correlation coefficient (r) indicates strength and direction (*either negative or positive*) of the correlation, while the p–value indicates the probability that a certain given r–value is seen only by chance. When testing for a relationship between a pair of variables, three (3) measures are investigated. Firstly, the direction of the relationship which can either be positive (*i.e. high values of one variable are associated with high values of the other and vice versa*) or negative (*i.e. high values of one variable are associated with low values of the other*). Secondly the strength of the relationship is investigated where a Pearson correlation coefficient of less than 0.3 indicates a weak relationship, the value between 0.3 and 0.5 indicates a medium strength relationship and a value of more than 0.5 indicates a strong relationship. The third measure is the p-value where a p-value of less than 0.05 indicates a statistically significant relationship.

	Perceived Voluntariness	Relative Advantage	Compatibility	Complexity	Trialability	Observability	Trust in e-HRM
PV	1	.372**	.361**	.269**	0.025	.162*	.172*
RA	.372**	1	.808**	.588**	.455**	.445**	.643**
CA	.361**	.808**	1	.605**	.525**	.551**	.726**
CX	.269**	.588**	.605**	1	.481**	.456**	.650**
TA	0,025	.455**	.525**	.481**	1	.544**	.607**
OA	.162*	.445**	.551**	.456**	.544**	1	.606**
TT	.172*	.643**	.726**	.650**	.607**	.606**	1
e-HRM Adoption	.301**	.639**	.678**	.638**	.496**	.476**	.760**
N	165	165	165	165	165	165	165

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 8: Pearson's Correlations

Table 8 above shows the relationship between the dependent variable (e-HRM adoption) and the independent variables (perceived voluntariness, relative advantage, compatibility, complexity, trialability, observability, and trust in e-HRM technology) which was investigated using the

Pearson product-moment correlation coefficient. However, the correlations for all the variables are significant at 0.01.

Hypothesis: H1+ (Relative Advantage)

The relationship between relative advantage and the extent of e-HRM adoption was examined. The correlation coefficient between these variables was 0.639 which is statistically significant. Moreover, this finding shows that there is a strong positive correlation between Relative advantage and e-HRM adoption ($r= 0.639$, $n=165$, $p<0.000$). Therefore, the hypothesis between relative advantage and the extent of e-HRM adoption is supported.

Hypothesis: H2+ (Compatibility)

The relationship between compatibility and the extent of e-HRM adoption was examined. The correlation coefficient between these two variables was 0.678 which is statistically significant. Moreover, this finding shows that there is a strong positive correlation between compatibility and e-HRM Adoption ($r= 0.678$, $n=165$, $p<0.000$). Therefore, the hypothesis between compatibility and the extent of e-HRM adoption is supported.

Hypothesis: H3+ (Complexity)

The relationship between complexity and the extent of e-HRM adoption was also examined. The correlation coefficient between these variables was 0.638 which is statistically significant. Moreover, this finding shows that there is a strong positive correlation between complexity and e-HRM adoption ($r= 0. 638$, $n=165$, $p<0.000$). Therefore, the hypothesis between complexity and the extent of e-HRM adoption is supported.

Hypothesis: H4+ (Trialability)

The relationship between Trialability and the extent of e-HRM adoption was also examined. The correlation coefficient between these variables was 0.496 meaning that there is a medium positive correlation between Trialability and e-HRM adoption ($r= 0.496$, $n=165$, $p<0.000$). Therefore, the hypothesis between Trialability and the extent of e-HRM adoption is partially accepted.

Hypothesis: H5+ (Observability)

Pearson correlation analysis was used to examine the relationship between observability and the extent of e-HRM adoption. The correlation coefficient between these variables was 0.476 which is statistically significant. Moreover, this finding shows that there is a medium positive correlation between observability and e-HRM adoption ($r = 0.476$, $n = 165$, $p < 0.000$). Therefore, the hypothesis between observability and the extent of e-HRM adoption is supported.

Hypothesis: H6+ (Trust in e-HRM technology)

The relationship between Trust in e-HRM technology and the extent of e-HRM adoption was examined. The correlation coefficient between these variables was 0.760 which is statistically significant. Moreover, this finding shows that there is a strong positive correlation between Trust in e-HRM technology and e-HRM adoption ($r = 0.760$, $n = 165$, $p<0.000$). Therefore, the hypothesis between Trust in e-HRM technology and the extent of e-HRM adoption is supported.

Hypothesis: H7+ (Perceived Voluntariness)

The relationship between perceived voluntariness and the extent of e-HRM adoption was examined. The correlation coefficient between these variables was 0.301 which shows that there is a weak positive correlation between perceived voluntariness and e-HRM adoption ($r = 0.301$, $n = 165$, $p<0.000$). Therefore, the hypothesis between perceived voluntariness and the extent of e-HRM adoption is partially supported.

4.6.2. Regression Analysis

Multiple regression was used to assess the ability of the combination of Relative Advantage (RA), Compatibility (CA), Complexity (CX), Trialability (TA), Observability (OA), Perceived Voluntariness (PV) and Trust (TT) to predict e-HRM Adoption. **Table 9** below shows that the model as a whole explains 64.8% of the e-HRM adoption score.

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805[a]	0,648	0,632	0,43173
a. Predictors: (Constant), Trust, Perceived_Voluntariness, Observability, Trialability, Complexity, Relative_Advantage, Compatibility				
b. Dependent Variable: e-HRM_Adoption				

Table 9: Model Summary

4.6.3. Assumptions of Regression Analysis

a. Multiple Regression Outliers

The Mahalanobis distance values technique was used to check for outliers in the data. The model has seven (7) independent variables thus the Critical value is 24.32. Only six (6) outliers were identified and removed from the analysis. The Normal P-P Plot indicates no major deviations from normality – see **Figure 12** in **Appendix I.**

b. Collinearity

The correlations between the variables in the model are given in **Figure 10** in **126Appendix H.** The values are above the preferred value of 0.3 showing that a relationship exists between the dependent variable (*e-HRM adoption*) with each of the independent variables (*Relative Advantage, Compatibility, Complexity, Trialability, Observability, Perceived Voluntariness and Trust in e-HRM Technology*).

Furthermore, the Tolerance and the VIF values in **Figure 18** in **Appendix I** were used to test for multicollinearity in the model. The Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by other independent variables in the model. The VIF is the inverse of the Tolerance. VIF values above 10 indicate the presence of multicollinearity in the model. **Figure 18** in **Appendix I** show that there is no multicollinearity in the model as all VIF values are less than 10.

c. Assumption of Linear Relationships, Heteroscedasticity, and Normality of the residual distribution

The above assumptions refer to the aspects of the distribution of the scores and the relationship between the variables. The Normal PP plot and scatter plots and histogram are used to test for these assumptions of regression analysis. The Normal Probability Plot (P-P) in **Figure 12** in **Appendix I** show that the points are lying reasonably straight diagonal to the line from bottom left to top right. Also in the scatter plot of the standardized residuals (see **Figure 13** in **Appendix I**), the points are roughly distributed in a rectangular shape, with most points concentrated along the 0 point. These features indicate that there is no major deviation from normality, homoscedasticity, and linearity. Since both the dependent and independent variables were found to be normally distributed, the following histogram shows that the assumption of the normality of the residual distribution holds – see **Figure 14** in **Appendix I** showing the Regression Standardized Residual.

4.6.4. Analysis of Variance (ANOVA)

The ANOVA p-values for the Relative Advantage (RA), Compatibility (CA), Complexity (CX), Trialability (TA), Observability (OA) and Trust (TT) on e-HRM Adoption is less than 0.05 indicating that the model has strong predictive power and is statistically significant, R squared = 0.648, F(6,164) = 41,207, p = 0.000. The model as a whole explains 64.8% of the e-HRM adoption score.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53,764	7	7,681	41,207	.000[b]
	Residual	29,264	157	0,186		
	Total	83,028	164			
a. Dependent Variable: e-HRM_Adoption						
b. Predictors: (Constant), Trust, Perceived_Voluntariness, Observability, Trialability, Complexity, Relative_Advantage, Compatibility						

Table 10: Analysis of Variance (ANOVA)

4.6.5. Coefficients

Table 11 shows the results of the regression analysis. The independent variable that has the largest significant effect on the adoption of e-HRM is trust because it has a value of 0.499. This is followed by the complexity at 0.167, and the relative advantage at 0.108.

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0,551	0,258		2,139	0,034
	Perceived_Voluntariness	0,101	0,053	0,101	1,892	0,060
	Relative_Advantage	0,100	0,077	0,108	1,290	0,199
	Compatibility	0,090	0,089	0,095	1,010	0,314
	Complexity	0,173	0,069	0,167	2,517	0,013
	Trialability	0,027	0,054	0,032	0,495	0,621
	Observability	-0,041	0,071	-0,037	-0,578	0,564
	Trust	0,495	0,082	0,499	6,061	0,000

Table 11: Parameters Estimates

When assessing whether Trust, Perceived Voluntariness and each of the DOI measures make a statistically significant unique contribution to the model, the parameter estimates calculations were performed – see **Table 11**: Parameters Estimates. The results show that Complexity and Trust make a unique statistically significant contribution to predicting e-HRM Adoption with p-values of 0.012 and 0.000 respectively. The beta values indicate that Complexity and Trust have a positive impact on e-HRM Adoption with beta values of 0.167 and 0.499 respectively.

4.7. Additional Analysis

4.7.1 Group Comparison / Control Variables

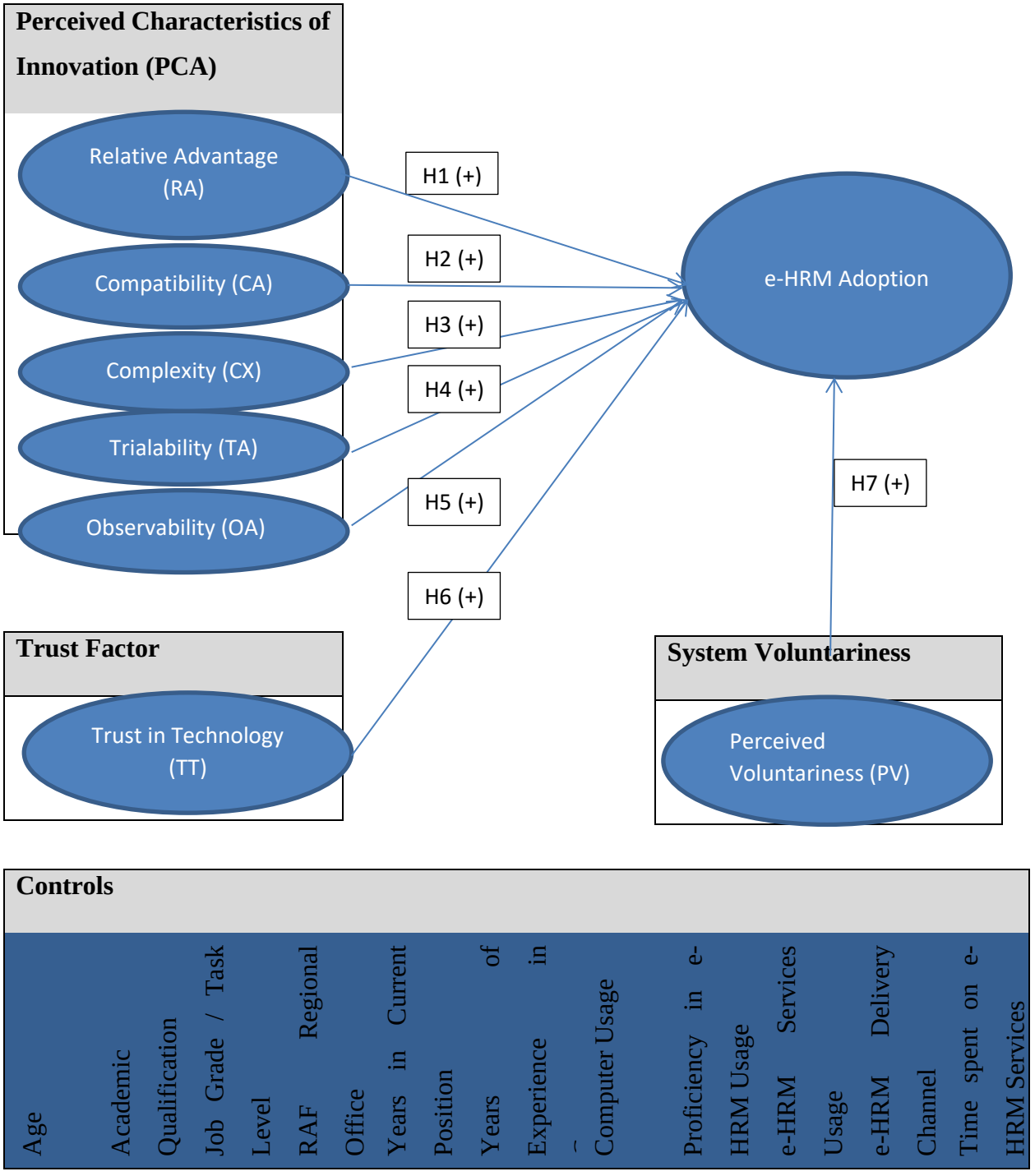
The purpose of this study is to determine the factors that affect the adoption of electronic Human Resource Management (e-HRM) in the South African Public Sector using an integrated approach of Diffusion of Innovation (DOI) Theory and Trust perspective. As a result, the dependent variable (*i.e. e-HRM adoption*) is most likely to be influenced by other variables besides those that were overtly hypothesized. In order to test the proposed model, this study controls for the regional office where the RAF employees are based, the employees' age group, the employees' job grade, the employees' academic qualification, the number of years in current position, the years of experience in current organization, their computer usage, proficiency in using e-HRM services, and e-HRM services usage frequency. These aforesaid variables may act as antecedents of all the dependent variables in the proposed model. It is for this reason that they are therefore controlled. A group comparison of the aforementioned control variable was performed and the results are displayed on **Table 12**.

