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Individual, social, organisational and system factors that influence acceptance of SFA tools: the case study of CRM in a South African banking context

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Individual, Social, Organisational and System Factors that Influence Acceptance of SFA Tools:
The Case Study of CRM in a South African Banking Context

Intended Degree:	**Masters of Commerce (Information Systems)**
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Declaration

I declare that this thesis is my own, unaided work, except where acknowledged. I wish to recognise Charles Chimedza (Lecturer of Statistics at the University of Witwatersrand) who provided me with guidance on the use of statistical tools. However all data analysis and subsequent results were as a result of my own, independent work on SPSS. It is being submitted for the degree of Masters of Commerce in the University of Witwatersrand, Johannesburg. This research has not been submitted before for any degree or examination at any other university.

Acknowledgements

This research has been a labour of love, frustration and joy. Being a mother, wife and career-driven person, it has been a tremendous juggle to complete this research when many priorities pulled me in different directions. However, there are many people, without whom this research report would have not been completed.

Firstly, I would like to thank my husband and daughter, without whose constant support, this would not have been possible. Secondly, to my parents, whose continuous nagging got me to re-register after the birth of my daughter and complete the research report. Thirdly, I am indebted to my supervisor, Jean-Marie Bancilhon; whose criticism and guidance has pushed me to complete what I believe is my best work. Fourthly, I am grateful to my friends, who continued to encourage me throughout the difficult periods of this study and who continued to believe in me even when I did not believe in myself. Finally, I am thankful for Veronica Galane, who never let my daughter feel my absence when I had to leave home for hours to work on my writing.

This research is dedicated to all the respondents, senior management and Siebel support team at Bank A, without whose involvement, this paper would not have been possible.

Abstract

This research study investigated the key factors that facilitate the adoption of technology by salespeople by building on previous studies in literature that have investigated Customer Relationship Management (CRM) acceptance. The research model was adapted by introducing a new construct, System Characteristics, along with Organisational, Social and Individual Factors to explain Sales Force Automation (SFA) tool acceptance, through the mediating influences of Perceived Usefulness (PU) and Perceived Ease-of-Use (PEOU).

The results from 337 end-users of the Siebel CRM system in Bank A, in South Africa, found that in addition to PU and PEOU, Personal Innovativeness and Team Leader Support are significant independent drivers of User Acceptance of SFA tools. The model had an R^2 of 0.480, which showed that a considerable portion of the variance could be explained through these factors.

The research contributes to the current body of research by confirming the importance of personal innovativeness and team leader support towards system acceptance. The number of years the user has been working on the system was also shown to have a significant positive influence on acceptance.

Practitioners, concerned with the acceptance of SFA tools, will find that organisational and social factors can significantly influence how users perceive a system to be easy-to-use and useful. The fact that these factors are all relatively easily implementable will be welcomed by IT practitioners facing similar challenges with their sales force.

Technical characteristics of the system were found to be a construct that is recommended for future research, based on the findings from this study. Identifying specific aspects of the interface that change users' perceptions about the software's ease-of-use can be done by possibly Technology Acceptance Model (TAM) with the e-S-QUAL model in future studies.

Table of Contents

Declaration ii
Acknowledgements iii
Abstract iv
1. Introduction 7
1.1. Aims and objectives 7
1.2. CRM and SFA: Introducing the concepts 8
1.2 Concerns with CRM/SFA implementation 8
1.3 Acceptance of SFA tools 9
1.4 Conclusion 10
2. Literature Review 12
2.1 Introduction 12
2.1 The research model 13
2.1.1 Perceived Usefulness and Perceived Ease-of-Use (Derived from Technology Acceptance Model (TAM)) 14
2.2 System Characteristics 15
2.2.1 Task-Technology Fit (TTF) Model 15
2.2.2 The Proposed Integrated Research Model 17
2.2.3 WebQUAL and e-SERVQUAL Models 18
2.3 Social Factors – including Subjective Norms 20
2.4 Individual Factors 23
2.5 Organisational Factors 26
2.6 Proposed Research Model – Summary Table 29
3 Methodology 33
3.1 Introduction 33
3.2 Research Design 33
3.3 Research Approach 34
3.4 Population of the study and sampling 35
3.5 Instrument Design 36
3.6 Ethical Considerations 38
3.7 Data Collection 38
3.8 Scales 39
3.9 Pre and Pilot Test: Tests for Validity 39
3.10 Pre and Pilot Tests: Tests for Reliability 41
3.11 Reliability Results 42
3.12 Data Analysis Method 42
3.13 Proposed Research Model based on changes from Pre- and Pilot Tests 44
3.14 Limitations of the study 44
3.15 Conclusion 46
4 Data Analysis 47
4.1 Introduction 47
4.2 Demographic Profile 47
4.3.1 Age 47
4.3.2 Gender 48
4.3.3 Primary Role 49
4.3.4 Years in the organisation 49
4.3.5 Years using Siebel 50
4.3.6 Usage of Siebel (Mandatory vs. Voluntary) 51
4.3.7 Performance management using Siebel 51
4.4 Data Screening, Missing Values and Outlier Analysis 52
4.5 Inter-item Correlations 53
4.6 Confirmatory Factor Analysis 53
4.7 Descriptive Statistics 58
4.8 Correlation Matrix 59
4.9 Correlation of Composite Scores: Independent Variables and User Acceptance 60
4.10 Correlation of Composite Scores: Independent Variables and Perceived Usefulness 60
4.11 Correlation of Composite Scores: Independent Variables and Perceived Ease-of-Navigation 61
4.12 Regression Analysis 62
4.12.1 Effect of Perceived Usefulness on User Acceptance (Model 1) 63
4.12.2 Effect of Perceived Ease-of-Navigation on Perceived Usefulness (Model 2) 65
4.12.3 Organisational Factors 65
4.12.4 Individual Factors 68
4.12.5 Effect of Social Factors on Perceived Ease-of-Navigation (Model 4) 70
4.12.6 System Characteristics 72
4.13 Regression Analysis on Dependent Variables 73

4.13.1 All Factors regression on Perceived Usefulness (Model 5) 74
4.13.2 All Factors regression on Perceived Ease-of-Navigation (Model 6) 75
4.13.3 All Factors regression on User Acceptance (Model 7) 77
4.13.4 Summary of the Regression Analysis 79
4.14 Conclusion 82
4.15 Revised model 82
5. Discussion of Results 84
5.1 Introduction 84
5.2 Significant influences on User Acceptance 84
5.3 The effect from independent variables on Perceived Usefulness and Ease of Use 86
5.3.1 Influence of Organisational Factors on PU and PEON 86
5.3.2 Influence of Individual characteristics on PU and PEON 87
5.3.3 Influence of Social Factors on PU and PEON 88
5.3.4 Influence of System Characteristics on PU and PEON 89
5.4 Summary 90
6. Conclusion 91
6.1 Introduction 91
6.2 Summary of the Findings from the Research Study 91
6.3 Contributions to Research 92
6.4 Contribution to Practice 93
6.5 Limitations of the study 94
6.6 Future research 95
6.7 Conclusion 96
References 97
Appendix A: The final questionnaire 103
Appendix B: Screen-shot of Online Questionnaire 108
Appendix D: Reliability Scores of questions to be included from Literature (Cronbach's alpha scores as per the individual study are presented) 110
Appendix E: Letter from Ethics Clearance Committee 113
Appendix F: Name of all constructs used in data set 114
Appendix G: Scree Plot 115
Appendix H: Statistical Tests in order to perform Linear Regression 116
1. Descriptive Statistics, Skewness & Kurtosis 116
2. Testing for Linearity: Independent Variables with PEON 119
3 Testing for Linearity: Independent Variables with PU 117
4 Testing for Linearity: Independent Variables with Acceptance 119
5. Testing for Collinearity and Heteroscedasticity 120

List of Figures

Figure 1: The research model (Adapted from Schillewaert et al (2005) and Avlonitis et al (2005)) 12
Figure 2: TAM Model (Davis, 1989) 14
Figure 3: TAM-TFF integrated model (Dishaw and Strong, 1999) 17
Figure 4: The proposed integrated research model (Wixom and Todd, 2005) 18
Figure 5: TAM2 (Venkatesh and Davis, 2000) 21
Figure 6: The research model (Schillewaert et al, 2005) 22
Figure 7: The conceptual model (Avlonitis and Panagopoulos, 2005) 22
Figure 8: Research Model (Speier and Venkatesh, 2002) 24
Figure 9: Factors related to successful sales force automation (Morgan & Inks, 2001) 27
Figure 10: Conceptual model (Avlonitis and Panagopoulos, 2005) 28
Figure 11: The Proposed Research Model (adopted from Avlonitis and Panagopoulos, 2005 and Schillewaert et al, 2005) 30
Figure 12: The cycle of Research (Bhattacherjee, 2012) 34
Figure 13: Proposed Research Model (with changes based on Pre-and Pilot tests) (Adopted from Avlonitis and Panagopoulos, 2005 and Schillewaert et al, 2005) 44
Figure 14: Initial Proposed Model 82
Figure 15: New Proposed Research Model (adapted from Schillewaert et al, 2005 and Avlonitis and Panagopoulos, 2005) 83

1. Introduction

This chapter introduces the user acceptance concepts specifically related to salespeople and Sales Force Automation (SFA) tools. This is achieved by observing the views of a user group of bank employees in South Africa on the Customer Relationship Management (CRM) system that is currently implemented in the organisation.

1.1. Aims and objectives

The research aims to provide researchers and practitioners with a deeper understanding of what factors determine usage of SFA tools by salespeople.

The objectives of this research are to determine which factors, among a competing set of constructs taken from literature, have the most significant influence on technology acceptance. The research model also tests whether there are unique personal characteristics, such as personal innovativeness, age and gender that cause users to adopt SFA tools. The research adds inherent system characteristics to the model, and tests whether these factors impede or facilitate quicker acceptance of CRM technologies among end-users. The outcomes are determined by examining the results from a survey that is conducted in a South African bank on a set of users who are currently utilising the CRM system.

This body of work will result in empirically tested evidence that informs CRM software development companies about which individual, organisational and social characteristics of salespeople should be considered when deciding to design and/or implement a SFA tool. Software companies would also benefit from understanding which inherent system characteristics the end-users most desire in their CRM tool.

The outcomes of this research paper could assist companies to identify what key personal characteristics they should look for when hiring salespeople in an environment where SFA systems are already implemented. It may also assist organisations in understanding what support structures ought to be put in place in terms of management, training and technical expertise to facilitate user acceptance.

1.2. CRM and SFA: Introducing the concepts

CRM is a common strategy employed by many companies to develop better one-to-one relationships with their clients, by focusing on customer retention and loyalty (Chen and Popovich, 2003). CRM integrates people, processes and technology to seamlessly integrate sales, service, marketing, support and other customer touch-points to provide the customer with an enhanced customer experience (Xu, Yen, Lin and Chou, 2002).

According to Avlonitis and Panagopoulos (2005), SFA and CRM are used interchangeably in sales literature. CRM is a business strategy, made up of both processes and technology that enhances customer relationships, whereas SFA refers only to the Information Technology (IT) aspects that help automate manual sales activities. This research will focus predominantly on the IT aspect of the CRM implementation, i.e. the SFA tools. While both terms are interchangeable, this research is more specifically interested in the technology interface between the user and the system. Sales Force Automation is the information systems used in the CRM management and marketing that helps to automate the sales and sales force management functions (Rogers, Stone and Foss, 2008).

1.2 Concerns with CRM/SFA implementation

SFA tools are often used to implement the CRM strategy throughout an organisation (Speier and Venkatesh, 2002). The technology serves as an input into building the CRM process, and is meant to enhance the firm's ability to proactively find and retain a profitable portfolio of customers (Zablah, Bellenger and Johnston, 2004). SFA systems have been said to increase sales revenues, improve sales productivity and lower sales, service and operational costs (Rogers et al, 2008). Considering the promises made by the various SFA vendors, it is hardly surprising that firms worldwide have been investing significant sums in technologies that automate the sales process in the hope of improving the performance of their sales force (Honeycutt, 2005). Since 2002, worldwide spending on SFA has grown annually at 27% to reach $3.2 billion in 2007, with forecasts set to reach approximately $9billion in 2012 (Cascio, Mariadoss and Mouri, 2010).

Latest reports, however, suggest that one in every three CRM deployments fail and approximately 50% of all CRM implementations fail to achieve the objectives set out (Gholami and Rahman, 2012). Previous research has stated that most salespeople are uncomfortable with technology and resent spending their time capturing data when they

would rather be selling to their clients (Rangarajan, Jones and Chin, 2004). Therefore, there is a need to understand how people make their decision to use technology, so that higher usage can be encouraged (Cascio et al, 2010).

In this globally competitive world, more companies are turning towards CRM strategies to enhance their sales (Narang, Narang and Nigam, 2011). Previous strategies of price, customer service and quality are no longer sufficient in providing the competitive edge. Companies are now relying on CRM to help them build stronger relationships between their sales force and the client, which are used as barriers to entry. To implement these strategies, they are relying on technologies that can help them improve the way they identify customers, store important client information, and help them build better relationships with their customer (Sahaf, Quereshi and Khan, 2011). CRM requires organisations to make group-wide transformations in order to effectively adopt CRM/SFA. It is important for sales managers and researchers to explore ways to motivate the sales force to adopt and use these technologies that promise increased sales force efficiency and productivity (Rangarajan et al, 2004 and Sahaf et al, 2011).