	Mean (M)	Standard Deviation (SD)	T-Value (t)	P-Value (p)	F-Value (F)	Sheffe-Test?	Effect on e-HRM adoption?
Regional Office: Centurion Menlyn & Johannesburg	4.20 4.19	0.86899 0.63002	t (163) = 0.097	0.0923		NO	NO
Age Group				0.417	F (4, 169) = 0.986	NO	NO
Job Grade / Task Level: General/Officer Middle & Senior Management	4.15 4.31	0.81720 0.73217	t (167) = -1.270	0.206		NO	NO
Academic Qualification				0.344	F (4, 163) = 1.131	NO	NO
Years in Current Position (YCP)				0.898	F (2, 164) = 0.108	NO	NO

Years of Experience in Current Organization (YECO)				0.880	F (2, 167) = 0.128	NO	NO
Computer Usage (CU) *"Very Little"* to "*Some Experience"* "*Very Much Experience*"	3.92 4.16	1.03 0.78		0.012	F (2, 168) = 4.558	YES	YES
Proficiency in e-HRM services Usage	4.38 4.12	0.60494 0.86317	t (164) = 2.265	0.025		NO	YES
e-HRM services Usage Frequency				0.217	F (2, 161) = 1.540	NO	NO

Table 12: Group Comparison Tests

4.8. Revised Model



4.9. Hypotheses Summary

Hypothesis	Result
H1: Relative Advantage (RA) will have a positive effect on the intention to adopt e-HRM	**Supported**
H2: Compatibility (CA) will have a positive effect on the intention to adopt e-HRM	**Supported**
H3: Complexity (CX) will have a positive effect on the intention to adopt e-HRM	**Supported**
H4: Trialability (TA) will have a positive effect on the intention to adopt e-HRM	**Partially Supported**
H5: Observability (OA) will have a positive effect on the intention to adopt e-HRM	**Supported**
H6: Trust in technology (TT) will have a positive effect on the intention to adopt e-HRM	**Supported**
H7: Perceived Voluntariness (PV) will have a positive effect on the intention to adopt e-HRM	**Supported**

Table 13: Hypothesis Summary

4.10. Conclusion

This chapter presented the findings and results of the study. A total of 173 responses were received. Out of this total, only 170 usable responses were retained as a result of data cleaning process. These usable responses were presented as a sample profile of the RAF employees who participated in this study. The reliability and validity of this study's empirical data were tested using the PCFA tests and inter-item correlation tests. Additionally, the Cronbach's Alphas for each of the variables were calculated in order to ensure item scale reliability. Through the use of Skewness and Kurtosis tests it was found that this study's data set conformed to the normal distribution. In closing, the majority of the study's hypothesis (*i.e. H1, H2, H3, H5, H6 & H7*) were fully supported and only

H4 was partially supported. These findings are discussed further in the subsequent chapter relative to existing literature.

CHAPTER FIVE: DISCUSSION

5.1. Introduction

This chapter facilitates a discussion on the findings and data analysis as carried out in the previous chapter with its corresponding hypotheses. The primary objective of this study is to examine the determinants of HRM innovation influencing the adoption of e-HRM systems within the public sector environment by focusing on a South African state-owned entity (SOE), the Road Accident Fund. In order to achieve this aforesaid objective, this study sought to address it through raising the following research question:

- *To what extent do trust, perceived voluntariness, and the diffusion of innovation characteristics affect the adoption of e-HRM in the public sector in South Africa?*

Subsequently, various hypotheses were formulated in chapter two (2) as a means to aid in understanding the extent to which the perceived characteristics of innovation, perceived trust in e-HRM system and perceived voluntariness of system use have on the behavioural intention to adopt the e-HRM innovation amongst the RAF employees. Following the outcomes of the data collection and analyses phase, this chapter synthesizes the results relative to the identified hypotheses underpinned by extant literature as well as the literature deliberated on in chapter 2. The first part of this chapter deliberates on the extent of e-HRM adoption by the South African public sector. The second part of this chapter categorizes the hypotheses as supported and partially supported hypotheses.

5.2. e-HRM adoption by the South African Public Sector employees of the RAF

e-HRM adoption was the dependent variable in this study, i.e. the researcher wanted to measure the individual's intention to use e-HRM within the South African public sector. This was in line with the current study's objective to measure the extent of e-HRM adoption within the South African public sector environment through the use of the RAF since it falls within the SOE space. It was hypothesized that the perceived Relative Advantage (RA), Compatibility (CA), Complexity (CX), Trialability (TA), Observability (OA), Trust in e-HRM Technology (TT), and Perceived Voluntariness (PV) have a positive significant effect on e-HRM adoption. The results showed mixed outcomes as most of the hypotheses were supported while Trialability was partially

supported. These results have shown that in the main, the majority of the RAF employees have adopted the e-HRM system. Furthermore, results attained from the correlation analysis have shown that all seven (7) factors have a significant effect on e-HRM adoption when individually analyzed. Based on the analysis of extant literature around e-HRM, this study proposed seven (7) hypotheses to determine the extent to which PV, TT and PCI factors affect the adoption of e-HRM adoption within the public sector. Of these 7 hypotheses, 6 were supported and 1 was partially supported.

5.3. Enablers and Inhibitors of e-HRM adoption within the South African public sector

The results presented in chapter 4 have shown that the study's proposed model, i.e. DOI-Trust, was supported by the perceived trust in e-HRM technology, perceived voluntariness, relative advantage, compatibility, complexity, observability, and partially supported by the trialability construct. Figure 4 below presents a quick summary of the hypotheses results.

Hypothesis	**Result**
H1: Relative Advantage (RA) will have a positive effect on the intention to adopt e-HRM	**Supported**
H2: Compatibility (CA) will have a positive effect on the intention to adopt e-HRM	**Supported**
H3: Complexity (CX) will have a positive effect on the intention to adopt e-HRM	**Supported**
H4: Trialability (TA) will have a positive effect on the intention to adopt e-HRM	**Partially Supported**
H5: Observability (OA) will have a positive effect on the intention to adopt e-HRM	**Supported**
H6: Trust in e-HRM (TT) will have a positive effect on the intention to adopt e-HRM	**Supported**
H7: Perceived Voluntariness (PV) will have a positive effect on the intention to adopt e-HRM	**Supported**

Figure 4: Hypotheses outcomes

5.3.1. Supported Hypotheses

5.3.1.1. Relative Advantage (RA)

This study had hypothesized that the relative advantage of the introduced e-HRM system will have a positive correlation with e-HRM adoption by the South African public sector employees of the RAF. The underlying context was formulated on the premise that the employee's propensity to adopt the e-HRM system will be higher relative to the old manual ways of engaging with the HRM activities. As a result, the following hypothesis was postulated:

H1*:* *Relative Advantage will have a positive effect on the intention to adopt e-HRM*

The results of this study showed that the aforesaid hypothesis was supported by the ANOVA analysis. In other words, the RAF employees perceived an overall improvement in the human resource management system as compared to what they were used to (*i.e. manual system*) subsequent to the adoption of the e-HRM innovation. For example, up to 70% of the RAF employees preferred to use the electronic system as their HRM delivery channel. This shows that there is a potential value created and/or benefits being realized by using the e-HRM system. Moreover, these findings are consistent with previous studies that found the perceived relative advantage to be a significant factor affecting intentions to adopt modern technologies (Kurnia, Karnali, & Rahim, 2015; Al-Dmour, 2014; Hung, Hung, Tsai & Jiang, 2010; Schaupp, Carter, & McBride, 2010; Oliveira and Martins, 2010; Teo, Lim & Fedric, 2007; Looi, 2005; Carter & Belanger, 2004). Therefore, this positive effect suggests that the higher the perceived benefits of using e-HRM the more likely individuals are to adopt the e-HRM system.

5.3.1.2. Compatibility (CA)

The current study hypothesized that the perceived compatibility of the e-HRM system with existing organizational resources, processes and plans will have a positive impact on the individual's behavioural intention to adopt e-HRM. Accordingly, the following hypothesis was proposed:

H2*:* *Compatibility will have a positive effect on the intention to adopt e-HRM*

The Road Accident Fund is constrained by a number of challenges. These challenges range from the organization's reliance on some manual paper-based systems, insufficient technical resources,

integration of disparate systems (*both internal and external*), dependency on legacy systems and (*to a certain degree*) obsolete technologies that are no longer supported by proprietary vendors. However, these challenges are a big concern to management notwithstanding the uncertainty that comes along with an introduction of a new system such as the e-HRM. Both the management and employees would be worried to know if the e-HRM innovation is compatible and/or consistent with the existing RAF technologies, processes and past experience as alluded to by Rogers (2003). Once these concerns are addressed then the RAF employees would have high intentions to adopt the e-HRM systems.

The results of this study found that compatibility had a significant effect on the adoption of e-HRM. In other words, the RAF employees perceived the e-HRM system to be consistent with their known organizational values and past system exposure. This finding is corroborated by previous research studies. For example, studies conducted by Masum (2015), Rogers (2003), Thong (1999), and Teo et al. (2007) also concluded that compatibility has a significant effect on e-HRM adoption, therefore the RAF is no exception.

5.3.1.3. Complexity (CX)

This study had hypothesized that the perceived complexity of the e-HRM system will have a negative effect on e-HRM adoption by the South African public sector employees of the RAF. Consequently, the following hypothesis was formulated:

H3: *Complexity (CX) will have a positive effect on the intention to adopt e-HRM*

The results of the analysis found that there is an inverse relationship between the perceived complexity of e-HRM system and its adoption. For example, the RAF employees were more confident that their e-HRM system was moderately easy to understand, learn, and use. This result is consistent with the original diffusion of innovation theory as proposed by Rogers (1983). Furthermore, previous literature showed that high levels of complexity have a negative impact on adoption decisions in organizations (Thong, 1999). For example, the more complex an innovation is perceived to be, the more effort and skills it requires for it to be implemented – as a result, organizations tend to be less likely induced to adopt it (Cooper & Zmud, 1990).

5.3.1.4. Observability (OA)

The present study had hypothesized that the perceived observability or communicability of the e-HRM benefits will have a positive influence on the public sector employees to adopt the e-HRM. As such, the following hypothesis was tested:

H5*: Observability will have a positive effect on the intention to adopt e-HRM*

As was the case with trialability, observability presents an opportunity for the e-HRM system users to evaluate the promised system benefits in an effective and efficient way. For instance, the system users are given the chance to watch and observe how the system functions and possibly get the chance trial on it. In this study, the findings reveal that there was a very high visibility and observability of the e-HRM benefits in relation to what was expected of the system. For example, the findings on demographics data indicated that up to 80% of the RAF employees either used the e-HRM system frequently or occasionally. Moreover, the very same demographics data showed that these employees used e-HRM system as their preferred delivery channel when performing their daily HR activities. Therefore, observability has a significant effect on the intention to adopt e-HRM by itself and in the presence of the other independent variables. This finding is corroborated by previous studies showing that the more the visibility of e-HRM to individuals within the firm, the lesser the uncertainty pertaining to it, the higher the chances of its adoption (Kassim, Ramayah, & Kurnia, 2012).

5.3.1.5. Trust in e-HRM Technology (TT)

This study had hypothesized that the trust in e-HRM system will have a positive effect on e-HRM adoption by the South African public sector employees. Consequently, the following hypothesis was proposed:

H6*: Trust in Technology will have a positive effect on the intention to adopt e-HRM*

The results of the analysis showed that trust in e-HRM technology has a positive effect on the intention to adopt e-HRM. This means that trust has a significant effect on the intention to adopt e-HRM by itself and in the presence of the other independent variables such as relative advantage, compatibility, complexity, observability, and voluntariness. This finding is consistent with other studies that found trust to be significantly positive when users of the system feel comfortable using

it (Smith, 2006). Moreover, literature shows that trust as part of the TOP framework was found to have a substantial influence on the adoption of e-HRM (Bondarouk et al., 2017; Bissola & Imperatori, 2014). Additionally, the results showed that, on the one hand, the RAF employees did not have trust issues with regards to the e-HRM system. This could be partly attributed to the demonstrated characteristics of the system to have been delivering on its promised benefits, i.e. performing reliably, and meeting their expectations. This finding is supported by a study conducted on citizen confidence in e-government services which found trust to have an effect on trust of the internet and intention to use (Belanger & Carter, 2008). On the other hand, if the RAF employees did not trust the system, they would still be using the traditionally manual ways of engaging with and/or dealing with their daily HRM activities – this is shown by the high number of employees using the e-HRM (*see section 4.4. of the demographics*). Therefore, the higher the levels of trust in the e-HRM system features, the higher the chances of it being adopted.