1.3 Acceptance of SFA tools

Davis (1989) developed the Technology Acceptance Model that suggests that whenever users face a new technology, the following two factors influence their decision on whether to use it:

- *Perceived Usefulness*[1] (PU)
- *Perceived Ease of Use*[2] (PEOU)

While much of today's technology was unavailable in 1989, when Davis published his study, PU and PEOU still appear to play a role today in system acceptance (Ahearne and Rapp, 2010). When organisations turn to information systems to help them automate their sales management functions, often called a CRM system, they face substantial resistance from their users. In 2005, it was estimated that the SFA industry had over 600 vendors with an estimated value of US$74billion (Honeycutt, 2005). That figure is recently estimated to be

[1] Perceived usefulness is defined by Davis (1989) as the degree to which an individual believes that using a system will enhance their job performance.
[2] Perceived ease-of-use is defined by Davis (1989) as the degree to which an individual believes that using a system will be free of effort.

$9billion, so there is a vested interest in understanding what causes salespeople to reject SFA technology (Cascio et al, 2010).

System acceptance in this case, refers to the willingness with which the end-users utilise the system for their daily activities. The issues surrounding SFA acceptance by the sales force is so prevalent that entire issues of leading journal papers have been dedicated to understanding the challenges facing sales people and organisations trying to automate their sales management functions (Mallin and DelVicchio, 2008). Researchers have not been able to understand why salespeople were rejecting SFA tools in such large numbers, and several models were developed to gain a deeper understanding of the problem. The majority of the researchers extrapolated from Davis' (1989) concepts of *Perceived Usefulness* and *Perceived Ease of Use* to include other constructs such as subjective norm, job relevance, individual factors and organisational factors (Speier and Venkatesh, 2002; Jones, Sundaram and Chin, 2002; Avlonitis and Panagopoulos, 2005; Schillewaert, Ahearne, Frambach and Monaert, 2005).

Other researchers have extended TAM with the Task-Technology Fit (TFF) model to include constructs that measure the technology characteristics as well as its functionality to determine the influence on system utilisation (Goodhue and Thompson, 1995, Dishaw and Strong, 1999, DeLone and McLean, 2003).

The underpinning model on which this research is based, are the frameworks developed by Avlonitis and Panagopoulos (2005) and Schillewaert et al (2005). Their models were specifically constructed to explain acceptance of information technology by sales people in the context of CRM implementation. While both sets of research frameworks were based on TAM, they extrapolated from various literatures to add Individual, Social and Organisational Factors as important antecedents to technology acceptance by sales people. The proposed model as presented in this research paper makes its contribution to literature by adding a fourth contributing factor: System Characteristics, to explain sales force acceptance of information technology.

1.4 Conclusion

This study investigates the issue of SFA technology acceptance using a case study example of a leading South African bank. The aim of this study is to determine which key factors have

the most significant influence on salespeople's adoption of SFA, through an adapted model from literature.

This bank (now referred to as Bank A) experienced a user-acceptance problem when it implemented a popular SFA system across its sales teams. The SFA system that has been implemented costs the bank millions of Rands each year for licensing and software upgrades. However, it is widely known in Bank A that the tool has been rejected by the sales force. The same system is being used by other non-sales staff (support and service areas) across Bank A, with fewer problems.

This study uses the example of Bank A's implementation of a SFA system to understand why salespeople often reject technology (Ahearne and Rapp, 2010). It also aims to develop easily implementable recommendations for the senior management in an Organisation and SFA tool software companies. This study will further existing research by introducing "System Characteristics" as a new construct into previous SFA tool acceptance models. Using this model, the study tests whether SFA system capabilities (such as its functionality, response times and ease-of-navigation) have a significant impact on salespeople's perceived ease-of-use, and therefore on SFA technology acceptance.

The next chapter aims to review the relevant literature on this topic and present the development of the model for this research study.

2. Literature Review

2.1 Introduction

This chapter first describes the process through which this model was derived, by explaining the various influences from the body of literature. The theories and models underpinning the current adapted model are Technology Acceptance Model (TAM), Task-Technology Fit (TFF) Model, the Integrated Research Model and the Web-QUAL model, as well as the two conceptual models presented by Avlonitis and Panagopoulos (2005) and Schillewaert et al (2005). These theories and theoretical models are presented in chronological order, i.e. the older models are presented first which has required the hypotheses to be presented in reversed order. While this may not be intuitive, it would be less sensible to introduce newer research first to the reader as the subsequent models have built on prior research. After justifying their inclusion in the literature review, the hypotheses are presented. A research model (Figure 1) is then put forward to study the various factors that may influence User Acceptance, through Perceived Usefulness and Perceived Ease of Use.

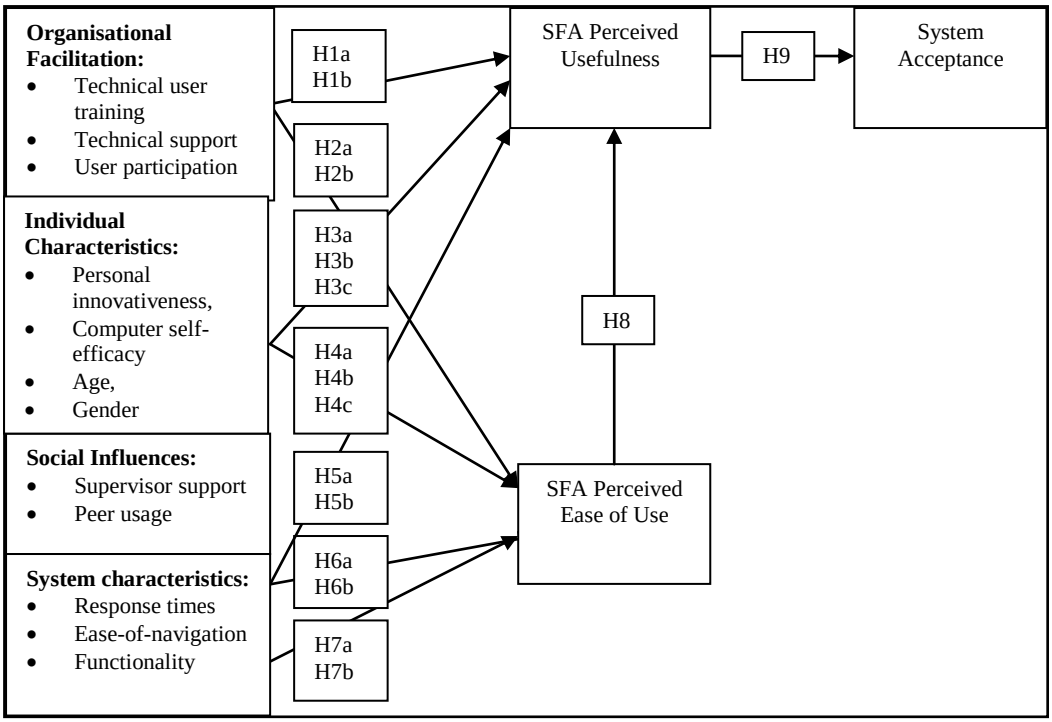


Figure 1: The research model (Adapted from Schillewaert et al (2005) and Avlonitis et al (2005))

2.1 The research model

This model hypothesizes that individual, social, organisational and system characteristics facilitate SFA tool acceptance. These constructs have all been adapted from the literature, with a relatively new addition of *System Characteristics*. This construct was identified through a gap in the literature on the topic of SFA acceptance. There appears to be a lack of understanding on exactly what *System Characteristics* of these SFA tools contribute towards adoption and usage by its end-users, e.g. its functionality, response times and ease-of-navigation (Wixom and Todd, 2005). The tool's inherent system capabilities have previously not been viewed as an independent variable in other technology acceptance models.

A quantitative study is conducted to test whether there are unique perceptions and individual traits specific to the sales force as compared to non-salespeople, and whether these factors significantly influence their acceptance of technology.

While previous models provide insight into the influences on SFA adoption, few result in quick and tangible action that organisations or vendor companies can implement to increase user acceptance of CRM systems (Wixom and Todd, 2005). Previous empirical research has made recommendations to organisations, such as to replace the existing sales force with people who are more technologically savvy (Jones et al, 2002). However, it is difficult for organisations that already have an established and more experienced sales force to implement such a recommendation. Most HR practices (especially in South Africa) would prevent organisations from firing or replacing current workforce without following proper process and guidelines (van Rensburg, Basson and Carrim, 2011). Since this could take a long time, following this recommendation is not considered to be a quick or easy solution by practitioners

This research proposes to find quick and tangible solutions for practitioners to implement, while furthering the current research by adding new factors that can explain SFA acceptance by salespeople. The proposed model derives the factors from various sources in the literature that specifically pertain to the issue of system acceptance. The underlying foundation of this model comes from the Technology Acceptance Model (TAM) as will be discussed in the next section.

2.1.1 Perceived Usefulness and Perceived Ease-of-Use (Derived from Technology Acceptance Model (TAM))

Davis (1989) proposed his Technology Acceptance Model (TAM) to better understand what causes people to accept or reject information technology. The practical relevance of Perceived Usefulness and Perceived Ease of Use are still as applicable today as they were almost thirty years ago, and form the foundation of this study (see Figure 2). The TAM model was developed by borrowing theories from behavioural decision studies such as the Self Efficacy Theory (Bandura, 1989), and the Theory of Reasoned Action (Fishbein and Azjen, 1975) which proposed that beliefs influence behaviour via an indirect influence on attitudes. TAM attempts to explain what the determinants are of computer use across varied technologies and user-groups (Davis, 1989). TAM examines and defines the causal relationships between system design features, perceived usefulness, perceived ease-of-use, attitude toward using a system, and actual system usage (Davis, 1989). Refer to Figure 2 for the diagrammatic representation of TAM.

Davis (1989) defined *perceived usefulness* as "the degree to which a person believes that using a particular system would enhance his or her job performance". On the other hand, the definition of *perceived ease-of-use* is stated as "the degree to which a person believes that using a particular system would be free of physical and mental effort". Davis (1989) hypothesized and later showed that *usefulness* is the primary driver of user intentions to adopt new information technologies, while *ease-of-use* has a significant effect on usage through its influence on *perceived usefulness*. In other words, users would only accept a system if they believe it to be useful to them, and hence may be willing to overcome some difficulty in ease-of-use if they see long-term benefits to using the system (Davis, 1989; and Davis, Bagozzi and Warshaw, 1989).

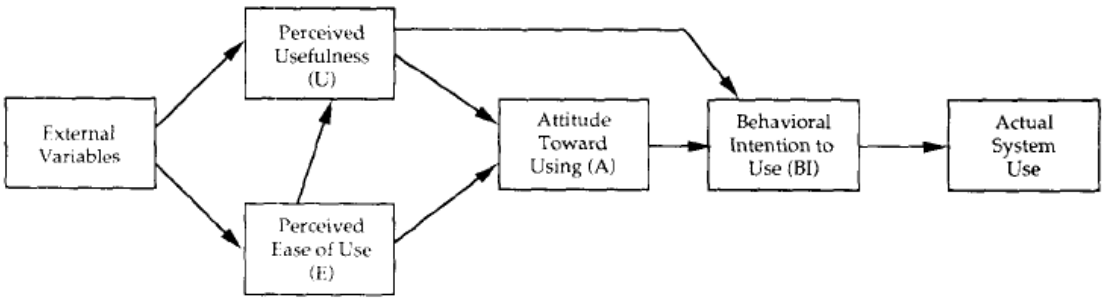


Figure 2: TAM Model (Davis, 1989)

TAM has subsequently been tested by many researchers, over numerous types of users and systems, and has typically been found to explain about 40% of user intentions and behaviour

(Venkatesh and Davis, 2000). TAM is also widely considered as the most influential and commonly used theory in Information Systems. With over 20 years of research and studies investigating the initial hypotheses, it is generally accepted in academic research that *Perceived Usefulness* has a significant effect on usage, and that *Perceived Ease-of-Use* is an important antecedent of Perceived Usefulness and an important construct in its own right (Benbasat and Barki, 2007).

Given that fundamentals of TAM is widely accepted in IT research, this study uses this model as its foundation to test the effect that various independent variables have on SFA acceptance, through its influence on Perceived Usefulness and Perceived Ease-of-Use.

It must be noted that a shortcoming of TAM is that it did not develop any constructs to explain the perceptions on usefulness nor ease-of-use. It treated Perceived Ease-of-Use and Perceived Usefulness as black boxes that could not be explained. This is something that the proposed research model plans to address. This model therefore proposes the following:

[3]**Hypothesis 8 (H8)**: SFA Perceived Ease-of-Use will positively influence SFA perceived usefulness.

Hypothesis 9 (H9): SFA Perceived Usefulness will positively influence SFA tool acceptance.

2.2 System Characteristics

2.2.1 Task-Technology Fit (TTF) Model

While TAM is considered by many IT researchers to be the most influential and most commonly applied theory in information systems, there are many critics who believe that TAM has largely ignored IT design and evaluation (Benbasat and Barki, 2007). Davis (1993) acknowledged that system characteristics played a small, but significant role on users' attitudes towards using the system. He suggested that further research should include these and other independent variables to be added to the research framework; hence this study examines the research that was conducted to fulfil this gap.

An unfortunate side-effect of the focus on TAM is that while numerous studies have demonstrated the importance of Perceived Usefulness (PU) and Perceived Ease-of Use

[3] The hypotheses are stated in reverse order as they appear in the literature, so that the reader can be taken through the development of the constructs in a chronological order, starting from the earliest contributing research to the latest, most recent publications.

(PEOU) (Davis et al, 1989, Venkatesh and Davis, 2000, Speier and Venkatesh, 2002), the issue of IT artefact design has largely been neglected (Benbasat and Barki, 2007). Wixom and Todd (2005) also criticized TAM for not providing sufficient actionable feedback to system designers on how to influence usage through design and implementation of the IT artefact itself.

It was because of these limitations of TAM that Dishaw and Strong (1999) extended TAM to include the Task-Technology Fit model (TFF) as referred to in Figure 3. TFF is "when a technology provides the features and support that fit the requirements of the task" (Goodhue and Thompson, 1995) and claims that a technology will only be used if the tool's *functionality* matches the user's activities.