5.3.1.6. Perceived Voluntariness (PV)

This study wanted to find out if the use of e-HRM system within the RAF environment was perceived to be voluntary or mandatory. This perceived choice was postulated to have a significant influence on the employee's decision to adopt the e-HRM. As a consequent, the following was hypothesized:

H7*:* *Perceived Voluntariness will have a positive effect on the intention to adopt e-HRM*

The results show that this hypothesis was supported, i.e. the perceived voluntariness has a positive effect on the intention to adopt e-HRM. Prior studies postulate that system users in voluntary settings tend to be ineffective and not use the said system optimally whereas their counterparts in mandatory settings tend to form an attitude that eventually leads to optimal user performance (Guo & Zhang, 2011). In this context, the RAF allows for both manual and automated systems to be used for operational transactions with the HRM department, therefore e-HRM usage is still voluntary. Literature shows that users working on voluntary conditions reported high levels of system use and understanding because they work at their own pace without interference (Guo & Zhang, 2011; Moore & Benbasat, 1991). On the contrary, system users working on management orders tend to spend most of their time resisting the use of the new system (Guo & Zhang, 2011).

5.3.2. Partially Supported Hypothesis

5.3.2.1. Trialability (TA)

The current study hypothesized that perceived trialability of the system will have a positive influence on the adoption of e-HRM. Accordingly, the following hypothesis was proposed:

H4*:* *Trialability will have a positive effect on the intention to adopt e-HRM*

The results of the analysis indicated that there is a positive correlation between trialability and the adoption of e-HRM system – nonetheless, the impact was not significant. It must be noted that the correlation results showed that trialability had a significant effect on the intention to adopt e-HRM whereas the regression analysis contradicted these findings. This means that trialability has a significant impact on e-HRM adoption on its own but not in the presence of other independent variables such as relative advantage, compatibility, complexity, observability, voluntariness, and trust. Moreover, a study conducted by Bondarouk (2016) on e-HRM adoption in emerging economies found that some of the subsidiaries of the multinational corporations in Indonesia had challenges with regards to the trialability of their e-HRM systems. It was reported that companies who had no issues with trialability were those that built their own e-HRM systems as they had more time to test and reconfigure their systems. This was no exception for the RAF as most of their employees indicated that they neither had the required training nor opportunity to experiment with the newly implemented e-HRM system. This current study is in congruent with other studies conducted on a mobile internet which found *trialability* not having a significant effect on adoption intention (Hsu, Lu, Hsu, 2007). On the contrary, a study by Chung and Kwon (2009) found trialability to be significant especially amongst the early adopters of a system/innovation thus influencing their decision-making attitudes. This assertion was further supported by Chen, Yen and Chen (2009) who found *trialability* to have a significant impact on the end-user's attitude to technology adoption provided that they had the opportunity to test an innovation against their daily tasks.

5.4. Control Variables

The diffusion of innovation theory asserts that the demographic variable plays a critical role in the formative stages of technology adoption (Rogers, 2003). For example, some researchers argue that

organizations should consider their employees' IT capabilities when adopting newer technologies (Lin, Lin, Roan, & Yeh, 2012; Liu, 2011). Additionally, some researchers reason that it is incumbent upon the employees to hold some level of IT knowledge to optimally utilize the new technological innovation (Ettlie, 1990). Therefore, these findings suggest that there is an expectation on the part of employees to possess a certain level of knowledge and skills on the new technology. The following sections give a summary interpretation of the results obtained from chapter 4 presented in **Table 12** (Group comparisons).

5.4.1. Regional Office

Since the response sizes for both Menlyn and Johannesburg was too small, it was then decided to combine the two (2) samples into one category in order to allow for proper analysis. There was no significant difference in scores of Head office for Centurion (M = 4.20, SD = 0.86899) and Regional office for Menlyn & Johannesburg (M = 4.19, SD =0.63002), t (163) = 0.097, p = 0.0923. Therefore, this result means that it did not matter where geographically the RAF employees were located; their regional office had no impact on their intentions to adopt e-HRM.

5.4.2. Age Group

A one-way between-groups analysis of variance was conducted to explore the impact of age on the perceptions of e-HRM adoption. Subjects were divided into four (4) groups according to their Age (Group 1: *26-30*; Group 2: *31 -35*; Group 3: *36 – 40*; Group 4: *41 – 45*; Group 5: *46 years and older*). There was no significant difference in scores of the five age groups for e-HRM adoption: F (4, 169) = 0.986, p value = 0.417. Therefore, this means that the age group control variable was not a factor in the RAF employees' intention to adopt e-HRM.

5.4.3. Job Grade / Task Level

An independent-samples t-test was conducted to test for difference in perception scores for job grade. There was no significant difference in scores of *General/Officer* (M = 4.15, SD =0.81720) and *Middle and Senior Management* (M = 4.31, SD =0.73217), t (167) = -1.270, p = 0.206.

5.4.4. Academic Qualification

A one-way between-groups analysis of variance was conducted to explore the impact of academic qualification on perceptions on e-HRM adoption. The subjects were divided into five groups according to their academic qualifications (Group 1: *Matric Senior Certificate*; Group 2: *National Diploma*; Group 3: *Bachelor's Degree*; Group 4: *Honours Degree*; Group 5: *Master's Degree*). There was no significant difference in scores of the five academic qualification groups for e-HRM adoption: F (4, 163) =1.131, p value = 0.344.

5.4.5. Years in Current Position (YCP)

A one-way between-groups analysis of variance was conducted to explore the impact of years in current position on e-HRM adoption. The subjects were divided into three (3) groups according to their number of years in current position (Group 1: *0 – 3 years*; Group 2: *4 – 6 years*; Group 3: *7 year and above*). There was no significant difference in scores of the three (3) YCP groups for e-HRM adoption: F (2, 164) = 0.108, p value =0.898.

5.4.6. Years of Experience in Current Organization (YECO)

A one-way between-groups analysis of variance was conducted to explore the impact of years of experience in current organization on perceptions on e-HRM adoption. The subjects were divided into three groups according to their number of years of experience in the current organization (Group 1: *0 – 3 years*; Group 2*: 4 – 6 years*; Group 3: *7 year and above*). There was no significant difference in scores of the three (3) YECO groups for e-HRM adoption: F (2, 167) = 0.128, p value = 0.880.

5.4.7. Computer Usage (CU)

A one-way between-groups analysis of variance was conducted to explore the impact of computer usage perceptions on e-HRM adoption. Subjects were divided into three (3) groups according to their age (Group 1: Very little to some experience; Group 2: Much experience; Group 3: Very much experience). There was a statistically significant difference in perception scores for the three groups for computer usage: F (2, 168) = 4.558, p value = 0.012.

Post-hoc comparison using the Sheffe Test indicated that under computer usage, the mean score for the "*Very Little*" to "*Some Experience*" group (M= 3.92, SD = 1.03) was significantly different from the "*Very Much Experience*" group (M = 4.16, SD = 0.78). This means that the more the RAF employees use their computers they are most likely to have a positive perception on the adoption of e-HRM than the employees who use their computers less.

5.4.8. Proficiency in e-HRM services Usage

An independent-samples t-test was conducted to test for the difference in perception scores for proficiency usage of e-HRM services. There was a significant difference in scores of "*Advanced*" to "*Expert*" (M = 4.38, SD = 0.60494) and "*Beginner*" to "*Average*" (M = 4.12, SD =0.86317), t (164) =2.265, p = 0.025.

5.4.9. e-HRM services Usage Frequency

A one-way between-groups analysis of variance was conducted to explore the impact of e-HRM usage perceptions on e-HRM adoption. Subjects were divided into three (3) groups according to their e-HRM usage frequency (Group 1: *Occasionally*; Group 2: *Frequently*; Group 3: *All the time*). There was no significant difference in scores of the three (3) e-HRM usage groups for e-HRM adoption: F (2, 161) =1.540, p value = 0.217.

5.5. Conclusion

This chapter discussed the findings presented in chapter 4 of data analysis. There were seven (7) hypotheses presented in total. Six (6) hypotheses (*i.e. relative advantage, compatibility, complexity, observability, perceived trust in e-HRM, and perceived voluntariness*) were supported by the study and only one (1) hypothesis (*i.e. trialability*) was partially supported. This means that the construct *trialability* has a significant impact on e-HRM adoption on its own but not in the presence of other independent variables. Given the fact that the RAF employees, had little to no time to trial out the e-HRM innovation when it was first implemented, it is no surprise that it was partially supported. Literature shows that companies who got a positive feedback or outcome on the trialability construct were those that actually built their e-HRM systems in-house (Bondarouk, 2016). What the outcomes of this study mean is that the attitudes of the RAF employees regarding e-HRM adoption are not completely different to those of other employees in the rest of the world,

be it in the public or private sector. Management needs to be more careful when purchasing and/or implementing a new computer system. For example, management needs to: engage its employees; customize the new system to achieve its intended objectives and meet employee expectations; allow employees to have ample time to test and play with new system so as to build confidence and help in its enhancement. Lastly, this chapter discussed the hypotheses in detail and proposed possible reasons why some of these hypotheses were supported (or partially supported) using existing literature as a source. The next chapter deliberates on the implications of the current study results and concludes this research report.

CHAPTER SIX: CONCLUSION

6.1. Introduction

The previous chapter discussed in-depth the current study's research findings. This chapter concludes the study by presenting: (1) a review of the study's main objectives, (2) a summary of the findings, (3) a brief discussion of key contributions which the study supplements to the body of knowledge on the subject of e-HRM adoption within the public sector environment, and (4) implications for practice. Finally, this chapter concludes by outlining this study's limitations as well as suggesting possible recommendations for future research.

6.2. Review of research background, aims and objectives

This study aimed to investigate the factors influencing the adoption of e-HRM in the South African public sector. An integrated diffusion of innovation theory (Rogers, 1995) and trust in e-HRM system's technology approaches were used as a theoretical underpinning to examine these factors. In order to achieve the purpose of this study, the investigation aimed to answer the following research question:

- To what extent do trust, perceived voluntariness, and the diffusion of innovation characteristics affect the adoption of e-HRM in the public sector in South Africa?

Additionally, this study focused on the effect of the following factors:

- Test the Diffusion of Innovation model developed by Rogers (2003).
- Examine the relationship between relative advantage and the intention to adopt e-HRM in the public sector
- Examine the relationship between compatibility and the intention to adopt e-HRM in the public sector
- Examine the relationship between complexity and the intention to adopt e-HRM in the public sector

- Examine the relationship between trialability and the intention to adopt e-HRM in the public sector
- Examine the relationship between observability and the intention to adopt e-HRM in the public sector
- Examine the relationship between trust in technology and the intention to adopt e-HRM in the public sector
- Examine the relationship between perceived voluntariness of e-HRM use and the intention to adopt e-HRM in the public sector
- Examine whether the abovementioned relationships are influenced by external factors defined herewith as controls (e.g. age, qualification, job grade, office, years in current position, years of experience in current organization, computer usage, proficiency in e-HRM usage, e-HRM services usage, e-HRM delivery channel and time spent using these e-HRM services)

Furthermore, a research model was developed to test the effects of perceived characteristics of innovation (PCI), perceived voluntariness and trust in e-HRM technology on the RAF employees' intention to adopt e-HRM. Moreover, a literature review on e-HRM and Trust was carried out which was followed by an online survey that used a structured questionnaire instrument. This online survey was conveniently distributed to the RAF employees working in the Johannesburg, Centurion and Menlyn regional offices in the Gauteng Province of South Africa. Responses were received and analyzed from the 173 employees who had adequately completed the survey questions. In closing, the next section highlights the research findings that address the aforementioned research questions.

6.3. Summary of Findings

The correlation results show that the RAF employees will adopt e-HRM technology when the existing but newly implemented e-HRM applications are perceived to be reliably trustworthy, and bug-free. Additionally, the results show that the RAF employees will adopt the e-HRM technology provided that they do not perceive its usage to be mandatory, or that management does not force

them to use it. Furthermore, correlation test results showed that the perceived relative advantage, compatibility, complexity, observability, perceived voluntariness, and perceived trust in e-HRM systems all had a significantly positive impact on e-HRM adoption whilst there was a partial support for trialability. This means that the public sector employees of a developing country like South Africa in general, and the Road Accident Fund in particular, had little difficulties in adopting the e-HRM innovation even though they were not given enough time to test and trial the system. This study's finding is consistent with other studies conducted in developed countries as alluded to by Bondarouk (2016). Additionally, control variables such as the office in which the RAF employees worked, their age group, job grades/position, number of years worked in current position and the organization, academic qualifications, and the e-HRM service usage frequency had no impact on the aforesaid employees' intentions to adopt e-HRM. However, there was a statistical significance in the computer usage and self-proclaimed proficiency in e-HRM service usage amongst the study's respondents.

6.4. Implications for Theory and Research

Previous studies have noted with concern the lack of a grounded theoretical underpinning on the e-HRM literature (Bondarouk, Parry & Furtmueller, 2017). As a result, this study was undertaken to focus on identifying and delineating factors influencing public servants to adopt e-HRM through the lens of the Diffusion of Innovation Theory (DOI). Moreover, this study has provided a useful theoretical contribution by adapting the DOI theory to include one dimensional aspect of trust (*i.e. trust in e-HRM system*) as a determining factor in e-HRM system adoption.

The empirical evidence provided here supports trust in e-HRM system to positively influence e-HRM adoption. This means that the users of e-HRM system must feel comfortable using the technology and trust that it yields reliable and high-quality information (Bondarouk & Ruël, 2009; Martin, Reddington & Alexander, 2008). Consequently, the lack of trust in the e-HRM systems will see an increase in the workload of the HR practitioners and a decrease in the envisaged potential productivity of the e-HRM. For example, if the employees feel that the e-HRM system does not add value and captures their data incorrectly, *i.e. leave days*, they will capture them on the manual paper base system, thus creating more effort and workload on the HR practitioners to

process this data. Thus, this is an important lesson for future research on how to model the various trust dimensions and their relationships in e-HRM.

Lastly, many studies that focused on e-HRM adoption were found to have been conducted in developed countries. However, very little literature existed on the adoption of e-HRM within the context of a developing economy like South Africa. Consequently, this study makes an attempt at addressing the apparent theoretical gap that exists between developed and developing economies.

6.5. Implications for Practice

There are several lessons for practice that can be noted from this study. To begin with, e-HRM is an advanced application of human resources management information systems that is mostly used by firms to enable their HRM function to optimally perform its duties. However, minor issues can hamper their optimal use and consequently limit their adoption within the HRM practice. For example, findings from this study have shown that the RAF employees were willing to adopt the e-HRM technology in performing their daily HRM activities provided that: (1) there are perceived tangible advantages in using the system, (2) they perceive using the system not to be mandatory, (3) they trust the system's capabilities to be reliable and consistent. Furthermore, the study showed some of the system's usability areas for the RAF management to focus on in order to ensure optimal system usage and improved user experience. For example, these areas include: (a) the type of e-HRM delivery channel that is mostly used by the RAF employees (*see* **Table 27**), (b) usage frequency of the e-HRM system (*refer to* **Table 25**) as well as, (c) the time spent on these systems (*refer to* **Table 25**) and the related proficiencies on system usage (*see* **Table 26**). Therefore, assessing the aforementioned measures, management can formulate strategies on how best they can optimize their e-HRM systems in order to realize the potential benefits envisaged by e-HRM usage, i.e. *gaining competitive edge (Lucas Jr. et al., 2013), spending less time on administrative duties but focusing on being a firm's strategic partner (Ulrich & Dulebohn, 2015; Bondarouk & Ruël, 2013).*

6.6. Limitations of the Study

While conducting this study, a number of limitations were identified and are acknowledged. These limitations are outlined and discussed as follows:

- Firstly, the convenient sampling frame was used as a result this may compromise the generalizability of the study's findings. For example, the sample was restricted to the RAF employees residing in the Gauteng Province of South Africa. As a result, the findings are more likely to be influenced by the uniqueness of this region's characteristics despite the study being underpinned by some robust social science theories.
- Secondly, the study assumed that the respondents had basic level of computer exposure and competency as well as prior knowledge and experience of existing RAF e-HRM systems. These assumptions might be biased against this study's findings with regards to the adoption of e-HRM.
- Thirdly, the current study was conducted through surveys which are known to be susceptible to response bias. In this case, the findings were depended on the honesty of the participants to choose appropriate (*instead of random*) answers that reflect their knowledge of e-HRM systems at RAF. This could be the reason why some of the factors where cross-loading during the principal component analysis.
- Fourthly, this was a cross-sectional study based on the time frames allocated to complete the master's coursework research – though the analysis is described in causal terms. So, this study does not establish any temporal precedence. As a result, the causal direction should not be inferred because the study was not longitudinal.
- Lastly, the results are less generalizable to the entire public sector population since the sample was only drawn from a convenient sample and / or section of the RAF population.

6.7. Recommendations for Future Research

This study has paved the way for future research to be conducted on the successful adoption of e-HRM within the public sector. Firstly, researchers saw a gap in the shortage of a grounded theoretical underpinning on the e-HRM adoption (Bondarouk, Parry & Furtmueller, 2017). This study closed that gap by integrating the diffusion of innovation theory with trust as its theoretical underpinning to understand and examine the factors that influence the adoption of e-HRM in the public sector. During the analysis, it was found that both the relative advantage and compatibility had similar factor loadings. Furthermore, it was also found that the hypothesis on trialability was partially supported. Consequently, other researchers need to expand on these findings. Secondly,

future research should consider sampling more than one government department in order to improve the generalizability of the findings as well as comparing the state of e-HRM adoption within the South African government institutions.

6.8. Conclusion

This study has improved the understanding of the factors influencing the adoption of e-HRM within the South African public sector. The diffusion of innovation model was modified, extended, and analyzed so as to establish the extent to which the perceived characteristics of innovation influence the adoption of e-HRM. This approach was necessary in order to test the effects of explanatory factors such as the Relative Advantage, Compatibility, Complexity, Trialability, Observability, Trust in e-HRM system, and Perceived Voluntariness on the intention to adopt e-HRM. The research findings showed that Relative Advantage, Compatibility, Complexity, Observability were the most significant factors influencing the adoption of e-HRM. Integrating trust in e-HRM system and the perceived voluntariness of system use into the diffusion of innovation theory was a significant theoretical extension. Moreover, the perceived voluntariness of system use was shown to have a significant positive effect on the individual's intention to adopt e-HRM. This indicates that the more system users perceive using e-HRM is not mandatory, the more likely they will adopt it. In closing, trust was shown to have a significant positive effect on the individual's intention to adopt e-HRM. This means that users will trust a system whose characteristics have demonstrated to be performing reliably and meeting their expectations. Therefore, the higher the levels of trust in the e-HRM system features, the higher the chances of it being adopted.

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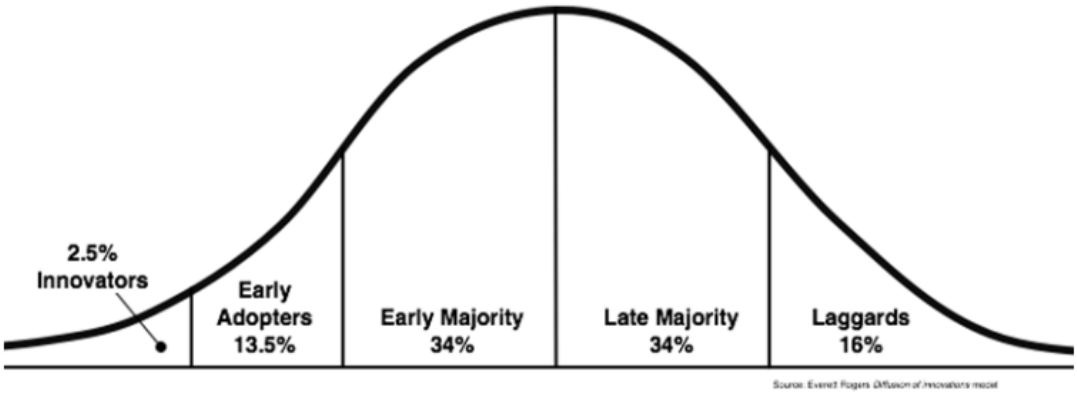
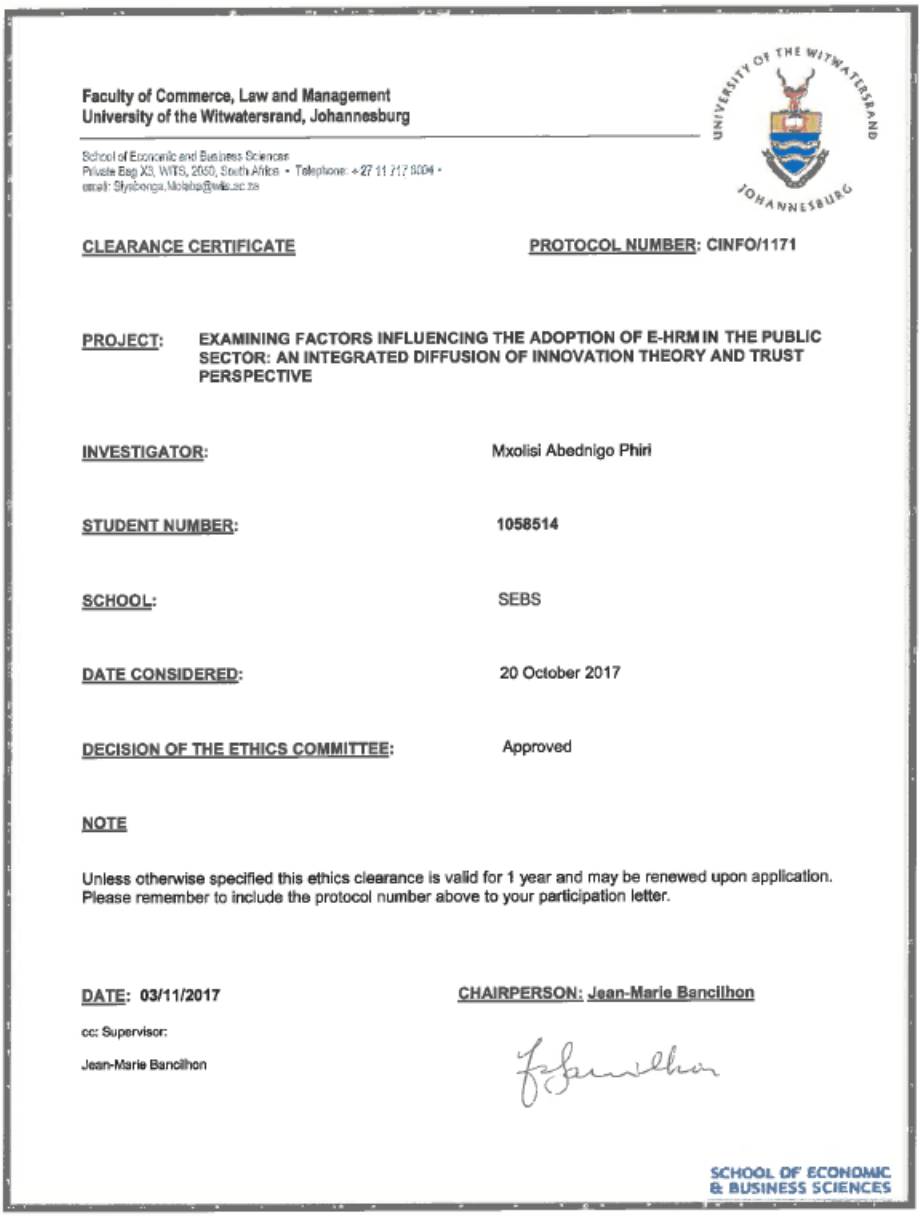
APPENDIXES:

Appendix A. Diffusion of Innovation Theory



Source: http://blog.leanmonitor.com/early-adopters-allies-launching-product/

Appendix B. Ethics Clearance Certificate



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CLEARANCE CERTIFICATE **PROTOCOL NUMBER: CINFO/1171**

PROJECT: **EXAMINING FACTORS INFLUENCING THE ADOPTION OF E-HRM IN THE PUBLIC SECTOR: AN INTEGRATED DIFFUSION OF INNOVATION THEORY AND TRUST PERSPECTIVE**

INVESTIGATOR: Mxolisi Abednigo Phiri

STUDENT NUMBER: 1058514

SCHOOL: SEBS

DATE CONSIDERED: 20 October 2017

DECISION OF THE ETHICS COMMITTEE: Approved

NOTE

Unless otherwise specified this ethics clearance is valid for 1 year and may be renewed upon application.
Please remember to include the protocol number above to your participation letter.

DATE: 03/11/2017 **CHAIRPERSON: Jean-Marie Bancilhon**

cc: Supervisor:

Jean-Marie Bancilhon

SCHOOL OF ECONOMIC & BUSINESS SCIENCES

Appendix C. Cover Letter

Participation Letter in an academic research study entitled:

Examining factors influencing the adoption of e-HRM in the South African Public Sector: An integrated Diffusion of Innovation Theory (DOI) and Trust perspective

Date: 16 October 2017

Good Day

My name is Mxolisi Phiri and I am a Master of Commerce student in the Information Systems Division at the University of the Witwatersrand, Johannesburg. I am conducting research examining factors affecting the adoption of electronic human resource management (e-HRM) innovation in a state-owned-entity within the South African public sector. This study will be underpinned by an integrated diffusion of innovation theory and trust perspective. An e-HRM refers to the use of information technology (*i.e. web-based technologies like ESS*) to deliver accessible and efficient HRM services anytime and anywhere.

As users of RAF's e-HRM system, you are cordially invited to take part in this survey. The purpose of this study is to investigate the factors influencing the adoption of e-HRM within the public sector through the lenses of an integrated diffusion of innovation theory juxtaposing trust as a mediating factor.