The integrated TAM-TFF model was tested and their results showed that adding TFF to TAM explained significantly more variance than either TAM or TFF alone (Dishaw and Strong, 1999). It was found that the perceived ease of use of a technology is directly and significantly influenced by its functionality. The findings in the TAM-TFF study showed that when the fit between the task and the tool is higher, the more users perceive the tool to be easy to use. However, the more functionality a system has, the lower the ease of use because the system has become overly complex to accommodate so many functional requirements. The TAM-TFF study recommended that software designers need to understand how the functions of the software fit into what the users perceive to be their needs of this software (Dishaw and Strong, 1999). This has been found to be an issue in Bank A where the users have complained that the SFA tool is too complicated. However, they are unable to come to a consensus on what functionality to remove from the software to simplify its user interface. This has become a dilemma for the software developers.

Where the TAM-TFF model greatly benefits the IT community as a whole is that the findings are actionable, as compared to TAM alone. One of the criticisms of TAM is that PU and PEOU do not clearly stipulate what needs to be done from a system design point-of-view in order to encourage IT adoption (Wixom and Todd, 2005; and Benbasat and Barki, 2007). The effect that system capabilities have on user acceptance is investigated in this research for the following reasons:

a) Companies that develop sales automation tools can get a better understanding on what aspects of technology can impede or facilitate faster adoption of SFA technologies;

b) Researchers interested in technology adoption models can benefit from this slightly different approach to understanding the factors that drive SFA usage by salespeople; and
c) Organisations (such as Bank A) can learn from other SFA technology implementations.

Below is the graphical representation of the extended model as derived by Dishaw and Strong (1999).

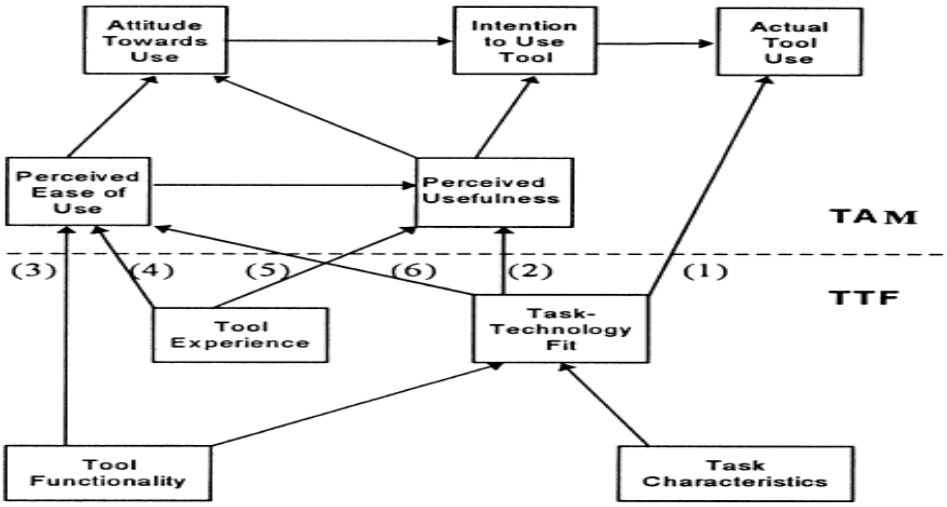


Figure 3: TAM-TFF integrated model (Dishaw and Strong, 1999)

This model was incorporated into the questionnaire by specifically asking users about their actual usage of the SFA system, their years of use (referring to Tool Experience) and by adding the construct, Tool Functionality. A detraction of this model is the level of complexity in deriving causation, with many factors interlinked.

2.2.2 The Proposed Integrated Research Model

Wixom and Todd (2005) also attempted to close the gap in literature that separates user satisfaction studies from user adoption studies by creating an integrated research model (see Figure 4) that factored both system qualities with behavioural beliefs in order to predict intention to adopt technology. Wixom and Todd (2005) found that only a few TAM studies have examined the role that system characteristics play as an antecedent to ease of use, and therefore proposed the following model to try to assimilate this into traditional adoption models. This model proposes Reliability, Flexibility, Integration, Accessibility and Timeliness as constructs to measure the system's quality.

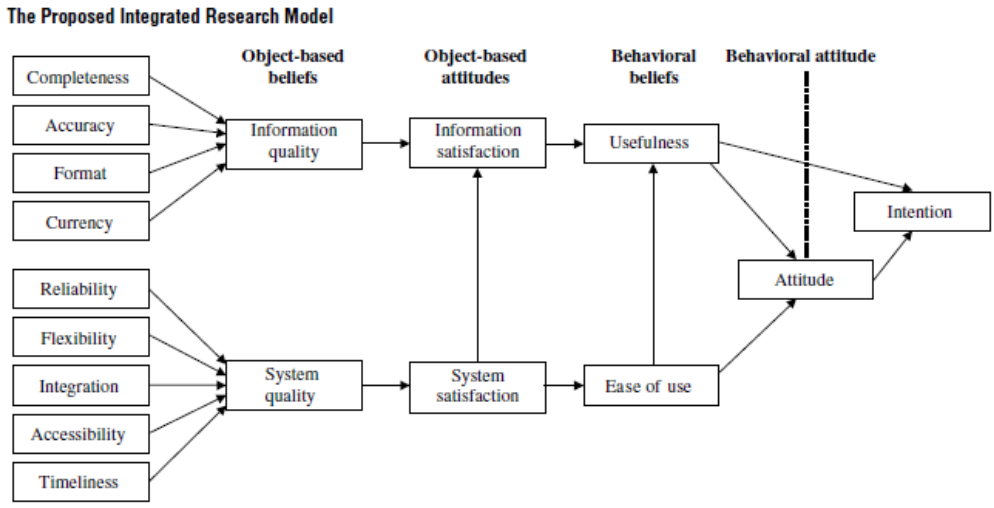


Figure 4**:** The proposed integrated research model (Wixom and Todd, 2005)

The characteristics pertaining to system quality were considered for incorporation into the present research model, especially accessibility and timeliness. This model incorporated the concept of system and information quality and satisfaction as antecedents to usefulness and ease-of-use, which then affect intention.

2.2.3 WebQUAL and e-SERVQUAL Models

Loiacono, Watson and Goodhue (2007) combined TAM and the Theory of Reasoned Action to develop a measure for website quality (known as WebQUAL) that would predict users returning to that site. The research developed 12 core constructs that included Response Times, Visual Appeal, Fit-to-Task and Trust. The WebQUAL model focused on the technical aspects of the websites, and required further detail into what users perceived to be useful or easy-to-use so that practitioners could make the required changes to their website based on specific feedback from users.

Zeithaml, Parasuraman and Malhotra (2002) expanded on the WebQUAL model by not just focusing on the technical quality of the website, but also on the perception by the users on whether the website delivered a good service overall. In other words, e-SERVQUAL also measured the perception about the overall effectiveness and efficiency of the websites. This was measured through four core constructs, namely efficiency, reliability, fulfilment and privacy.

Given that the SFA tool in Bank A has a Graphic User Interface (GUI) very similar to websites and both require user satisfaction in order to be re-utilised, there are some parallels that can be drawn between an SFA tool and a website. This study proposes that, by choosing relevant constructs from the measurement tools derived to measure a website quality, these factors can also be used to measure the technical quality of the SFA tool.

Based on the research presented above, suitable constructs were chosen due to the applicability to the SFA systems and relative importance to the sales force. The TAM-TFF model highlighted tool functionality as an important construct, along with actual usage of the system and tool experience. By merging the common themes from Wixom and Todd's (2005) model and Zeithaml's (2002) WebQUAL model, the researcher noted that reliability, visual appeal and response times were the key important themes. Loiacono et al (2007) created a construct called "ease of navigation" by combining ease-of-use, ease-of-understanding and intuitive operations. By overlapping these themes with the common complaints from the sales force at Bank A, it was decided that response times, ease of navigation and system functionality would be the three key constructs to be measured.

- **System Functionality** - Dishaw and Strong (1999) created a formal construct known as task-technology fit as the ability of IT to match the demands of a task. They also propose that users will only use a system if it allows them to complete their tasks in the most efficient manner. This construct was found to be similar in meaning as 'fit-to-task' in Loiacono et al's model (2007) and 'fulfilment' in Zeithaml et al's model (2002)

- **Response time or speed** – this refers to "the degree to which a system offers quick (or timely) responses to requests for information or action" (Nelson, Todd and Wixom, 2005). It has been reported that salespeople prefer direct interaction with their clients, and that they do not enjoy administrative tasks that take time away from their customers. It would therefore be deemed important that the SFA tool enhances their ability to sell, and not demand too much time away from their core function (Rangarajan, Jones and Chin, 2004). One of the biggest complaints from the salespeople in Bank A is that whenever they decide to use the SFA tool, the poor response times they receive puts them off using the system again. This issue has been taken up to the system administrators of the tool, but without satisfactory results. If this hypothesis is supported, then the SFA tool developers and administrators may realize whether "response times" is an important factor in encouraging user adoption of such a system.

- **Ease-of-navigation** – as salespeople have been reported as being more technology-averse than their counterparts in other professions, it would therefore seem necessary that the system is easy to use and navigate in order to encourage them to GUI should be simple to learn and navigate (Rangarajan et al, 2004). Loiacono et al (2007) referred to high quality web sites being "intuitive operations" (defined as "easy to operate and navigate") to encourage continued browsing. Davis et al (1989) referred to user-friendliness in their paper and mentioned that a user interface that is easy to navigate will increase a system's usability, but only if it is perceived to also be useful. This construct is thus added to this model as per Davis et al's (1989) recommendation to empirically test the trade-off between usefulness and ease-of-use.

Fulfilment was thought to be addressed via Perceived Usefulness, while Privacy was not considered relevant in a SFA scenario as compared to an online shopping website, and was therefore not included. A shortcoming of the above models is the fact that while they focus on the IT artefact, they largely ignore aspects about the individual salesperson, his/her social influences and the larger organisation's effect on perceptions about the technology. The proposed research model aims to provide a relatively simple framework where the causality is clear and directed towards tool acceptance, while incorporating broader constructs that may impact on perceptions about the technology's ease-of-use and usefulness.

Hypothesis 7 (H7): System characteristics will positively influence SFA Perceived Ease-of-Use.

Hypothesis 7 a (H7a): Response Times will positively influence SFA Perceived Ease-of-Use

Hypothesis 7 b (H7b): Functionality will positively influence SFA Perceived Ease-of-Use

Hypothesis 7 c (H7c): Ease-of Navigation will positively influence SFA Perceived Ease-of-Use

2.3 Social Factors – including Subjective Norms

It has been reported that adoption behaviour does not occur in a vacuum (Schillewaert et al, 2005). Venkatesh and Davis' (2000) extension of the original TAM model to TAM2 (see Figure 5) includes social influence processes (which includes the added moderating factor of

Voluntary versus mandatory usage of systems). Subjective norm is when individuals comply to certain behaviour solely because people whom they consider to be influential believe it to be the right thing to do, even though the individual themselves may not believe in that behaviour (Venkatesh and Davis, 2000). Since salespeople work across organisational boundaries, various role players, including their peers, managers and customers (Schillewaert et al, 2005), influence them.

Social influences that impact user acceptance of technology were tested in TAM2 (see Figure 5) to see whether it had a significant effect on the users' intention to use the technology and their perception of the tool's usefulness. The results showed that subjective norm has a significant effect on the users' intentions to use the system, even more so than perceived usefulness and ease-of-use, but only when the system was mandatory in the organisation (Venkatesh and Davis, 2000). Since the SFA tool is perceived to be mandatory by the users in Bank A, this finding becomes extremely relevant to this study.

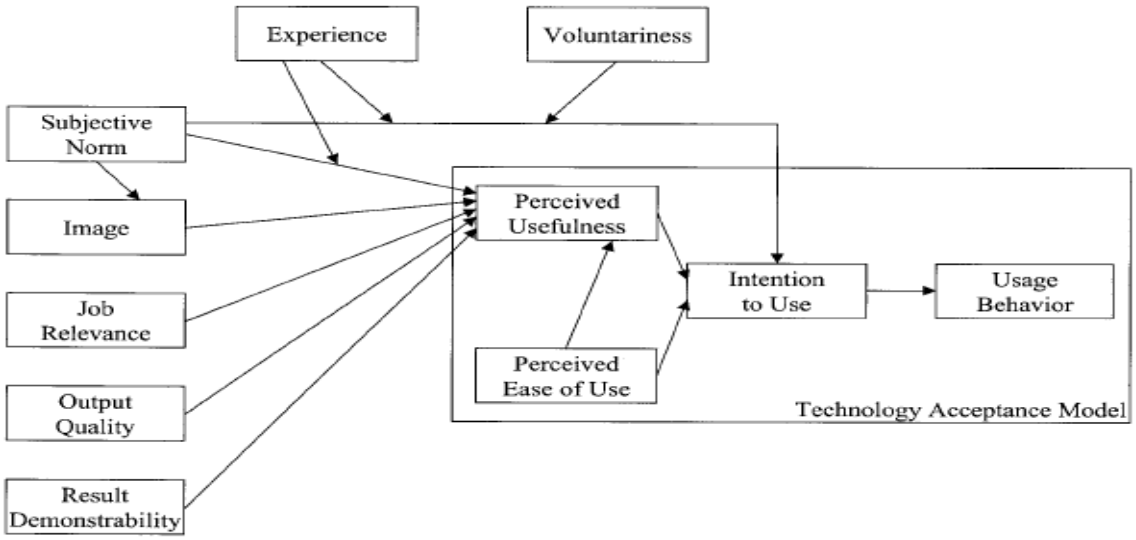


Figure 5: TAM2 (Venkatesh and Davis, 2000)

Venkatesh and Davis' (2000) results also determined that the individual's perceived usefulness is strongly influenced by social factors and the belief that they gain social status and influence in their work group if they use the prescribed system. Findings about the effects of subjective norms in attitude theories also reflects that the normative beliefs of significant others influence the individual's beliefs about technology (Fishbein & Azjen, 1975). The model is Figure 5 also seem to indicate an influence from experience and voluntariness, which have been incorporated into the current research model, as control variables. While Venkatesh and Davis (2000) do not elaborate on *who* the influencers are for the user, many researchers since have done so.