Your response is important and there are no right or wrong answers. This survey is both confidential and anonymous. Anonymity and confidentiality are guaranteed by not needing to enter your name on the questionnaire. Your participation is completely voluntary and involves no risk, penalty, or loss of benefits whether or not you participate. You may withdraw from the survey at any stage.

The first part of the survey captures some demographic data. Please indicate the extent to which you agree with each statement, by ticking in the appropriate box. The second part of the survey comprises 37 statements. Please tick whichever boxes are applicable. The entire survey should take between 10 to 15 minutes to complete. The survey was approved by the university's SEBS Ethics Committee (Non-Medical), Protocol Number: CINFO/1171.

Thank you for considering participating. Should you have any questions, or should you wish to obtain a copy of the results of the survey, please contact me on (012) 621-1861 or at mxolisip@raf.co.za
My contact details are: mxolisip@raf.co.za – Cell number: 072 556 7222
My supervisor's name and email are: Jean-Marie – Jean-Marie.Bancilhon@wits.ac.za

---

(Researcher's Signature)
Kind regards
Mxolisi Phiri
Masters Student: Division of Information Systems
School of Economic and Business Sciences
University of the Witwatersrand, Johannesburg

Appendix D. Research Instrument

Survey on Factors Influencing the Adoption of e-HRM in the South African Public Sector.

The purpose of this survey is to investigate factors influencing the adoption of e-HRM in the South African public sector. Throughout this survey, the term e-HRM refers to all electronic human resource management technologies such as the Employee Self-Service (ESS) and the Thupello Training portals used in the Road Accident Fund (RAF) intended to support employees, managers and HR personnel in executing HR tasks and activities (e.g. Leave request, overtime, salary statement, performance management, training, etc.).

Please note that this questionnaire is strictly anonymous and does not require writing your name or any other identifying information on the questionnaire.

If you experience any technical difficulties, please feel free to contact me on mxolisip@raf.co.za / (012-621 1861) for assistance.

To start, click on "Next"

Privacy and Confidentiality notice:
All information you provide will be used for academic research purposes only.

By clicking on the "Accept" button you agree to participate in this study. *

- ○ Accept
- ○ Decline

Demographics

The following section is intended to ascertain the demographics of the Road Accident Fund (RAF) employees.

Please complete the following demographic questions by clicking on the appropriate box. Please select only one response for each question.

2. **A. Please indicate in which office you work:**
Mark only one oval per row.

	Centurion (Head Office)	Menlyn	Johannesburg
Regional Office	◯	◯	◯

3. **B. Please indicate in which age category are you currently:**
Mark only one oval per row.

	18 – 25 years	26 – 30 years	31 – 35 years	36 – 40 years	41 – 45 years	46 – 50 years	51 – 55 years	56 – 60 years	61 Or more years
Age (Years)	◯	◯	◯	◯	◯	◯	◯	◯	◯

4. **C. Please indicate in which job grade/task level category are you currently:**
Mark only one oval per row.

	[0 – 13] / [General / Officer]	[14 – 16] / [Middle Management]	[17 Or Above] / [Senior Management]
Job Grade / Task Level	◯	◯	◯

5. **D. Please indicate your highest educational qualification:**
Mark only one oval per row.

	Some High School	Matric Senior Certificate	National Diploma	Bachelor's Degree	Honours Degree	Master's Degree	PhD
Academic Qualification	◯	◯	◯	◯	◯	◯	◯

6. **E. Please indicate the number of years in current position in the Road Accident Fund (RAF):**
Mark only one oval per row.

	0 – 3 years	4 – 6 years	7 – 9 years	10 – 15 years	16 – 20 years	21 – 25 years	26 – 30 years	31 Or more years
Years in current position	◯	◯	◯	◯	◯	◯	◯	◯

7. **F. Please indicate years of service in the RAF:**
Mark only one oval per row.

	0 – 3 years	4 – 6 years	7 – 9 years	10 – 15 years	16 – 20 years	21 – 25 years	26 – 30 years	31 Or more years
Years of experience with current organization	◯	◯	◯	◯	◯	◯	◯	◯

8. **G. Please indicate your familiarity with computer usage:**
Mark only one oval per row.

	Very little experience	Little experience	Some experience	Much experience	Very much experience
I would consider myself having […] using computers	◯	◯	◯	◯	◯

9. **H. Please indicate how often do you use RAF's e-HRM services, i.e. Employee Self-Service Portal (ESS):**
Mark only one oval per row.

	Never	Rarely	Occasionally	Frequently	All the time
I […] use e-HRM services to perform my HR tasks	◯	◯	◯	◯	◯

10. **I. Please indicate the time spent using RAF's e-HRM services, i.e. Employee Self-Service Portal (ESS), Thupello Management System:**
Mark only one oval per row.

	0 - 1 hours/day	1 - 2 hours/day	2 - 3 hours/day	4 - 5 hours/day	5 or more hours/day
I spend [...] of time using e-HRM to perform my HR tasks	⬭	⬭	⬭	⬭	⬭

11. **J. Please indicate the level of proficiency in using RAF's e-HRM services, i.e. Employee Self-Service Portal (ESS), Thupello Management System:**
Mark only one oval per row.

	Expert	Advanced	Average	Beginner	Unfamiliar
I describe myself as an [...] user of e-HRM services to perform my HR tasks	⬭	⬭	⬭	⬭	⬭

10. **I. Please indicate the time spent using RAF's e-HRM services, i.e. Employee Self-Service Portal (ESS), Thupello Management System:**
Mark only one oval per row.

	0 - 1 hours/day	1 - 2 hours/day	2 - 3 hours/day	4 - 5 hours/day	5 or more hours/day
I spend [...] of time using e-HRM to perform my HR tasks	⬭	⬭	⬭	⬭	⬭

11. **J. Please indicate the level of proficiency in using RAF's e-HRM services, i.e. Employee Self-Service Portal (ESS), Thupello Management System:**
Mark only one oval per row.

	Expert	Advanced	Average	Beginner	Unfamiliar
I describe myself as an [...] user of e-HRM services to perform my HR tasks	⬭	⬭	⬭	⬭	⬭

12. **K. Please indicate the type of e-HRM delivery channel that you use for your HR-related queries and activities:**
Mark only one oval per row.

	HR Generalist (face to face)	HR Specialist	Line Manager	Employee Self-Service/ESS Portal (Online)	Manager Self-Service Portal (Online)
I prefer using [...] services for dealing with my HR-related queries and activities	⬭	⬭	⬭	⬭	⬭

Factors influencing the adoption of e-HRM

The following section is intended to investigate the factors that influence the adoption of e-HRM systems (i.e. ESS) among the Road Accident Fund (RAF) employees.

Please indicate the extent to which you agree/disagree with each of the following statements regarding your company's e-HRM system by clicking on the appropriate circle.

13. **Statement(s):**

Mark only one oval per row.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1. My superiors expect me to use e-HRM system when performing my HR tasks.	◯	◯	◯	◯	◯
2. My use of e-HRM system is voluntary.	◯	◯	◯	◯	◯
3. My boss does not require me to use e-HRM system when performing my HR tasks.	◯	◯	◯	◯	◯
4. Although it might be helpful, using e-HRM system is certainly not compulsory when performing my HR tasks.	◯	◯	◯	◯	◯
5. Using e-HRM system enables me to accomplish my HR tasks more quickly.	◯	◯	◯	◯	◯
6. Using e-HRM system improves the quality of HR task performance.	◯	◯	◯	◯	◯
7. Using e-HRM system makes it easier to do my HR tasks.	◯	◯	◯	◯	◯

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
8. Using e-HRM system gives me greater control over my HR tasks.					
9. Using e-HRM system is compatible with the HR tasks I am required to perform.					
10. Using e-HRM system is compatible with my current HR engagement.					
11. I think that using e-HRM system fits well with the way I like to perform my HR tasks.					
12. I think that using e-HRM system fits well with the way I like to complete my HR tasks.					
13. I believe that the e-HRM system is difficult to use.					
14. I believe that the e-HRM system is easy to learn.					
15. I had no difficulty finding the information that I want using e-HRM system.					
16. Overall, I believe that the e-HRM system is easy to use.					

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
17. I know where I can go to satisfactorily try out various uses of e-HRM system, e.g. Leave application, salary advice, performance appraisals, etc.	◯	◯	◯	◯	◯
18. An e-HRM application was available to me to adequately test run various functionalities, e.g. Leave application, salary advice, performance appraisals, etc.	◯	◯	◯	◯	◯
19. Before deciding whether to use any e-HRM functions, I was able to properly try them.	◯	◯	◯	◯	◯
20. I was permitted to use e-HRM functions on a trial basis long enough to see what it could do, e.g. Leave application, salary advice, performance appraisals, etc.	◯	◯	◯	◯	◯
21. My colleagues seemed interested in e-HRM system when they saw me using it.	◯	◯	◯	◯	◯

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
22. People can tell that I know more about the Human Resources (HR) services since I have used the e-HRM system.	◯	◯	◯	◯	◯
23. Other employees using the e-HRM system liked using it more than consulting with the HR practitioners.	◯	◯	◯	◯	◯
24. I would have difficulty in telling other employees how the e-HRM system improved my interaction with the HRM department.	◯	◯	◯	◯	◯
25. I believe that e-HRM systems seem to be a very reliable application.	◯	◯	◯	◯	◯
26. I believe that e-HRM system has the features required for my HR tasks.	◯	◯	◯	◯	◯
27. I believe that e-HRM systems would provide HR services in my best interest.	◯	◯	◯	◯	◯
28. I believe that e-HRM systems would perform its role of providing HR services very well.	◯	◯	◯	◯	◯
29. I intend to continue using the e-HRM system.	◯	◯	◯	◯	◯
30. I predict I would use the e-HRM system in the future.	◯	◯	◯	◯	◯
31. I plan to continue using the e-HRM system in the future.	◯	◯	◯	◯	◯

Appendix E. Demographic Profiles

			Regional Office			
		Count	Centurion (Head Office) Count	Johannesburg Count	Menlyn Count	UnspecifiedRO Count
Years in Current Position		8	0	0	0	0
	0 - 3 years	0	51	6	13	2
	10 - 15 years	0	4	2	5	0
	16 - 20 years	0	2	0	0	0
	21 - 25 years	0	1	0	0	0
	4 - 6 years	0	38	9	13	2
	7 - 9 years	0	13	2	2	0
	UnspecifiedYCP	0	2	0	2	1
	Total	8	111	19	35	5
Years of experience with current organization		8	0	0	0	0
	0 - 3 years	0	43	4	8	1
	10 - 15 years	0	11	5	10	1
	16 - 20 years	0	9	1	4	0
	21 - 25 years	0	1	0	0	0
	4 - 6 years	0	33	8	9	1
	7 - 9 years	0	14	0	3	2
	UnspecifiedYXCO	0	0	1	1	0
	Total	8	111	19	35	5

Table 14: Years in current position vs experience vs office

Job Grade/Task Level * RAF's e-HRM services Usage Crosstabulation

Count

		RAF's e-HRM services Usage						
			All the time	Frequently	Occasionally	Rarely	Unspecified EHRM Usage	Total
Job Grade/Task Level		8	0	0	0	0	0	8
	[0 – 13] / [General / Officer]	0	14	45	48	4	4	115
	[14 – 16] / [Middle Management]	0	10	21	18	0	0	49
	[17 Or Above] / [Senior Management]	0	0	3	2	0	0	5
	Unspecified Grade	0	0	0	1	0	0	1
Total		8	24	69	69	4	4	178