Research in the sales management studies have reported that supervisor support and peer usage influence the salesperson's beliefs and behaviour (See Figure 6: Schillewaert et al, 2005). It can therefore be said that in the salesperson's life, the important role players are their supervisor (or team leader) and peers. When the salesperson's supervisor or peers have adopted the CRM system, it impacts the individual sales person's perceptions about the system's usefulness and ease-of-use (See Figure 7: Avlonitis and Panagopoulos, 2005). According to Chen and Popovich (2003), top management support and involvement was singled out as a key success factor for CRM implementations. In another, more recent study carried out to understand why SFA tools are failing, a lack of management support for the tool and differences in expectations of the tool between the sales force and management, was again provided as leading reasons for low user acceptance (Barker, Gohmann, Guan and Faulds, 2009). Social Factors will be differentiated from Organisational Factors, which consist of training, user involvement and technical support, later on in this paper.

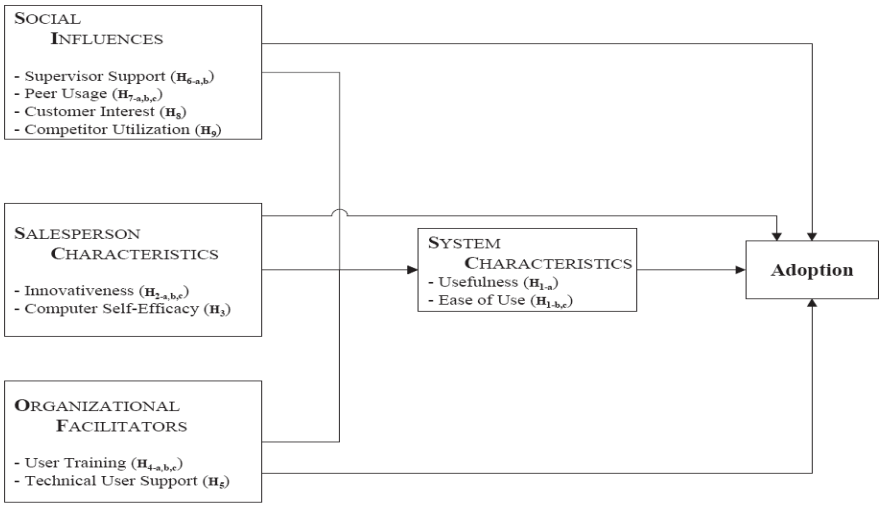


Figure 6: The research model (Schillewaert et al, 2005)

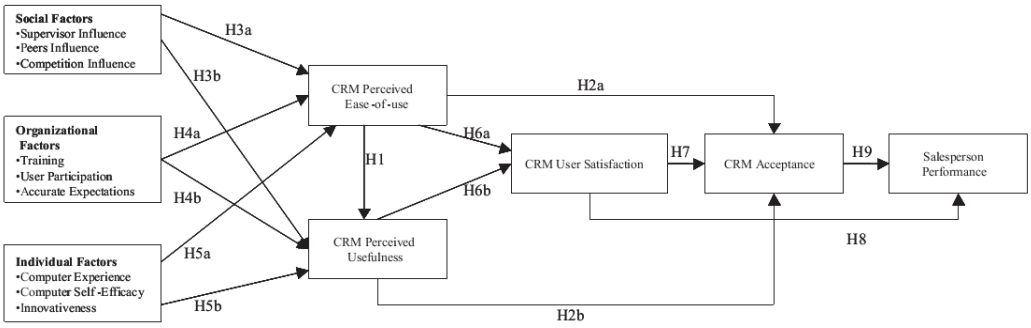


Figure 7**:** The conceptual model (Avlonitis and Panagopoulos, 2005)

These findings therefore support the inclusion of Social Factors in this model, and therefore the following hypotheses are proposed:

Hypothesis 6 (H6): Social factors will positively influence SFA perceived usefulness.

Hypothesis 6 a (H6a): Supervisor support will positively influence SFA perceived usefulness

Hypothesis 6 b (H6b): Peer usage will positively influence SFA perceived usefulness

Hypothesis 5 (H5): Social factors (that includes supervisor support and peer usage) will positively influence SFA Perceived Ease-of-Use.

Hypothesis 5 a (H5a): Supervisor support will positively influence SFA Perceived Ease-of-Use.

Hypothesis 5 b (H5b): Peer usage will positively influence SFA Perceived Ease-of-Use.

2.4 Individual Factors

In 2002, Speier and Venkatesh specifically investigated the reasons for high SFA failure rates among organisations. Commentaries in the practitioner journals at that time (1996 – 1999) were fraught with disappointing results from implementing expensive SFA tools. Given that there were few academic studies that researched workers' acceptance of technology in a field setting, and the unique job function of a salesperson, Speier and Venkatesh (2002) delved into what individual perceptions and behaviours salespeople hold that result in the rejection of SFA tools, even though it is accepted that not all salespeople are the same and that they have different personal dispositions. However, it is worth investigating whether there are common individual characteristics that all salespeople share that have a significant impact on how a salesperson reacts to technology, and whether he/she chooses to adopt new technology (Avlonitis and Panagopoulos, 2005).

Speier and Venkatesh (2002) presented a theoretical framework (see Figure 6) that inspected how individual characteristics (e.g. gender and age), role perceptions (i.e. role clarity and role conflict), and the organisation's characteristics all make up the individual's perception of technology. Their model showed that this perception of the technology determines the Person-Technology Fit. When this model was tested, it was found that gender and age had a significant influence on perceptions of complexity and relative

advantage, while self-efficacy and playfulness only influenced perceptions of complexity. A deficiency of this model is that the link to System Acceptance is not clearly stated.

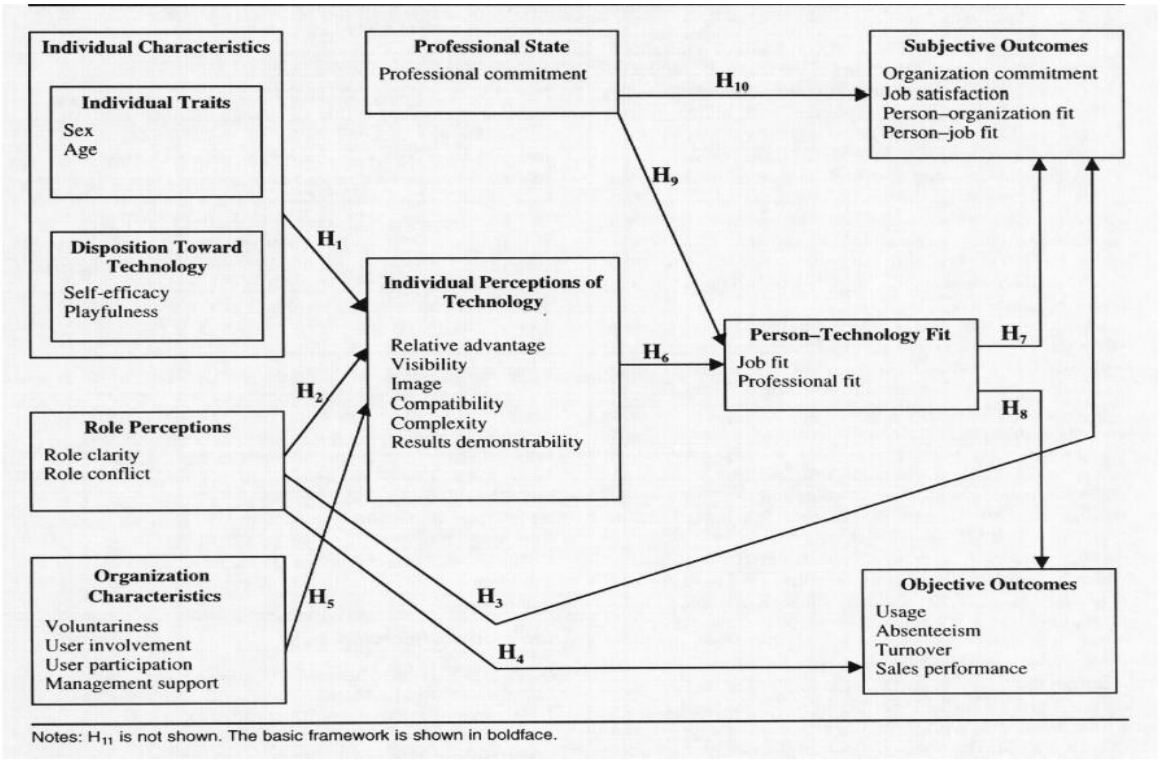


Figure 8: Research Model (Speier and Venkatesh, 2002)

An additional weakness to the model shown in Figure 8 is the exclusion of Social factors, i.e. influence from important role players in the salesperson's immediate circle.

Based on the various findings in literature, the following factors were identified as constructs to be measured as control and independent variables:

- **Age** was also found to be an important factor in the influence of individuals' perceptions of technology; older users tend to be more negative towards new technology and use them less frequently than younger people (Morris and Venkatesh, 2000). Buehrer, Senecal and Pullins (2005) also found that age was a barrier in using technology. It was found among older respondents that:

a) they were not used to using technology; and/or
b) they found it took longer than doing things manually; and/or
c) they were inherently more resistant to change than the younger respondents were.

- Similarly **gender** has also shown similar effects; women tend to be more anxious about using new technology and use them less than their male counterparts (Morris and Venkatesh, 2000).

- **Computer self-efficacy** – or the individual's ability to use a computer in the accomplishment of a task (Compeau and Higgins, 1995) – has been said to affect technology acceptance (Speier and Venkatesh, 2002). Several studies have found strong links between computer self-efficacy and perceptions about adopting new technology (Schillewaert et al, 2005). Venkatesh and Davis (2000) also modelled and found that computer self-efficacy was an antecedent to perceived ease-of use, because they believed that individuals rely on their overall computer abilities when dealing with a new system that they have no prior experience dealing with.

- **Personal innovativeness** is defined as the tendency of an individual to adopt innovations relatively earlier as compared to others. It can also be defined as an attitude that describes a salesperson's feelings or tendencies towards adopting new technologies (Schillewaert et al, 2005). Since numerous practical evidence exists supporting the assumption that salespeople are naturally resistant to technology , it is proposed that salespeople who are innately predisposed to innovations in technology will hold more positive beliefs about technology, and thus its eventual adoption (Jones et al, 2002).

The findings from previous research proved that the Age, Gender, Personal Innovativeness and Computer Self-Efficacy of the individual influence their perception of the technology's relative advantage and complexity (Morris and Venkatesh, 2000; Speier and Venkatesh, 2002; Buehrer et al, 2005; Schillewaert et al, 2005, Jones et al, 2002 and Avlonitis and Panagopoulos, 2005). Hence, these four constructs are included under Individual Factors in the current research:

Hypothesis 4 (H4): Individual factors will positively influence SFA perceived usefulness.

Hypothesis 4 a (H4a): Personal innovativeness will positively influence SFA perceived usefulness.

Hypothesis 4 b (H4b): Computer self-efficacy will positively influence SFA perceived usefulness.

Hypothesis 4 c (H4c): Age will positively influence SFA perceived usefulness.

Hypothesis 4 d (H4d): Gender will positively influence SFA perceived usefulness.

Hypothesis 3 (H3): Individual factors (that includes personal innovativeness, computer self-efficacy, age and gender) will positively influence SFA Perceived Ease-of-Use.

Hypothesis 3 a (H3a): Personal innovativeness will positively influence SFA Perceived Ease-of-Use.

Hypothesis 3 b (H3b): Computer self-efficacy will positively influence SFA Perceived Ease-of-Use.

Hypothesis 3 c (H3c): Age will positively influence SFA Perceived Ease-of-Use.

Hypothesis 3 d (H3d): Gender will positively influence SFA Perceived Ease-of-Use.

2.5 Organisational Factors

It has been stated that the implementation of any enterprise technology, such as CRM, means changes to the organisational culture (Chen and Popovich, 2003). As part of another study, when salespeople were asked what aspects prevented them from fully utilizing SFA technologies, they mentioned lack of training and technical support, the lack of management support and insufficient time to learn and use the technology (Buehrer et al, 2005). Buehrer's (2005) explorative study showed that one of the significant barriers to fully utilising SFA was the lack of organisational support, specifically technical support and training. Both factors have been shown to positively impact on SFA adoption (Cascio, Mariadoss and Mouri, 2010). The successful implementation of SFA requires salespeople to learn how to use a technology, so any form of organisation-sponsored training is necessary for effective adoption (Avlonitis and Panagopoulos, 2005).

Morgan and Inks (2001) also reported that salespeople would accept the SFA tool if they believed that they would be involved in the implementation (user involvement) and if they would be provided with sufficient training. Their study reported that salespeople were more likely to adopt SFA technologies if they were involved with creating and implementing the changes. People who are closely involved with the decision-making process of implementing a new technology are far less likely to resist it as they had been given a feeling of empowerment and ownership. A limitation to this model is that the constructs are assumed to have a direct influence on SFA acceptance, without the proven mediating constructs of Perceived Usefulness and Perceived Ease-of-Use.

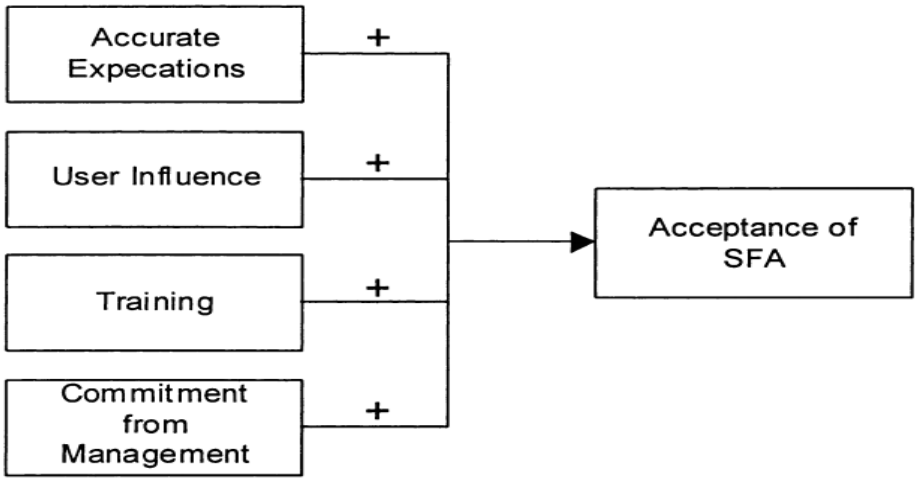


Figure 9: Factors related to successful sales force automation (Morgan & Inks, 2001)

The current study proposes that organisational factors (that consists of User Training, User Involvement and Technical User Support) are factors that facilitate the adoption of SFA tools, as mediated by the users' perceived ease-of use, for the following reasons:

- **User training** is defined as the degree to which the Organisation empowers the users to effectively employ the SFA tool in order to perform key tasks and activities. It is also believed that providing training for the users helps to reduce ambiguity and can assist in overcoming any obstacles in using the technology, therefore making it easier to use (Schillewaert et al, 2005). It has been found that providing technical user training was most effective in increasing usage of the SFA technology (Buehrer et al, 2005 and Schillewaert et al, 2005).

This is in direct contrast to the study conducted by Avlonitis and Panagopoulos (2005), whose study revealed that training was not a sufficient enough reason for salespeople to accept SFA technology (see Figure 7). Although the model in Figure 7 is very similar to that described in Figure 8, the findings differed. Both models included Social Factors, Organisational Factors and Individual Factors as antecedents to CRM Adoption. However, the model proposed by Avlonitis and Panagopoulos (2005) included Perceived Ease-of-Use and Perceived Usefulness as mediating factors to CRM Adoption. Due to the inconclusive findings regarding the influence of training on user acceptance, it has been included in this research to see what its effects are on sales force acceptance of SFA tools in a South African banking industry.

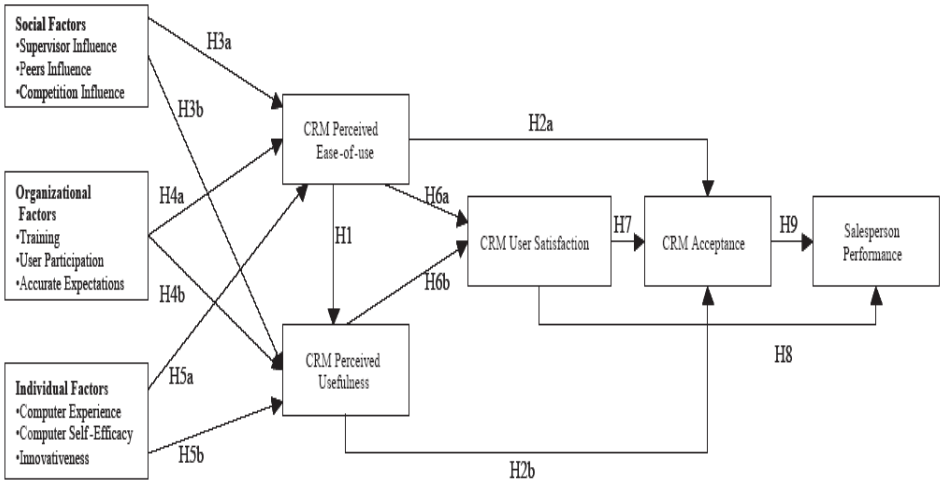


Figure 10**:** Conceptual model (Avlonitis and Panagopoulos, 2005)

Based on the constructs found in the literature, the following were added to the model to be tested:

- **User participation** is defined as the design related activities that the target user group is involved in during the system development process, and has been considered a critical factor in technology adoption and enhanced perceptions of the system's usefulness (Speier and Venkatesh, 2002). Participation in the system implementation process often leads to a feeling of ownership by the end-users, which results in a greater likelihood that the salespeople will use the system. When salespeople are included in the process, they often have more realistic expectations of the system and it tends to reduce their resistance to change as shown in the research conducted by Avlonitis and Panagopoulos (2005).

- **Technical support** refers to a salesperson's perception that he/she receives operational help when they encounter any difficulties on the system (Schillewaert et al, 2005). It has been stated that lack of proper technical support represents a significant potential barrier to user acceptance of SFA technologies (Buehrer et al, 2005). It is believed that where sufficient technical support is provided, the users in those organisations become more proficient at using the system, therefore reducing their perceived effort of using the system (Schillewaert et al, 2005).

All three factors have been shown via various research models (as described above), to lead to quicker adoption, and hence they are included in the current research model, under Organisational Factors. These differ from Social Factors in that these factors are not related to Subjective Norm, and do not influence Salespeople from a social behavioural perspective.

Rather, these are tangible constructs that any organisation can easily implement. In addition to the above, there were a number of articles that questioned whether SFA improved the sales person's performance and whether measuring the sales person's performance using the SFA would lead to acceptance of the SFA tool (Morgan and Inks, 2001, Speier and Venkatesh 2002, Ahearne, Jelinek and Rapp, 2005 and Sundaram, Shwarz, Jones and Chin, 2007). From experience in practice, the researcher found that there was higher acceptance in departments where the SFA tool was used as a performance management tool than departments where it wasn't. A control variable was therefore added to the questionnaire to ask respondents whether their performance was managed using the SFA system. The results will show whether this variable is a significant contributor to SFA acceptance.

The hypotheses are as follows:

Hypothesis 2 (H2): Organisational factors (technical user training, technical support and user participation) will positively influence SFA Perceived Usefulness.

Hypothesis 2 a (H2a): Technical user training will positively influence SFA Perceived Usefulness.

Hypothesis 2 b (H2b): Technical support will positively influence SFA Perceived Usefulness.

Hypothesis 2 c (H2c): User participation will positively influence SFA Perceived Usefulness

Hypothesis 1 (H1): Organisational factors (technical user training, technical support and user participation) will positively influence SFA Perceived Ease-of-Use.

Hypothesis 1 a (H1a): Technical user training will positively influence SFA Perceived Ease-of-Use.

Hypothesis 1 b (H1b): Technical support will positively influence SFA Perceived Ease-of-Use.

Hypothesis 1 c (H1c): User participation will positively influence SFA Perceived Ease-of-Use.

2.6 Proposed Research Model – Summary Table

This chapter introduced the components that form part of the research model that will be empirically tested to understand the various antecedents to system acceptance, by measuring the relationships between these variables to the users' perceived usefulness and

perceived ease-of-use. This chapter set out to explain how the previous literature contributed towards the choice of independent variables as well as control variables, and the justification of the model for this research study.

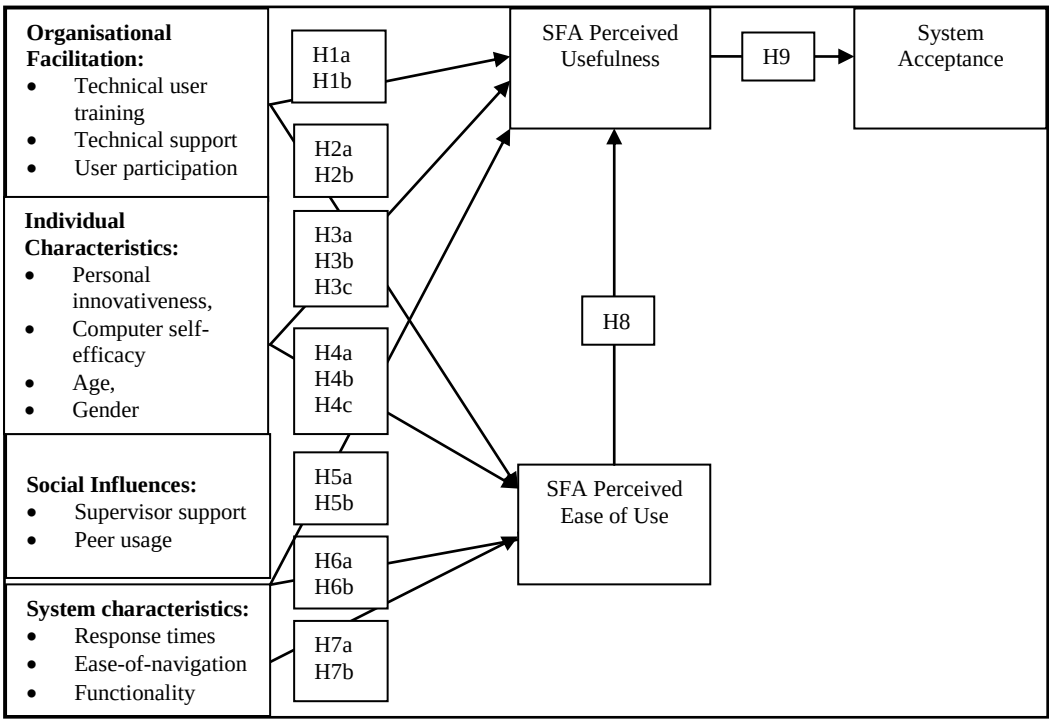


Figure 11: The Proposed Research Model (adopted from Avlonitis and Panagopoulos, 2005 and Schillewaert et al, 2005)

The proposed model builds from the previous literature, and proposes that Organisational factors (consisting of Technical user training, Technical support and User participation), Individual Factors (consisting of Personal innovativeness, Computer self-efficacy, Age and Gender), Social factors (consisting of Supervisor support and Peer usage) all influence the user's perceptions of the system's usefulness and ease-of-use. Based on models such as TAM-TFF, the Integrated Research Model and WebQUAL, this model also proposes the additional construct called System Characteristics, which specifically examines aspects of the IT artefact that influence users' perceptions of its ease-of-use. Borrowing from TAM, the current model proposes that Perceived Ease-of-Use has a direct influence on Perceived Usefulness, which in turn, influences System Acceptance.

Each of the proposed hypotheses will be tested using statistical analysis, the methods of which will be discussed in the next chapter:

Table 1: Summary of Research Model and Hypotheses

Hypotheses	**Description**
H1a	Technical assistance plays a significant role in whether users perceive an SFA system to be easy to use
H1b	User training plays a significant role in whether users perceive an SFA system to be easy to use
H1c	User Participation plays a significant role in whether users perceive an SFA system to be easy to use
H2a	Technical assistance plays a significant role in whether users perceive an SFA system to be useful
H2b	User training plays a significant role in whether users perceive an SFA system to be useful
H2c	User Participation plays a significant role in whether users perceive an SFA system to be useful
H3a	Personal innovativeness plays a significant role in whether users perceive an SFA system to be easy to use
H3b	Computer Efficacy plays a significant role in whether users perceive an SFA system to be easy to use
H3c	Age plays a significant role in whether users perceive an SFA system to be easy to use
H3d	Gender plays a significant role in whether users perceive an SFA system to be easy to use
H4a	Personal innovativeness plays a significant role in whether users perceive an SFA system to be useful
H4b	Computer Self-efficacy plays a significant role in whether users perceive an SFA system to be useful
H4c	Age plays a significant role in whether users perceive an SFA system to be useful
H4d	Gender plays a significant role in whether users perceive an SFA system to be useful
H5a	Team Leader support plays a significant role in whether users perceive an SFA system to be easy to use
H5b	Peer usage plays a significant role in whether users perceive an SFA system to be useful
H6a	Team Leader support plays a significant role in whether users perceive an SFA system to be useful
H6b	Peer usage plays a significant role in whether users perceive an SFA system to be useful

H7a	Functionality plays a significant role in whether users perceive an SFA system to be easy to use
H7b	Response Times plays a significant role in whether users perceive an SFA system to be easy to use
H8	Users who perceive a system to be easy to use also find the system to be useful
H9	Users who perceive an SFA system to be useful will in turn adopt and accept that tool

Certain control variables were also included, and these were: role in the organisation (sales or non-sales), whether their performance is measured using SFA, experience using SFA, years spent in the organisation and whether usage of SFA is mandatory.

3 Methodology

3.1 Introduction

The research chapter sets out to describe the methods followed to carry out a research study. Each process is described to allow fellow researchers the ability to replicate or extend this study.

Firstly, the research design and approach are described and justified. Then an overview is given of the sampling technique used. The survey instrument is explained, followed by all ethical issues that were considered before sending out the questionnaire. The data collection process is defined and the justification for the 5 point Likert Scales is included in the section after that. Steps taken to ensure validity and reliability are explained, before taking the reader through the pilot test and then the data analysis methods. Finally, all limitations to this study are also noted.

3.2 Research Design

While there are benefits and disadvantages to using either quantitative or qualitative research methods, it was decided to adopt a quantitative study for this research. Quantitative research can be defined as being “systematic and objective”, while using numerical data from a selected sub-group to test a model, and therefore builds on existing theory, presenting outcomes that may be generalised to the larger population being studied (Maree, 2007). Qualitative studies, on the other hand, tend to be exploratory in nature; using in-depth interviews, focus groups and other information to build a new model or theory. These tend to be inductive in reasoning, while quantitative studies tend to be deductive (Hair, Babin, Money and Samouel, 2003). The figure below from Bhattacherjee (2012) explains the difference well:

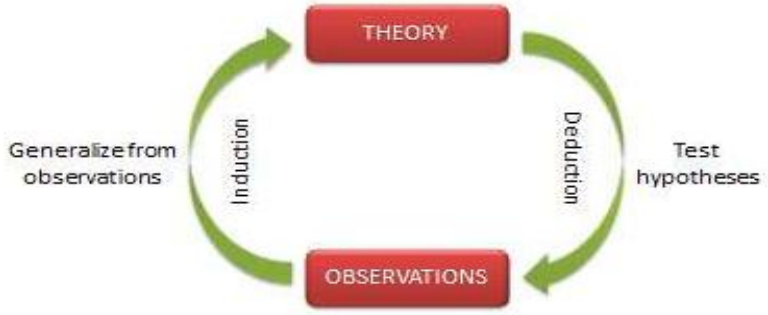


Figure 12: The cycle of Research (Bhattacherjee, 2012)

Qualitative research studies tend to observe a real-life situation and ask the question “why?”, while trying to understand the numerous complexities and multifaceted nature of the phenomenon they are studying (Leedy, 1997). Most exploratory research provides qualitative data that provides deeper understanding of a problem, or to clarify which qualities/characteristics can be associated with certain objects or issues (Zikmund, 1997).