Table 15: Job Grade/Task Level vs e-HRM usage

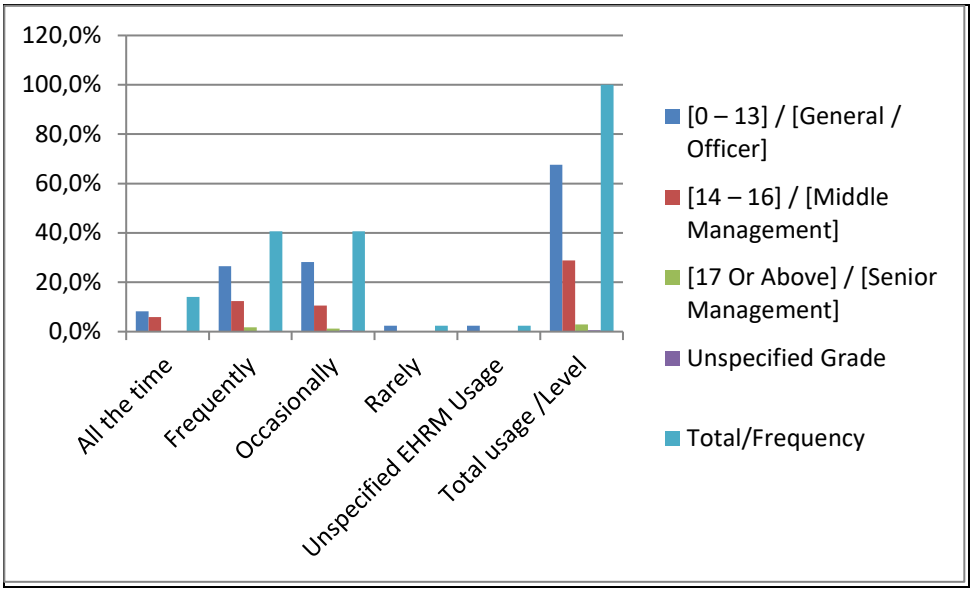


Figure 5: Job Grade/Task Level vs. e-HRM usage

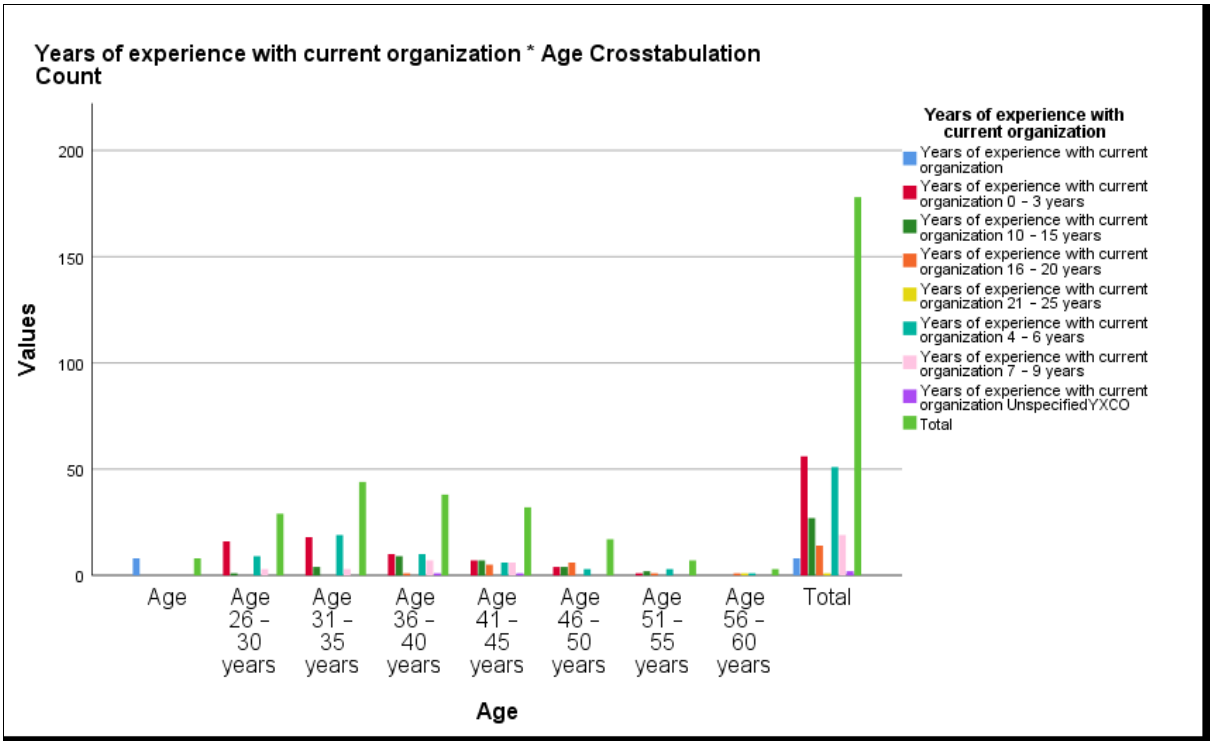


Figure 6: Job tenure at RAF vs. Age Group

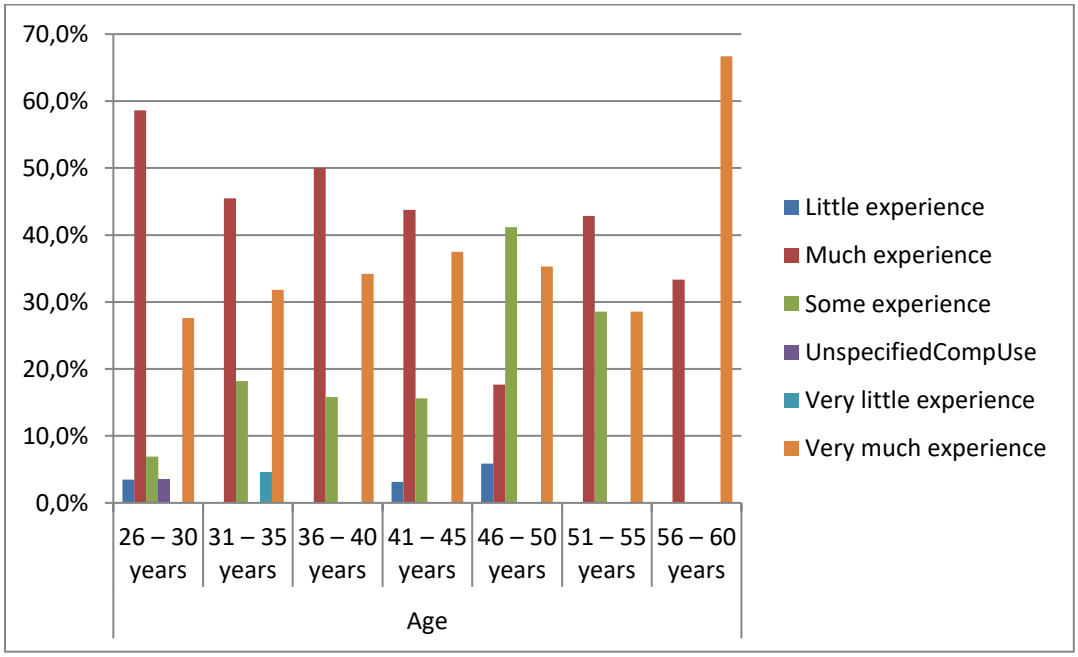


Figure 7: Computer Usage vs. Age

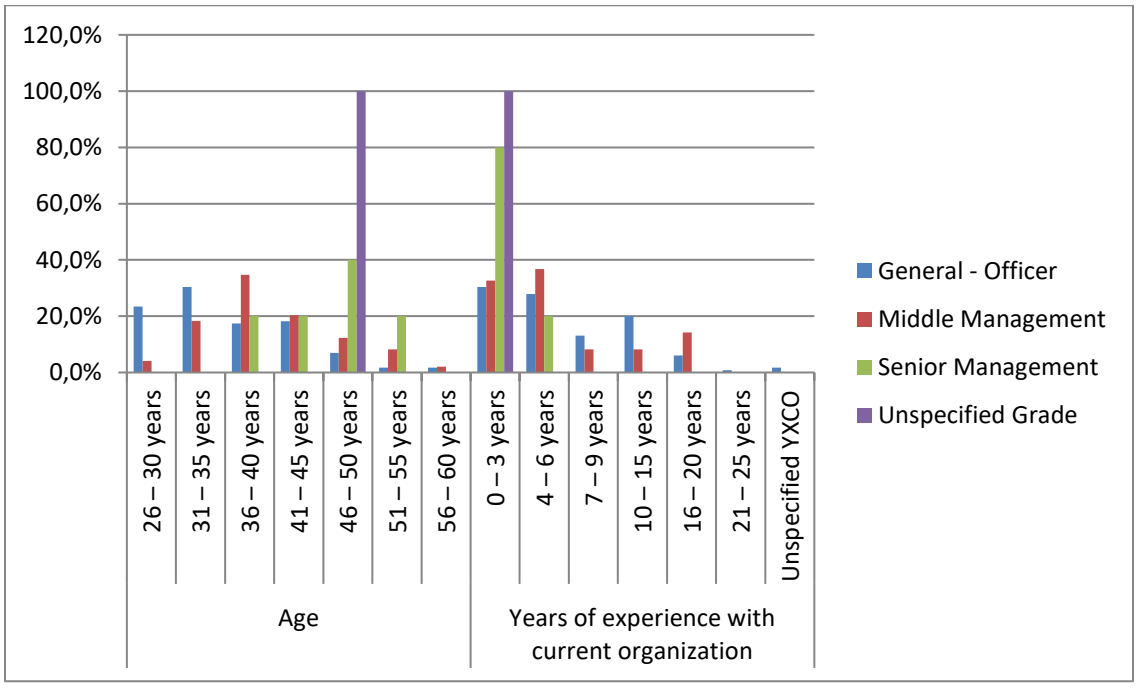


Figure 8: Job Grade/Task Level vs. Job Tenure vs. Age

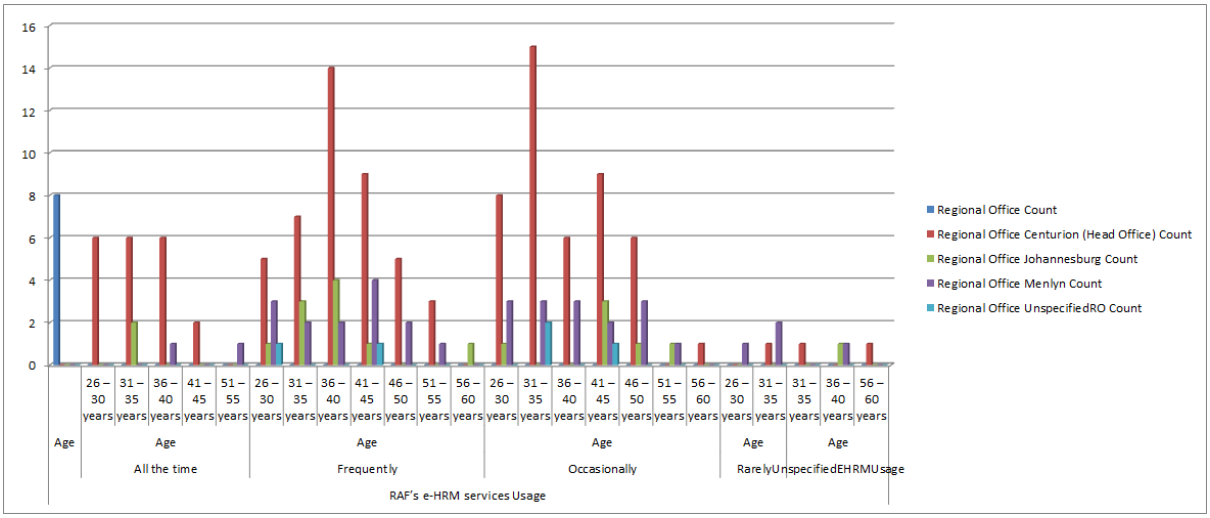


Figure 9: e-HRM usage per Region per Age Group

Appendix F. Standardized Scores

Descriptive Statistics

	Mean	Std. Deviation	N
eHRM_Adoption	4,1990	0,79016	165
Perceived_Voluntariness	3,7485	0,72441	165
Relative_Advantage	4,0103	0,82567	165
Compatibility	3,8725	0,77073	165
Complexity	3,8426	0,70270	165
Trialability	3,4025	0,85778	165
Observability	3,3642	0,65659	165
Trust	3,8760	0,75838	165

Appendix G. Cronbach's Alpha Values

Reliability Statistics for Perceived Voluntariness

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,647	0,688	4

Reliability Statistics for Relative Advantage

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,898	0,901	4

Reliability Statistics for Compatibility

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,898	0,898	4

Reliability Statistics for Complexity

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,776	0,785	4

Reliability Statistics for Trialability

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,740	0,728	4

Reliability Statistics for Observability

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,633	0,637	4

Reliability Statistics for Trust in Technology

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,893	0,895	4

Reliability Statistics for e-HRM adoption

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,956	0,956	3

Appendix H. Correlation Analysis

Correlations

		eHRM_Adoption	Perceived_Voluntariness	Relative_Advantage	Compatibility	Complexity	Trialability	Observability	Trust
Pearson Correlation	eHRM_Adoption	1,000	0,301	0,639	0,678	0,638	0,496	0,476	0,760
	PV	0,301	1,000	0,372	0,361	0,269	0,025	0,162	0,172
	RA	0,639	0,372	1,000	0,808	0,588	0,455	0,445	0,643
	CA	0,678	0,361	0,808	1,000	0,605	0,525	0,551	0,726
	CX	0,638	0,269	0,588	0,605	1,000	0,481	0,456	0,650
	TA	0,496	0,025	0,455	0,525	0,481	1,000	0,544	0,607
	OA	0,476	0,162	0,445	0,551	0,456	0,544	1,000	0,606
	TT	0,760	0,172	0,643	0,726	0,650	0,607	0,606	1,000
Sig. (1-tailed)	eHRM_Adoption	1	0,000	0,000	0,000	0,000	0,000	0,000	0,000
	PV	0,000	1	0,000	0,000	0,000	0,377	0,019	0,014
	RA	0,000	0,000	1	0,000	0,000	0,000	0,000	0,000
	CA	0,000	0,000	0,000	1	0,000	0,000	0,000	0,000
	CX	0,000	0,000	0,000	0,000	1	0,000	0,000	0,000
	TA	0,000	0,377	0,000	0,000	0,000	1	0,000	0,000
	OA	0,000	0,019	0,000	0,000	0,000	0,000	1	0,000
	TT	0,000	0,014	0,000	0,000	0,000	0,000	0,000	1
N	eHRM_Adoption	165	165	165	165	165	165	165	165
	PV	165	165	165	165	165	165	165	165
	RA	165	165	165	165	165	165	165	165
	CA	165	165	165	165	165	165	165	165
	CX	165	165	165	165	165	165	165	165
	TA	165	165	165	165	165	165	165	165
	OA	165	165	165	165	165	165	165	165
	TT	165	165	165	165	165	165	165	165