It has been decided to take a quantitative approach because the purpose of this study is to explain and predict the measurable relationships between the variables. As Leedy (1997) has stated, a quantitative strategy is best when one is testing a model and when one wants to present a generalised outcome. The quantitative approach has been defined as an inquiry into a problem, based on testing a model formed from theory, composed of variables, measured with numbers and analyzed with statistical procedures, in order to determine whether predictive generalization of the theory holds true. The quantitative study usually concludes with a confirmation or disconfirmation of the hypotheses that were tested (Leedy, 1997).

3.3 Research Approach

Because the study is not an experimental design, i.e. not modifying or changing this situation in any way, nor it is exploratory, this form of study is labelled descriptive survey approach. The main goal of this study is to observe the perceptions of an SFA tool by a group of users in Bank A and to understand what factors influence their adoption of this system. While there are a number of data collection techniques that can be used for survey research (such as interviews), it was decided that for this study a structured questionnaire would be used. Questionnaires are easier to distribute, guarantee anonymity and confidentiality better, are more economical and quicker to conduct than interviews (Leedy, 1997).

3.4 Population of the study and sampling

A survey (see Appendices A and B for the questionnaire) was sent out to the entire end-user population of this CRM tool within Bank A, including the sales and non-sales teams. It is important for the research study to distinguish sales people from non-sales employees, so one of the questions on the questionnaire ask respondents to identify themselves as either a sales person or not. Respondents were identified from a central database of all Bank A employees as those who have Siebel licenses allocated to them, irrespective of their individual roles or which Business Unit within Bank A they work for. It was also decided that it was better to send the questionnaire to all Siebel licence holders, as there would be active and inactive users. Given that this study aims to understand the factors that influence acceptance, this broader base of users would enrich the research by providing a sample of users who vary greatly in terms of actual acceptance of the system. This form of systematic sampling is preferable to pure random sampling because although they are selected as Siebel users, the respondents are chosen irrespective of their preference for the system, or individual characteristics and there are a sufficient number of users to send the questionnaire to. Permission was granted from the organisation's HR department (see Appendix C), as well as the heads of the various Business Units where the respondents work. Individual meetings were set up with the Department Heads, and the reasons behind the research were explained. While it was understood that the research would be conducted for academic purposes primarily, most of the leaders within the organisation requested that the final research report be made available to them, provided that the confidentiality of the respondents were not compromised in any way, as they felt that this was an important research study that would assist them in running their areas.

From previous studies, it has been found that only 10-20% of the sample size will provide a response (Bailey, 1995). Therefore, the research study aimed to send out the questionnaire to at least 1000 people, so that the researcher could get a minimum of 100 respondents. Should the number of respondents be fewer than 100, then the sample is often not considered to be representative of the population group being studied, especially if the data needs to be broken down by age, gender etc, as is in the case in this study. One may find, for example, that there may not be enough women in a much smaller sample size, thus skewing the results (Bailey, 1995).

Also, certain statistical analysis may not yield accurate results on smaller samples, for example one needs a larger sample in order for the sample mean to be an accurate estimate of the population mean, i.e. the standard deviation from the norm (Bailey, 1995).

The questionnaire (see Appendices A and B) was sent out via the system administrators, to a full list of Siebel licence holders of the system, irrespective of which department they may be in. Due to steps taken for the researcher to guarantee anonymity and confidentiality of the respondents; it is difficult to say how many people received the survey, although this is estimated to be approximately 4000 users based on the number of SFA licence holders in Bank A. Due to the full list of users working in Bank A, it may be construed as convenience sampling, which limits the generalisability of the results to the entire population. However, due to time pressures and the ability to quickly gain access to this group, it was decided to limit the sample to only Bank A, although at a sample size of around 4000, the size of the convenience sample is still relatively large

3.5 Instrument Design

The success of the research report depends on how well administered the instrument chosen to gather data from the respondents was done, so certain guidelines were followed to minimise respondent bias and to maximise the number of responses received.

Firstly, a cover letter (see Appendix A) was written to explain to the respondents why the research is being conducted (i.e. for academic research purposes) as well as to make it clear to them that their anonymity will be maintained when the results are collected and published. This was done to make it clear to the respondents that the survey was conducted purely for academic purposes and to encourage as many respondents to respond truthfully without the fear of management finding out what their responses were.

Secondly, to ensure relevance of the study to the respondents, only employees within Bank A who use Siebel were chosen as the sample as most of the questions on the questionnaire asked for their subjective view of Siebel in terms of how they rate the system on response times, usefulness, ease-of-use etc.

The items used to measure the constructs in the final questionnaire are described as follows:

Response Times – there were three questions that measured this construct, the first pertained to the acceptability of the system's response times, the second measured the user's waiting times between inputs and the system's response and the final question was related to the user's impatience levels when using the system.

Screen Navigation – the questions referred to how easily the user found the information on the screens, the ease of navigation and the how well arranged the information was on the screens.

Supervisor Support (please note that while literature referred to this construct as Supervisor Support, in practice, most users are familiar with the term Team Leader or Line Manager. It was decided to change the term to refer to the latter in the questionnaire) – the three questions pertained to how strongly the Team Leader promoted the use of the system, how much he/she believed in the system and how much the user is encouraged by the Team Leader to use the system.

Peer Usage – this construct was also measured by three items – the questions asked the users to rate their perceptions about how well the system was used by their peers, how integrated they believe the system was in the organisation and whether they believe their peers were using the system's functionality for their day to day tasks.

Personal Innovativeness – it was decided to use four items to measure this construct– the questions related to ask the users about their relative ease to learn new technology without help, how easily they are able to manoeuvre technology to meet their needs, how innovative they consider themselves when it comes to technology and how they rate their early adoption inclinations.

User Training – the items used in the questionnaire to measure the influence of this construct revolved mainly around how well they believed they were trained by the organisation, whether the user felt that he/she was getting the relevant training to help them use the system more effectively and whether they were provided with sufficient guidelines and instructions to use the system as it was intended.

Technical Assistance – the users were asked to rate their beliefs that there was readily available technical assistance when they needed it, whether they received sufficient technical support when they encountered issues and whether they received adequate support for use of the system.

User Participation – it was decided to ask the users to rate their belief that the organisation requested their opinion for new functionalities being added and whether they have open conversations with their management regarding their views about the system.

Perceived Usefulness – the users were asked to rate how they felt the SFA tool enhanced their productivity, performance and effectiveness.

Perceived Ease-of-Use – to measure this construct, the users were asked how much concentration they felt it needed to use the SFA system, how easy it was for them to become adept at using the system and how simple it was to get the system to meet their requirements.

System Acceptance – as the dependent variable, the users were asked to rate how integrated Siebel had become into their daily life, how much they had accepted the system and two questions pertaining to the acceptance of the system relative to their peers and colleagues.

3.6 Ethical Considerations

All care was taken to ensure that the respondents' were protected from any harm or bias as a result of participating in this survey. The cover letter (see Appendix A) preceding the questionnaire states that the questionnaire is voluntary, involves no risk, penalty, or loss of benefits. The respondents' confidentiality and anonymity is also guaranteed. In fact, the researcher had no way of finding out how many people received the questionnaire. The questionnaire was sent via an electronic link which accessed a closed-access, internal website that only employees of Bank A have access to, and thereby securing access from any external people.

Respondents also had to click on a button that stated that they had read the covering letter, and agreed to participate in the questionnaire, before they proceeded to the actual questions. The questionnaire and research proposal was sent to the University's Ethics Clearance Committee and approval was received (H090905) to proceed with the survey (refer to Appendix E for a copy of the approval letter).

3.7 Data Collection

All information from the questionnaire is to be stored in a secured database that can only be accessed by the system administrator of the internal, closed-group website. The information will be coded to have the respondents identified by a unique number that cannot be traced to their real identity in any way. On the last day of the survey, the researcher will be given access to an Excel spreadsheet onto which the information will be transferred. This

spreadsheet will then be transferred into the statistical tool (SPSS version 20), for the analysis.

3.8 Scales

A five point Likert scale was used for the majority of questions within the questionnaire (see Appendix A for a copy) (1 being Strongly Disagree and 5 being Strongly Agree). While Likert scales do provide respondents with an option not to provide an answer because they may feel neutral (i.e. 3 – Neither Agree nor Disagree) on a particular issue, it also gives people who are genuinely 'in the middle' an option not to choose a positive or negative response. Not having this option may cause some respondents to feel frustrated and stop completing the questionnaire (Bailey, 1995).

3.9 Pre and Pilot Test: Tests for Validity

A valid measurement measures the concept or issue in question, and not some other concept (i.e. factors that cause acceptance of Siebel as a CRM tool), and it also allows the concept to be measured accurately, as long as it is within the limits as set by the researcher (Bailey, 1995).

There are a number of validity types to check for:

- Face Validity – this checks whether the instrument is really measuring the key constructs that the researcher wishes to, and whether the data gathered will support this measurement. Unfortunately, this is often subjective and relies on the evaluator's judgement to recognize whether the instrument has face validity (Bailey, 1995). If the evaluators feel that the questions are clear and understandable, and also provide reasonable coverage of the concept in question, then the instrument is said to have face validity (Zikmund, 1997).

  In this case, the questionnaire was first sent to a panel of university academics to review and ensure face validity (pre-survey phase). Certain suggestions were made, for example, the initial statement on the questionnaire stated:

  "My team leader clearly advocates Siebel in performing our daily tasks"

One of the lecturers felt that the term “clearly” meant “…expresses him/herself well”. This is not what the researcher intended to ask, so the statement was re-phrased to the following:

“My team leader strongly advocates Siebel in performing our daily tasks”

Another major change was the fact that a number of lecturers felt that the questions measuring functionality of the system were too similar to the questions measuring acceptance of the system. After discussion with the supervisor, it was decided to drop the construct of “Functionality” under System Characteristics as there were strong overlaps with system acceptance. For example:

“Siebel adequately supports me in completing critical aspects of my job” (measuring functionality) and *“Using Siebel enhances my effectiveness in my job”* (measuring acceptance) were both thought to be very similar and would end up measuring the same thing. The researcher struggled to find alternative questions that would measure “functionality” that would be distinct from “system acceptance”, and hence the decision to drop the construct.

It was also decided to drop *Computer Self-Efficacy* as many of the lecturers felt that the questions measuring Computer Self-Efficacy also measured *Personal Innovativeness*. The following were the questions under Self-Efficacy and Personal Innovativeness:

Computer self-efficacy

- Learning to use technology is easy for me
- I find it easy to get technology to do what I want it to do
- It is easy for me to be expert at using technology

Personal Innovativeness

- If I hear about a new technology, I would look for ways to experiment with it
- Among my peers, I am usually the first one to try out new technology
- In general, I consider myself quite innovative when it comes to technology

Based on how similar the questions were, many lecturers felt that the factors would load together. On the advice given from the lecturers, the researcher made the decision to merge many of the questions under a single item called Personal Innovativeness, e.g.

"Generally, I find it easy to get technology to do what I want it to do" and *"I am generally able to learn a new technology without any assistance".* Due to dropping of Computer Self-Efficacy, Hypotheses 3b and 4b fall away. While the questions certainly appear similar, they do measure two very different things. A more mature researcher would have searched deeper within existing literature to find supporting evidence to keep Computer Self-Efficacy as a separate construct (Lewis, Agarwal and Sambamurthy, 2003).

Bank A was also sent the questionnaire, and the researcher was requested to change the question from "*Siebel is very quick in its response times"* to "*Siebel has an acceptable response times",* as the Siebel administrators felt that the former question was biased. They felt that "acceptable response times" was more objective in its approach. The researcher felt compelled to respect their decision and made the change.

- Criterion validity – this is to check whether the measurement correlates with other measures of the same construct. This was taken into consideration during instrument design, when all the items were referenced from relevant literature and only items that scored highly for validity were selected to this instrument (Zikmund, 1997).

- Construct validity – this is established when the data analysis is complete and one can see a pattern of inter-correlation with the variety of variables as set out in the research model (Zikmund, 1997 and Bailey, 1995).

3.10 Pre and Pilot Tests: Tests for Reliability

Once the questionnaire came back from the Pre-test group (consisting mainly of lecturers at the Department of Information Systems at the University and a few Master's students) and the changes made, a pilot was run on 11 Siebel users from various backgrounds at Bank A to check for construct validity before the questionnaire was sent out to the entire population of Siebel users.

The pilot results were first examined manually to ensure that no questions were missing. It was found that one respondent did not answer questions 29 to 31, and therefore had to be dropped. When glancing through the respondents of the pilot, it was discovered that the gender results were varied enough (5 males and 6 females), however the age group was heavily skewed (7 were in the age group 31-40 while 3 were in the age group 20-30). It was

subsequently decided to vary the age group categories and additional 3 categories so as to get more variation in the results.

Tests were done to test for skewness and kurtosis, and all results came back showing the data was in the normal range. Reliability tests also showed Cronbach alpha scores of higher than 0.6. It was therefore decided to continue with the survey.

3.11 Reliability Results

Reliability is simply a measure of consistency (Bailey, 1995). One can say that an instrument is reliable when similar results are obtained over different time periods and/or situations (Zikmund, 1997). It can also be defined as when the instrument is said to be free from errors to a high degree and can therefore produce consistent results (Zikmund, 1997).

A reliable study yields consistent results provided the characteristic being measured has not changed. Should the results of the pre-test and the actual questionnaire be very similar, one could say that the study has test-retest reliability, i.e. the ability for the instrument to deliver the same result on two different occasions (Bailey, 1995).

In addition, each construct will be assessed using Cronbach's alpha (α) reliability coefficient. If any of the constructs have reliability coefficients of less than 0.60, it will be excluded from the instrument (Avlonitis and Panagopoulos, 2005). An exploratory confirmatory factor analysis will also be performed on all the items within the instrument to check whether any of them share a single underlying factor. Any item that scores a dominant loading of less than 0.5 and a cross-loading of below 0.35 will be deleted (Avlonitis and Panagopoulos, 2005).

3.12 Data Analysis Method

Data analysis will be done with using SPSS Version 20.0.0 for Windows. The data will first be cleaned for any responses with missing or non-valid entries, which will be omitted from further analysis. All negatively worded items will be reverse coded.

A brief overview of the demographics of the sample will be followed by the descriptive statistics performed on the data. Firstly, principal component analysis (PCA) was conducted to reduce the data set into "groups" that belong together, i.e. grouping the questions that

measure the same factor (Maree, 2007). In this case, the research questions aimed to assess the importance of the following variables on User Acceptance: Organisational factors (user training, technical support and user participation), Social factors (supervisor support and peer usage), Individual characteristics (personal innovativeness, age and gender), System characteristics (response times of the system and screen navigation), Perceived Ease-of-Use and Perceived Usefulness.

The control variables (gender, age, years of experience on the system, years spent in the organisation, sales versus non-sales roles, and whether performance was measured by their managers) were all coded numerically. Variables requiring a single response (e.g. male or female, sales or non-sales, performance managed or not) were coded 0 or 1 depending on the response. Where the response was scale-based, the responses were coded from 1 to 5, depending on the category they selected, for example, age category 20-25 was coded as 1, 26-31 was coded 2, etc.

Examining the Scree Plot and screening the items to the left of the "elbow" will assist the researcher in determining which of these factors best explain the variance in the data. Also, the researcher will observe the Eigenvalues, and only items that score higher than 1 will be used for each factor (Maree, 2007).

Cronbach's Alphas for each of the factors will be tested to ensure reliability of each of the constructs, and any item with values of lower than 0.6 would be considered "unreliable" (Pallant, 2007). Once the reliability and validity have been tested for and established, composite scores will be calculated for the various multi-item constructs. The composite scores will be used for all subsequent testing.

Correlation analysis will be performed to assess whether there is a strong relationship between the independent variables and the dependent variables. The direction of the relationship can be ascertained by the + or – sign before the correlation value, while the larger the value, the more significant the correlation (Hair et al, 2003).

In order to test the possible associations as proposed in the model, a linear regression analysis will be performed on the data set:

- Firstly, the dependent variable, User Acceptance will be tested to see whether Perceived Usefulness has a significant relationship with it

- Secondly, Perceived Usefulness will be tested to see whether Perceived Ease-of-Use has an effect on it
- Thirdly each of the independent factors are tested individually to see what their effects are on PU and PEOU
- Finally, all the independent factors are tested in a combined model, to see what the relative effects are on PU, PEOU and User Acceptance.

It must be noted that the alpha levels adopted for this study is 0.05, i.e. a 95% acceptance level. The R^2 levels will determine how much of the variance in the results is as a result of the construct proposed, so the higher the R^2, the more variance can be explained by the proposed item in the model. The beta co-efficients are provided to measure the relative strength of various predictors within the model, so the higher the beta co-efficient, the more that individual item contributes to the variation in the model (Pallant, 2007).

3.13 Proposed Research Model based on changes from Pre- and Pilot Tests

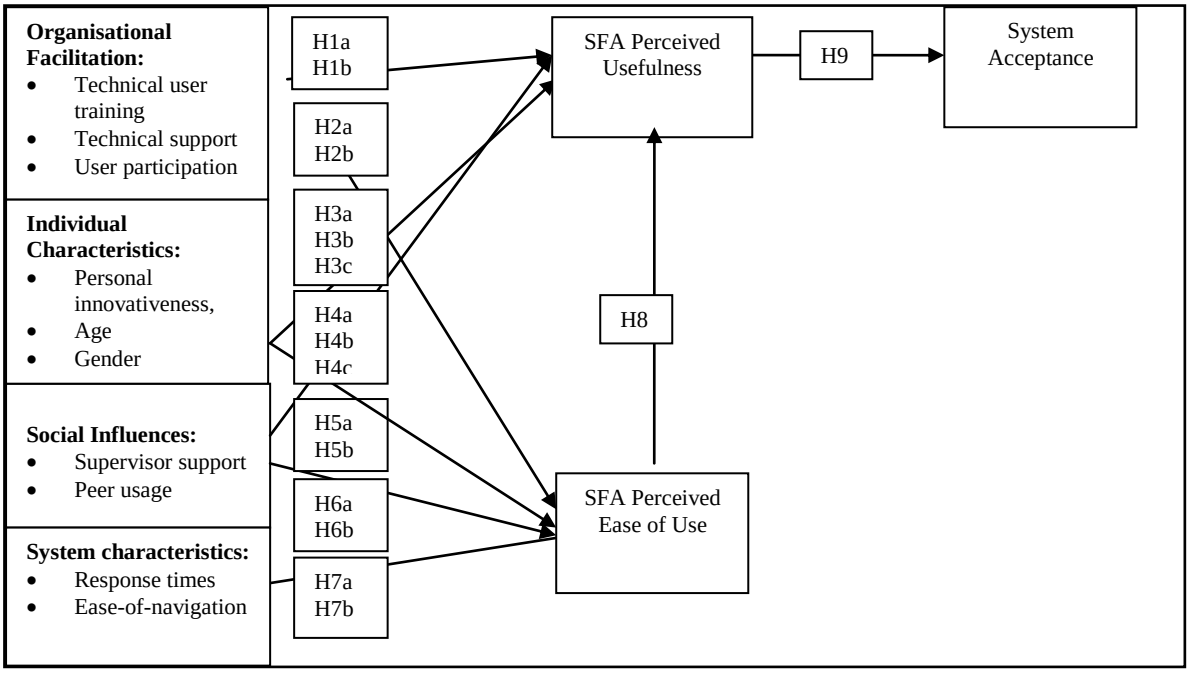


Figure 13: Proposed Research Model (with changes based on Pre-and Pilot tests) (Adopted from Avlonitis and Panagopoulos, 2005 and Schillewaert et al, 2005)

3.14 Limitations of the study

Given the chosen method for an online questionnaire that was sent to a group of SFA users within a particular bank, some limitations must be considered.

It must be noted that surveys do have the following limitations: they do not provide an in-depth understanding of the respondent's opinions; misunderstandings cannot be clarified, which may lead to inaccurate responses, and unlike experiments the effect of extraneous factors is not limited, although some control variables have been tested in the questionnaire to control for confounding variables. To prevent these limitations from having an adverse impact on the study, the questionnaire allowed for a "Comments" box, where respondents could add any other information they felt was pertinent to the researcher's understanding of the problem. The researcher found that many people took the time to provide further detail in terms of the problems they may or may not have experienced with Siebel. However, due to time constraints, the researcher was unable to complete the qualitative analysis of these particular results. Much more depth could be found in the qualitative component, and its inclusion can be put forward as a recommendation for future study.

It must also be noted that survey results capture a snapshot of the sampled population's opinions during that limited period of time. While survey results can often be generalized, it does not mean that these results remain constant over an extended period of time, as people's opinions and attitudes will always change (Hair et al, 2003).

The research was conducted on a large group of users of a particular SFA system (Siebel) within a South African bank – as such, the users responded on their interaction with this system, and not any other CRM tool. Also, the responses are all from a single company and the results may not necessarily be generalised across other companies should there be specific organisational factors unique to this set of users.

Given the time limitation to conduct the research, the questionnaire was only available for 3 weeks, thereby limiting the number of respondents who may have been unavailable during that period of time.

The online nature of the questionnaire in itself may have created a potential for bias by limiting those users predisposed towards an electronic format, and therefore excluding users who may not be comfortable with this type of study.

It is also a possibility that many of the respondents may not respond truthfully to all the questions, given their fear for a lack of anonymity (even though this was assured, and several steps were taken to reinforce this), especially as the survey was conducted at work, using the bank's internal, closed-group website's server.

3.15 Conclusion

This chapter presented the methodology and approach on how to conduct this empirical study. The aim of the study is to test a model that assesses the influence that various organisational, social, individual and system characteristics have on salespeople's Perceived Ease-of-Use and Perceived Usefulness, and whether these in turn have an influence on the SFA tool acceptance, all in the context of a South African bank. A detailed description of the instrument design was provided, including ethical considerations, collection methods, sampling as well as what statistical tools will be used to analyse the data. The next chapter will discuss the results of the survey and final analysis.

4 Data Analysis

4.1 Introduction

This chapter sets out to describe the results of the analysis using the methodology as detailed in the previous chapter. The captured data from the online survey was transferred via an Excel spreadsheet into an SPSS package, where all the statistical analysis was performed.

A total of 337 responses were received. Since the researcher can only estimate the number of respondents based on Siebel licenses, it is estimated that out of 4000 Siebel licence users, a response rate of 8% was achieved.

The demographic profile of the respondents is presented, followed by the findings of the validity and reliability tests. Correlation matrices on the independent and dependent variables are then screened for missing values and outliers. Any questions that required reverse-coding was then done (RSPT3 and PEOU1 – see Appendix F for the list of coded questions).

4.2 Demographic Profile

The demographic profile of the respondents is first analysed to see whether anything 'out of the ordinary' is found in terms of the group of respondents, and to decide whether these may have an impact on the statistical results to be presented later. For example, if a skewed result in terms of gender is reported, then the results may not be generalisable for the greater population.

4.3.1 Age

Table 2: Age Group

Category	**Number**	**Percentage**	**Cumulative Percentage**
20-25	24	7.1%	7.1%
26-31	60	17.8%	24.9%
32-37	87	25.8%	50.7%
38-43	71	21%	71.7%
44-49	52	15.4%	86.1%
>51	43	12.9%	100%
Total	337	100%	

Referring to Table 2, the highest percentages of users tend to the combined age groups 32-37 years old (25.8%) and 38-43 years old (21%), signifying a largely mature group of users (a combined percentage of 46,8%). There are also a significant number of older users, who are above 51 years old (12.9%). A cross-tabulation of age group and primary roles revealed the following:

Table 3: Cross-tabulation of Age and Primary Role

Age Group	**Primary Role**		**Total**	**Percentage**	**Cumulative Percentage**
	Non-Sales	Sales			
20-25	18	6	24	7.1%	7.1%
26-31	31	29	60	17.8%	24.9%
32-37	39	48	87	25.8%	50.7%
38-43	28	43	71	21%	71.7%
44-49	9	43	52	15.5%	87.2%
>51	5	38	43	12.8%	100%
TOTAL	130	207	337	100%	

It appears from the demographic profiles in Table 3, Bank A tends to appoint older and presumably more experienced employees into sales roles, as these are client-facing roles and require the employee to be very knowledgeable about the bank's products.

4.3.2 Gender

Table 4: Gender

Category	**Number**	**Percentage**
Male	159	47.2%
Female	178	52.8%
Total	337	100%

According to Table 4 above, there is almost equal split between the genders. The statistics at Bank A reveal that males are approximately 47% of the total employees while females are 53%. According to the 2011 HR Survey conducted at Bank A, 48% of the total population of the employees are male while the remaining 52% are female. Therefore this suggests that the sample is representative of the population under study.

4.3.3 Primary Role

Table 5: Primary Role

Category	Number	Percentage
Sales	207	62.3%
Non-Sales	130	37.7%
Total	337	100%

From Table 5, there is an overwhelming majority of Salespeople compared to non-salespeople who responded to the survey. This is surprising in itself since previous literature has claimed that salespeople do not want to fill out information on a computer (Rangarajan et al, 2004), and yet 207 salespeople took the time to complete the online survey. This may suggest that the salespeople felt strongly about the SFA system that they wanted their views to be heard, hence the large number of respondents from the Sales population, or having the Head of the Sales Area also send out reminder e-mails to urge the group of salespeople to complete the online survey form may have also assisted in getting this response rate.

4.3.4 Years in the organisation

Table 6: Years in the organisation

Category	Number	Percentage	Cumulative Percentage
0-2 years	50	15.3%	15.3%
3-5 years	34	10.5%	25.8%
6-10 years	51	15.7%	41.5%
11-15 years	60	18.4%	59.9%
>16 years	131	40.1%	100%
Total	326[4]	100%	

By viewing the statistics presented in Table 6, it shows that the single largest group of users in any of the categories is the group of users who have been in the organisation greater than 16 years (40.1%) followed closely by users who have been in the organisation longer between 6 and 10 years (15.7%). This shows many of the people surveyed have been with Bank A for a considerable period of time, and have had some exposure to the organisational and social factors as mentioned earlier (such as influences from their peers and supervisors, as well as training).

[4] It appears that 11 respondents did not complete some of the demographical questions.

4.3.5 Years using Siebel

Table 7: Years using Siebel

Category	Number	Percentage	Cumulative Percentage
0 – 2 years	173	52.2%	52.2%
3 – 5 years	113	33.5%	85.7%
6 – 10 years	46	13.6%	99.8%
>10 years	2	0.2%	100%
Total	337	100%	

The demographic as it appears in Table 7 shows that the single largest group of users have only been using Siebel for less than 2 years (52.2%), while the second largest group have been using Siebel for under 6 years (33.5%). This shows a relatively large group of inexperienced Siebel users, however when compared to Table 6, most of the users have been in the organisation for longer than 6 years.