Figure 10: Correlations

Appendix I. Assumption Tests for Regression Analysis

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Perceived_Voluntariness	Relative_Advantage	Compatibility	Complexity	Trialability	Observability	Trust
1	1	7.864	1.000	.00	.00	.00	.00	.00	.00	.00	.00
	2	.049	12.606	.02	.25	.00	.00	.00	.27	.01	.01
	3	.025	17.897	.13	.06	.12	.07	.02	.14	.09	.02
	4	.019	20.419	.03	.23	.01	.00	.01	.58	.37	.03
	5	.016	22.053	.11	.07	.02	.04	.50	.00	.27	.01
	6	.012	25.370	.67	.28	.09	.01	.29	.00	.10	.00
	7	.009	29.581	.00	.08	.19	.00	.16	.01	.14	.80
	8	.006	36.235	.05	.02	.57	.87	.02	.00	.02	.14

a. Dependent Variable: eHRM_Adoption

Figure 11: Collinearity Diagnostics - Assumption tests

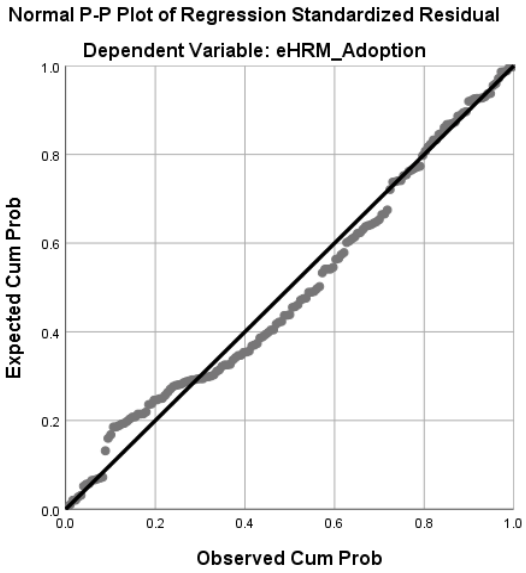


Figure 12: Normal P-P Plot of Regression Standardized Regression

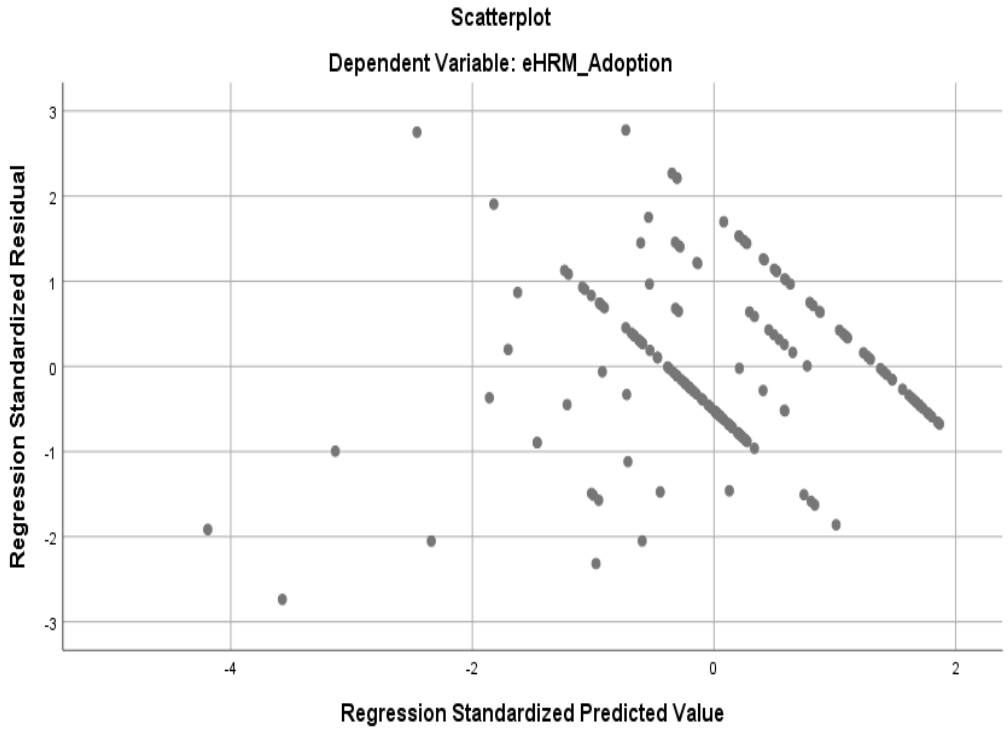


Figure 13: Scatter Plot of the Standardized Residuals

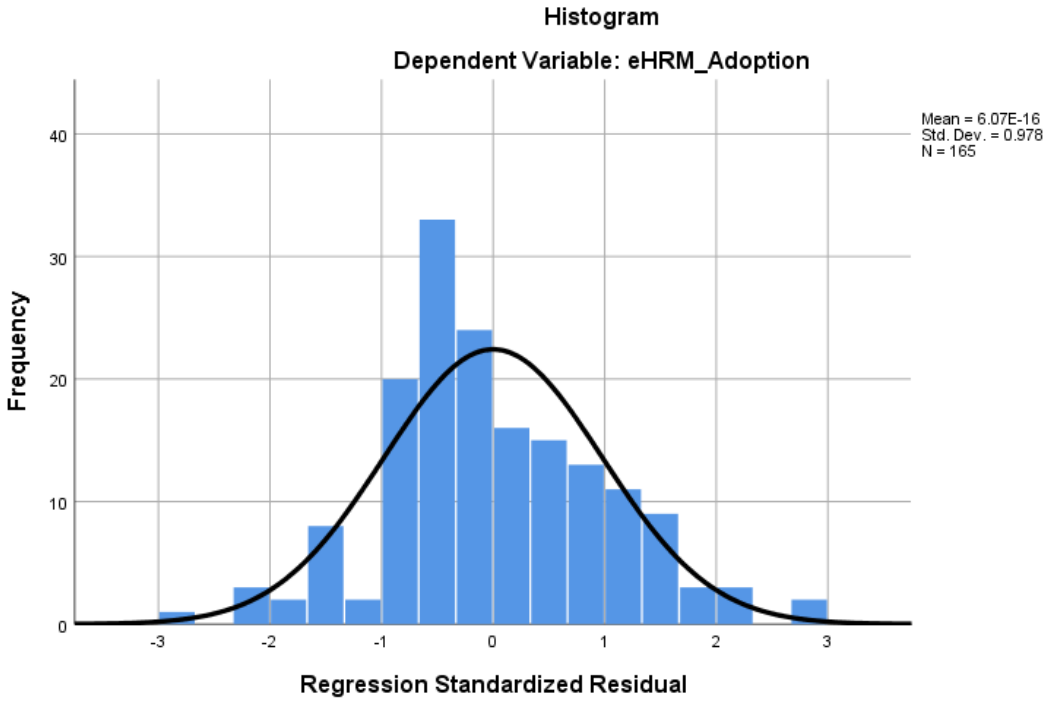


Figure 14: Regression Standardized Residual

Appendix J. Regression Analysis

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Trust, Perceived_Voluntariness, Observability, Trialability, Complexity, Relative_Advantage, Compatibility[b]	.	Enter

a. Dependent Variable: eHRM_Adoption

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805[a]	.648	.632	.43173

a. Predictors: (Constant), Trust, Perceived_Voluntariness, Observability, Trialability, Complexity, Relative_Advantage, Compatibility

b. Dependent Variable: eHRM_Adoption

Figure 15: Model Summary

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53,764	7	7,681	41,207	.000[b]
	Residual	29,264	157	0,186		
	Total	83,028	164			

a. Dependent Variable: eHRM_Adoption

b. Predictors: (Constant), Trust, Perceived_Voluntariness, Observability, Trialability,

Figure 16: Analysis of Variance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0,551	0,258		2,139	0,034
	Perceived_Voluntariness	0,101	0,053	0,101	1,892	0,060
	Relative_Advantage	0,100	0,077	0,108	1,290	0,199
	Compatibility	0,090	0,089	0,095	1,010	0,314
	Complexity	0,173	0,069	0,167	2,517	0,013
	Trialability	0,027	0,054	0,032	0,495	0,621
	Observability	-0,041	0,071	-0,037	-0,578	0,564
	Trust	0,495	0,082	0,499	6,061	0,000

Figure 17: Parameters Estimates - Coefficients a

Coefficientsa

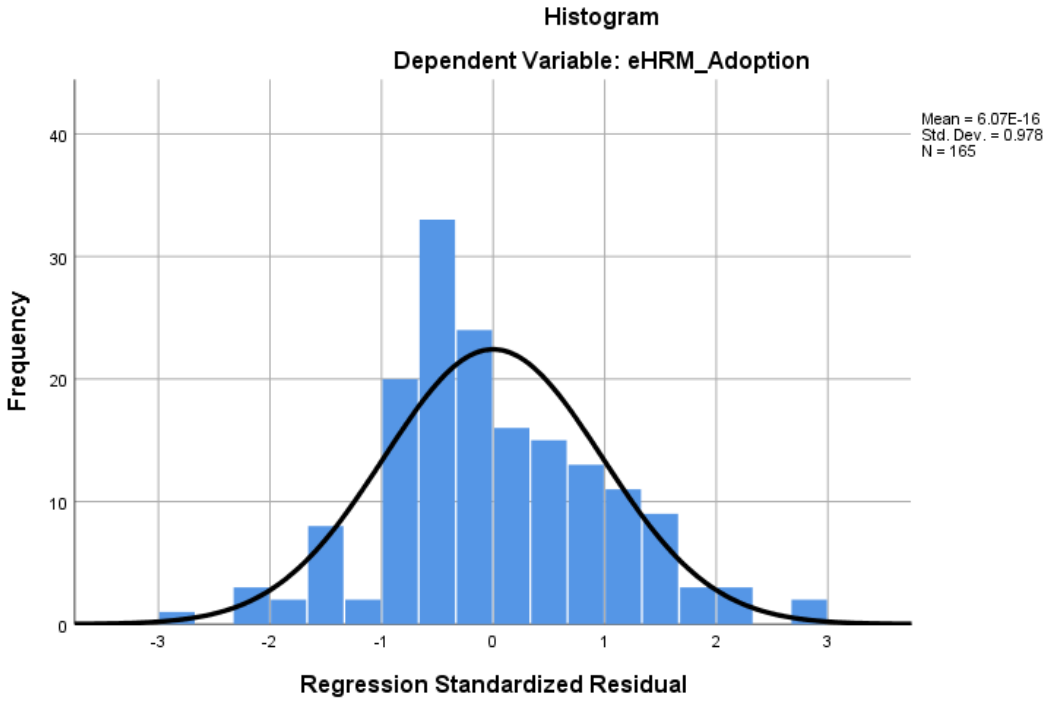
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Perceived_Voluntariness	0,788	1,269
	Relative_Advantage	0,322	3,109
	Compatibility	0,254	3,932
	Complexity	0,509	1,965
	Trialability	0,549	1,820
	Observability	0,563	1,778
	Trust	0,332	3,016

Figure 18: Collinearity Statistics

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1,8216	5,2906	4,2232	0,57256	165
Std. Predicted Value	-4,194	1,864	0,000	1,000	165
Standard Error of Predicted Value	0,042	0,162	0,092	0,025	165
Adjusted Predicted Value	1,9427	5,3031	4,2221	0,57200	165
Residual	-1,17847	1,19004	0,00000	0,42242	165
Std. Residual	-2,730	2,756	0,000	0,978	165
Stud. Residual	-2,863	2,918	0,001	1,009	165
Deleted Residual	-1,29686	1,33622	0,00112	0,44986	165
Stud. Deleted Residual	-2,932	2,991	0,002	1,017	165
Mahal. Distance	0,526	21,978	6,958	4,391	165
Cook's Distance	0,000	0,133	0,008	0,019	165
Centered Leverage Value	0,003	0,134	0,042	0,027	165

a. Dependent Variable: eHRM_Adoption


Histogram
Dependent Variable: eHRM_Adoption
Mean = 6.07E-16
Std. Dev. = 0.978
N = 165
Frequency
40
30
20
10
0
-3
-2
-1
0
1
2
3
Regression Standardized Residual

Appendix K. Data Coding

Legend (Regional Office)	Legend (Age)	Legend (Job Grade/Task Level)	Legend (Academic Qualification)	Legend (Years in Current Position)
0 - Centurion (Head Office)	0 = 18 – 25 years	0 = [0 – 13] / [General / Officer]	0 = Some High School	0 = 0 – 3 years
1 - Johannesburg	1 = 26 – 30 years	1 = [14 – 16] / [Middle Management]	1 = Matric Senior Certificate	1 = 4 – 6 years
2 - Menlyn	2 = 31 – 35 years	2 = [17 Or Above] / [Senior Management]	2 = National Diploma	2 = 7 – 9 years
3 - UnspRO	3 = 36 – 40 years	3 = UnspGrade	3 = Bachelor's Degree	3 = 10 – 15 years
	4 = 41 – 45 years		4 = Honours Degree	4 = 16 – 20 years
	5 = 46 – 50 years		5 = Master's Degree	5 = 21 – 25 years
	6 = 51 – 55 years		6 = PhD	6 = 26 – 30 years
	7 = 56 – 60 years		7 = UnspQual	7 = 31 Or more years
	8 = 61 Or more years			8 = UnspYCP

Figure 19: Data Coding - Office, Age, Job, Qual, YCP

Years of experience with current organization	Legend (Computer Usage)	RAF's e-HRM services Usage	Time Spent Using RAF's e-HRM Services	Proficiency in using RAF's e-HRM servicesS	e-HRM delivery Channel
0 = 0 – 3 years	0 = Very little experience	0 = Never	0 = 0 - 1 hours/day	0 = Expert	0 = HR Generalist (face to face)
1 = 4 – 6 years	1 = Little experience	1 = Rarely	1 = 1 - 2 hours/day	1 = Advanced	1 = HR Specialist
2 = 7 – 9 years	2 = Some experience	2 = Occasionally	2 = 2 - 3 hours/day	2 = Average	2 = Line Manager
3 = 10 – 15 years	3 = Much experience	3 = Frequently	3 = 4 - 5 hours/day	3 = Beginner	3 = Employee Self-Service/ESS Portal (Onlin
4 = 16 – 20 years	4 = Very much experience	4 = All the time	4 = 5 or more hours/day	4 = Unfamiliar	4 = Manager Self-Service Portal (Online)
5 = 21 – 25 years	5 = UnspCompUse	5 = UnspEHRMUsage	5 = UnspTimeSpent		
6 = 26 – 30 years					
7 = 31 Or more years					
8 = UnspYXCO					

Figure 20: YECO, CU, SU, e-HRM, Channel

Appendix L. Findings & Analysis Data Tables

#	Construct	Conceptual Definition	Item	Measurement	Literature Source
1	**Perceived Voluntariness (PV)**	Refers to the perceptions on how voluntary it is to use an innovation (Moore & Benbasat, 1991).	1	My superiors expect me to use e-HRM when performing my HR tasks.	(Moore & Benbasat, 1991; Livari, 1996)
			2	My use of e-HRM is voluntary.	
			3	My boss does not require me to use e-HRM when performing my HR tasks.	
			4	Although it might be helpful, using e-HRM is certainly not compulsory when performing my HR tasks.	
2	**Relative Advantage (RA)**	Relative Advantage is the "degree to which an innovation is perceived as being better than the idea it supersedes" (Rogers, 2003:229)	5	Using e-HRM enables me to accomplish my HR tasks more quickly.	(Venkatesh & Davies, 2000; Moore & Benbasat, 1991; Dupagne & Driscoll, 2005)
			6	Using e-HRM improves the quality of HR task performance.	
			7	Using e-HRM makes it easier to do my HR tasks.	

			8	Using e-HRM gives me greater control over my HR tasks.	
3	**Compatibility (CA)**	Compatibility is defined as the "degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2003:15)	9	Using e-HRM is compatible with the HR tasks I am required to perform.	(Moore & Benbasat, 1991)
			10	Using e-HRM is compatible with my current HR engagement.	
			11	I think that using e-HRM fits well with the way I like to perform my HR tasks.	
			12	I think that using e-HRM system fits well with the way I like to complete my HR tasks.	
4	**Complexity (CX)**		13	I believe that the e-HRM system is difficult to use.	(Venkatesh et al., 2003; Moore & Benbasat, 1991)
			14	I believe that the e-HRM system is easy to learn.	

		Complexity refers to the "degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers, 2003:15)	15	I had no difficulty finding the information that I want using e-HRM system.	
			16	Overall, I believe that the e-HRM system is easy to use.	
5	**Trialability (TA)**	Trialability is defined as the "degree to which an innovation may be experimented with on a limited basis" (Rogers, 2003:16)	17	I know where I can go to satisfactorily try out various uses of e-HRM system.	(Moore & Benbasat, 1991)
			18	An e-HRM application was available to me to adequately test run various functionalities.	
			19	Before deciding whether to use any e-HRM functions, I was able to properly try them.	
			20	I was permitted to use e-HRM functions on a trial basis long enough to see what it could do.	

6	**Observability (OA)**	Observability refers to the "degree to which the results of an innovation are visible to others" (Rogers, 2003:16)	21	My colleagues seemed interested in e-HRM system when they saw me using it.	(Moore & Benbasat, 1991; Atkinson, 2007)
			22	People can tell that I know more about the Human Resources (HR) services since I have used the e-HRM system.	
			23	Other employees using the e-HRM system liked using it more than consulting with the HR practitioners.	
			24	I would have difficulty in telling other employees how the e-HRM system improved my interaction with the HRM department.	
7	**Trust in Technology (TT)**		25	I believe that e-HRM systems seem to be a very reliable application.	

		Trust refers to user's beliefs or faith in the degree to which a specific service can be regarded to have no security and privacy threats. (McKnight et al. 2002; McKnight et al. 2011).	26	I believe that e-HRM system has the features required for my HR tasks.	(Teo, T., Srivastava, S., & Jiang, L, 2008; McKnight et al. 2002; McKnight et al. 2011).
			27	I believe that e-HRM systems would provide HR services in my best interest.	
			28	I believe that e-HRM systems would perform its role of providing HR services very well.	
8	**Usage Intention (UI)**	The degree to which the users have formulated conscious plans to perform or not perform some specified future behavior. (Venkatesh et. al, 2003; Bhattacherjee & Premkumar, 2004)	29	I intend to use the e-HRM innovations.	(Venkatesh et al., 2003; Bhattacherjee & Premkumar, 2004)
			30	I predict I would use the e-HRM innovations	
			31	I plan to use the e-HRM innovations	

Table 16: Research Construct, Conceptual Definitions, and Literature Source

Breakdown of missing data items				
		Total	**Included**	**Excluded**
Responses completed		**132**	**132**	
Responses with missing values		**41**		
Missing data items > 3, **i.e. (>10% missing values per response)**	Where missing values = 4	**1**		
	Where missing values = 7	**1**		
	Where missing values = 25	**1**		
	Total missing data items > 3	**3**		**3**
Missing data items ≤ 3	Where missing values = 3	**1**		
	Where missing values = 2	**5**		
	Where missing values = 1	**32**		
	Total missing data items ≤ 3	**38**	**38**	

Number of responses received after data cleaning per region	Centurion (Head Office)	**111**		
	Johannesburg	**19**		
	Menlyn	**35**		
	Unspecified Location	**5**		
	Total responses	**170**	**170**	
TOTAL RESPONSES CONSIDERED FOR THE STUDY			**N = 170**	

Table 17: Summary of missing data items

Age * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / Age
		(%)	(%)	(%)	(%)	(#) (**%**)
Age	26 – 30 years	17	11	20	20	29 (**17.1%**)
	31 – 35 years	27	26	20	40	44 (**25.9%**)
	36 – 40 years	23	26	20	0	38 (**22.4%**)
	41 – 45 years	18	21	17	40	32 (**18.8%**)
	46 – 50 years	10	5	14	0	17 (**10.0%**)
	51 – 55 years	3	5	9	0	7 (**4.1%**)
	56 – 60 years	2	5	0	0	3 (**1.8%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 18: Age

Job Grade / Task Level (JT) * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / JT
		(%)	(%)	(%)	(%)	(#) (**%**)
Job Grade/Task Level (JT)	[0 – 13] / [General / Officer]	55	95	89	100	115 (**67.6%**)
	[14 – 16] / [Middle Management]	41	5	6	0	49 (**28.8%**)
	[17 Or Above] / [Senior Management]	4	0	3	0	5 (**2.9%**)
	Unspecified Grade / Task Level[2]	0	0	3	0	1 (**0.6%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 19: Job Grade/Task Level

[2] *Respondents preferred not to specify their Job Grade/Task Level*

Academic Qualification (AC) * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / AC
		(%)	(%)	(%)	(%)	(#) (**%**)
Academic Qualification (AC)	Some High School	0	0	3	0	1 (**0.6%**)
	Matric Senior Certificate	10	0	11	20	16 (**9.4%**)
	National Diploma	29	37	49	20	57 (**33.5%**)
	Bachelor's Degree	31	37	23	0	49 (**28.8%**)
	Honours Degree	18	11	9	40	27 (**15.9%**)
	Master's Degree	10	16	3	0	15 (**8.8%**)
	Unspecified[3]	3	0	3	20	5 (**2.9%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 20: Academic Qualification

[3] *Respondents preferred not to specify their academic qualification*

Years in Current Position (YCP) * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / YCP
		(%)	(%)	(%)	(%)	(#) (**%**)
Years in Current Position (YCP)	0 – 3 years	46	32	37	40	72 (**42.4%**)
	4 – 6 years	34	47	37	40	62 (**36.5%**)
	7 – 9 years	12	11	6	0	17 (**10.0%**)
	10 – 15 years	4	11	14	0	11 (**6.5%**)
	16 – 20 years	2	0	0	0	2 (**1.2%**)
	21 – 25 years	1	0	0	0	1 (**0.6%**)
	Unspecified YCP[4]	2	0	6	20	5 (**2.9%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 21: Years in Current Position

[4] *Respondents preferred not to specify the number of years they have spent in the current position*

Years of Experience with Current Organization (YXC) * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / YXC
		(%)	(%)	(%)	(%)	(#) (**%**)
Years of experience with current organization (YXC)	0 – 3 years	39	21	23	20	56 (**32.9%**)
	4 – 6 years	30	42	26	20	51 (**30.0%**)
	7 – 9 years	13	0	9	40	19 (**11.2%**)
	10 – 15 years	10	26	29	20	27 (**15.9%**)
	16 – 20 years	8	5	11	0	14 (**8.2%**)
	21 – 25 years	1	0	0	0	1 (**0.6%**)
	Unspecified YXC[5]	0	5	3	0	2 (**1.2%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 22: Years of Experience with the RAF

[5] *Respondents preferred not to specify the years of experience with the RAF*

Computer Usage (CU) * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / CU
		(%)	(%)	(%)	(%)	(#) (**%**)
Computer Usage (CU)	Little experience	1	5	3	0	3 (**1.8%**)
	Much experience	44	42	57	0	77 (**45.3%**)
	Some experience	11	37	26	40	30 (**17.6%**)
	Very little experience	2	0	0	0	2 (**1.2%**)
	Very much experience	41	16	14	60	57 (**33.5%**)
	Unspecified[6]	1	0	0	0	1 (**0.6%**)
	Total Count/RO (#)	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 23: Computer Usage

[6] *Respondents preferred not to specify their computer usage level*

RAF's e-HRM System Usage (SYS) * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / SYS
		(%)	(%)	(%)	(%)	(#) (**%**)
e-HRM System Usage (SYS)	Rarely	1	0	9	0	4 (**2.4%**)
	Occasionally	41	32	43	60	69 (**40.6%**)
	Frequently	39	53	40	40	69 (**40.6%**)
	All the time	18	11	6	0	24 (**14.1%**)
	Unspecified e-HRM Usage	2	5	3	0	4 (**2.4%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 24: e-HRM System Usage

Time Spent on e-HRM System * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / Time spent
		(%)	(%)	(%)	(%)	(#) (**%**)
Time Spent on e-HRM System	0 - 1 hours/day	79	89	86	100	140 (**82.4%**)
	1 - 2 hours/day	7	11	6	0	12 (**7.1%**)
	2 - 3 hours/day	4	0	6	0	6 (**3.5%**)
	4 - 5 hours/day	3	0	3	0	4 (**2.4%**)
	5 or more hours/day	4	0	0	0	4 (**2.4%**)
	Unspecified Time Spent on e-HRM services	4	0	0	0	4 (**2.4%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 25: Time spent on e-HRM System

Proficiency in e-HRM System Use (Level) * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / Level
		(%)	(%)	(%)	(%)	(#) (**%**)
Proficiency in e-HRM System Use (Level)	Expert	10	0	0	0	11 (**6.5%**)
	Advanced	34	5	23	20	48 (**28.2%**)
	Average	47	79	71	80	96 (**56.5%**)
	Beginner	7	11	3	0	11 (**6.5%**)
	Unfamiliar	2	5	3	0	4 (**2.4%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 26: Proficiency in e-HRM System Use

e-HRM Delivery Channel Used in RAF * Regional Office (RO)						
		Regional Office (RO)				
		Centurion (Head Office)	Johannesburg	Menlyn	Unspecified RO	Total Count / Channel
		(%)	(%)	(%)	(%)	(#) (**%**)
e-HRM Delivery Channel Used	HR Generalist (face to face)	7	5	11	60	16 (**9.4%**)
	HR Specialist	12	5	11	0	18 (**10.6%**)
	Line Manager	5	0	11	20	11 (**6.5%**)
	Employee Self-Service/ESS Portal (Online)	71	89	63	20	119 (**70.0%**)
	Manager Self-Service Portal (Online)	5	0	3	0	6 (**3.5%**)
	Total Count/RO	111	19	35	5	170 (**100%**)
Total (%)		**100**	**100**	**100**	**100**	**100**

Table 27: e-HRM delivery channel at RAF