By cross-tabulating the Years in the Organisation with Years using Siebel revealed the following:

Table 8: Cross-tabulation between Years in the Organisation and Years of Use of Siebel

Years of Use	Years in the Organisation					Total
	0-2 years	3-5 years	6-10 years	11-15 years	>15 years	
0-2 years	40	23	24	32	54	173
3-5 years	8	9	22	18	50	107
6-10 years	2	2	5	10	25	44
>10 years	0	0	0	0	2	2
TOTAL	50	34	54	60	131	326

What was interesting to note from Table 8 is there appears to be a wide dispersion of users of different years of experience, however the concentration of users seems to be split between very little experience (approximately 173 users have only used Siebel for between 0 and 2 years) while the rest of the respondents claim to have moderate Siebel experience of between 3 and 5 years (a total of 107 users fall within these groups). Only 2 respondents said that they have more than 10 years of Siebel experience, so this suggests that Siebel

was widely introduced into the organisation less than 10 years prior to when the survey was conducted, i.e. in 2000.[5]

4.3.6 Usage of Siebel (Mandatory vs. Voluntary)

Table 9: Usage of Siebel

Category	**Number**	**Percentage**
Mandatory	311	95.4%
Voluntary	15	4.6%
TOTAL	326	100%

The statistics presented in Table 9 show that the vast majority believe that their usage of Siebel in Bank A is mandatory, with only less than 5% of the respondents who feel that their usage is voluntary. Some research studies have found that technology acceptance results are very different depending on whether the system is perceived to be mandatory or voluntary. It is claimed that when the system is mandatory in an organisation, then the users are most concerned with its ease-of-use, than its usefulness (Brown, Massey, Montoya-Weiss and Burkman, 2002). Further statistical analysis will show whether this will have any bearing on their perceived usefulness, ease of use and adoption of the tool.

4.3.7 Performance management using Siebel

Table 10: Performance Management through Siebel

Category	**Number**	**Percentage**
Yes	244	74.5%
No	82	25.2%
TOTAL	326	100%

The percentages as tabulated in Table 9 show that while more than 95% of the respondents believe their usage of Siebel is mandatory, only 75% of their managers measure their performance through Siebel. Therefore, it seems that while many perceive the usage of Siebel to be mandatory, management do not actually enforce that usage in a consistent manner. The results will confirm whether Performance Management (or the lack thereof) has

[5] The survey was conducted in March 2010.

a significant effect on User Acceptance or their perceptions of the system's usefulness and ease-of-use.

4.4 Data Screening, Missing Values and Outlier Analysis

A total of 337 responses were received over a period of approximately 3 weeks that the questionnaire remained open. This high number of responses can be attributed to the fact that the link to the questionnaire was sent out to a very large mailing group, i.e. all Siebel licence holders within specific departments in Bank A (namely, Online Banking, Corporate, Public Sector and Commercial Banking sectors). To encourage responses, 2 reminder mails were sent out during the 6 week period urging users to complete the online survey that guaranteed anonymity as well as speed of completion. Three heads of departments (from Online Banking, Corporate and Commercial) also sent reminder emails to their staff to encourage them to complete the survey.

It was found that there were no missing values except for 11 respondents who did not complete a couple of demographic questions. Since these questions would not make a significant impact to the study or the hypotheses, and since none of the scale responses were missing, it was agreed to use the full set of responses.

There were two questions that required reverse coding: questions 3 and 32 relating to Response Times and Perceived Ease-of-Use, respectively. These two questions ("*I often get impatient while using Siebel*" and "*Using Siebel requires a lot of mental effort*") were reverse coded and the prefix REV was added to the questions. Appendix F presents a copy of all the items, and the abbreviations used for each question.

Next, the data set was screened for outliers. The method used in this case, was to examine the results for each question, and to plot both histograms and box-plots to see whether the overall results showed any univariate outliers. There were a few outliers (less than 5) for 5 questions, namely those that measured Team Leader Support, Personal Innovativeness, User Training, Technical Assistance and Acceptance. However, after examining each of the responses, the results showed that the respondents were consistent in terms of their ratings for the sub-section of questions, their responses were not outliers in terms of any other questions, nor were their demographical profile significantly different from the other respondents. Given that their responses were within the acceptable scale range of 1 to 5 (as

per the 5 point Likert scale employed for this survey) it was decided not to discard any of these cases as outliers, and none were removed from the dataset.

4.5 Inter-item Correlations

Before moving forward to test for construct validity, a test was run to ensure that the data set has the required unidimensionality, i.e. the multi-item scales are measuring a single concept. Obtaining a matrix of inter-item correlations is the first step towards ensuring validity within the data set (Hair et al, 2003). It is important that each item correlates with at least one other item in the dataset at a value greater than 0.30. This test revealed that at least two of the items did not meet this requirement and had to be dropped. These were the two questions that had to be reverse-scored (RevResponse Times3 and RevPerceived Ease of Use1). Many authors recommend not including negative questions in the questionnaire as they tend to confuse the respondents (Leedy, 1997). While acknowledging this point from respected authors not to include negatively-worded questions, it should be noted that one question was taken from literature and therefore tested, while the second was an adaptation of a question from literature and not tested. In retrospect, it is may be better to have positively worded questions in the questionnaire, considering the issues associated with the reverse-scored items in this study.

4.6 Confirmatory Factor Analysis

The next step was confirmatory factor analysis to test correlation among the various factors set out in the model (Figure 12). It was important to evaluate whether the groupings of the questions did in fact measure what the model set out to do, and which of the 11 constructs tapped most of the variability found in the results. Factor analysis allows the researcher to "reduce" the data to find the most important set of variables, so that when linear regression is done later, the results only include the variables that are most relevant to the study. Principal components analysis (PCFA) was used in this case to give an empirical summary of the data set (Pallant, 2007).

With over 300 responses, the sample set is considered to be a very adequate sample size for factor analysis. The results are said to be more reliable if the sample size is greater than 100 (Pallant, 2007). For factor extraction, i.e. identifying the smallest number of factors that can best represent the interrelations among the set of variables, the Scree test was used.

Once the factors were determined, they were then interpreted using a Varimax rotation. This allowed the results to show the variables with the highest loadings on each factor.

First the independent variables were correlated with each other to see whether all the related questions loaded together: e.g. RSPT1 and RSPT2 loaded together.

When the total data set was initially run for PCFA, the rotated component matrix showed that two of the dependent variables, Perceived Usefulness and Perceived Acceptance loaded together. Re-examining the questionnaire revealed that two of the questions designed to measure acceptance (a behaviour) has unintentionally measured usefulness (an attitude), i.e. “I believe that Siebel constitutes an integral part of my work” and “I have fully accepted Siebel in my daily work” and so these two items(PAccept1 and PAccept2) were dropped from the next PCFA test). Also, one of the questions measuring Technical Assistance: “I know where to turn to when I need technical assistance” did not load with any of the other constructs. By dropping these three questions and applying a 10-factor rotation, as well as dropping all values less than 0.5, a PCFA result was obtained that did not show cross-loadings on any of the constructs, except for Screen Navigation and Perceived Ease-of-Use (see Table 10). Since the questions are closely related and can be said to measure the same thing, it was decided to combine the questions for Screen Navigation and Perceived Ease of Use and create a new composite item called Perceived Ease-of-Navigation (PEON).

The abbreviated names used in the statistical package to reflect the constructs are as follows (to make it easier for the reader aware of the names referred to in the tables and what has been mentioned above in the body of the work:

1. RSPT – Response Times
2. SRCN: Ease of Screen Navigation
3. TLead: Team Leader/Supervisor Support
4. PeerUsage: Peer Usage
5. UseTrain: Technical User Training
6. PUseful: Perceived Usefulness
7. PAccept: SFA Acceptance
8. TechAs: Technical Support/Assistance
9. UPAT: User Participation

Table 11: PCFA Results (Rotated Component Matrix)

	SCRN	PInnov	TLead	PeerUse	UseTrain	PUseful	Accept	TechAs	RSPT	UPAT
RSPT1									.836	
RSPT2									.873	
SCRN1	.757									
SCRN2	.820									
SCRN3	.809									
TeamLead1			.901							
TeamLead2			.879							
TeamLead3			.871							
PeerUsage1				.808						
PeerUsage2				.832						
PeerUsage3				.853						
PersInnov1		.845								
PersInnov2		.868								
PersInnov3		.875								
PersInnov4		.851								
UserTrain1					.815					
UserTrain2					.828					
UserTrain3					.820					
TechAssist2								.843		
TechAssist3								.827		
UserPart1										.786
UserPart2										.877
PUseful1						.750				
PUseful2						.751				
PUseful3						.771				
PAccept3							.740			
PAccept4							.767			
PEOU2	.617									
PEOU3	.627									
Cronbach Alpha Scores	**.919**	**.899**	**.929**	**.914**	**.904**	**.972**	**.899**	**.921**	**.797**	**.776**
AVE's[6]	**.888**	**.821**	**.918**	**.871**	**.821**	**.757**	**.753**	**.823**	**.838**	**.832**

*RevRSPT3, TechAssist1, PAccept1, PAccept2 and RevPEOU1 were dropped

[6] AVE's (average variance extracted) was calculated for each variable (cut-off point = 0.5, Fornell and Larker, 1981). The AVE is calculated according to the formula below:

$AVE = \sum[\lambda_1^2]VAR(X)/\sum[\lambda_1^2]VAR(X)+VAR(\epsilon_1)$

Where λ is the loading of x_1 on X, VAR denotes variance, ϵ_1 denotes the measurement error of x_1 and $\sum$ denotes a sum (Fornell and Larker, 1981).

So, given that a new dependent construct was created, PCFA was run separately for independent variables (see Table 12) and for dependent variables (see Table 13). The high Cronbach alpha and AVE scores indicate high reliability and validity of the individual items.

AVE scores greater than 0.5 means that the variance captured by the construct is higher than the variance due to measurement error, and is an indication of a good, reliable construct. AVE measures the variance captured by the explained variance. For each specific construct, it shows the ratio of the sum of its measurement item variance as extracted by the construct relative to the measurement error attributed to its items (Fornell and Larcker, 1981). Based on the results of the new PCFA test (Table 11), composite scores for the independent variables are created based on all the items that loaded together. These are Response Times, Team Leader Support, Peer Usage, Technical Assistance, User Training, Personal Innovativeness and User Participation.

Table 12: Rotated Component Matrix: Independent Variables

	Component						
	PInnov	TLead	PeerUse	TechAs	UserTrain	RSPT	UserPart
RSPT1						.866	
RSPT2						.879	
TeamLead1		.900					
TeamLead2		.886					
TeamLead3		.870					
PeerUsage1			.817				
PeerUsage2			.880				
PeerUsage3			.896				
PersInnov1	.863						
PersInnov2	.874						
PersInnov3	.872						
PersInnov4	.846						
UserTrain1					.836		
UserTrain2					.841		
UserTrain3					.826		
TechAssist1				.770			
TechAssist2				.881			
TechAssist3				.876			
UserPart1							.801
UserPart2							.899
Cronbach Alpha Scores	**.898**	**.930**	**.914**	**.921**	**.906**	**.797**	**.777**
AVE's	**.821**	**.918**	**.871**	**.832**	**.821**	**.883**	**.832**

Next the dependent variables were run together to ensure that the questions measuring the dependent variables also loaded together:

Table 13: Rotated Component Matrix: Dependent Variables

	Components		
	PUseful	PAccept	PEON
PUseful1	.839		
PUseful2	.853		
PUseful3	.861		
PAccept3		.863	
PAccept2		.812	
Perceived Ease-of-Navigation			.872
Cronbach Alpha Scores	**.972**	**.909**	**.918**

Based on the results of the PCFA tests run on the dependent variables (see Table 13), composite scores of the dependent variables are created. These are Perceived Usefulness, Perceived Ease-of-Navigation and User Acceptance.

From the Scree Plot diagram (see Appendix G), one can see that the first factor (which is now a combination of Screen Navigation and Perceived Ease-of-Use, now combined to be called Perceived Ease-of-Navigation**) explains the single largest variability, and as the shape of the graph goes closer to the X-axis, the factors further to the end of the graph describe less and less of the variability.

4.7 Descriptive Statistics

Table 14: Descriptive Statistics

Constructs from PCFA	Cronbach Alpha's	AVE's	Mean	Skewness	Kurtosis
Perceived Ease-of-Navigation**	.919	.883	3.19	-.234	-.673
Personal Innovativeness	.898	.821	3.57	-.268	-.200
Team Leader Support	.929	.918	4.12	-1.043	.494
Peer Usage	.914	.871	3.29	-.304	-.774
User Training	.904	.821	3.41	-.327	-.496
Perceived Usefulness	.972	.757	3.12	-.219	-.918
Acceptance	.899	.753	3.54	-.333	-.222
Technical Assistance	.921	.832	3.48	-.494	-.336
Response Times	.797	.838	3.00	-.135	-.760
User Participation	.776	.832	2.43	.297	.820

As can been seen from Table 14 above, the descriptive statistics show normal skewness and kurtosis results (of between -1 and 1). Skewness is a measure of how symmetrical the data is, while kurtosis measures whether the data is peaked or flat relative to a normal distribution (Pallant, 2007). If the distribution is said to be normal, both skewness and kurtosis scores tend towards 0. A positive skewness indicates the scores to tend towards the lower scores (in this case, illustrated by User Participation) while a negative skewness shows that the scores were closer to the higher scores (this data set showed that Team Leader support was the construct with the highest scores). Positive kurtosis values, on the other hand mean more peaked distributions (represented in this case by both Team Leader support and User Participation) and negative kurtosis values mean flatter (more spread out) scores. Perceived Usefulness in this data set showed the most negative kurtosis scores of -.918. However, the general consensus is that with large samples (greater than 200), these values do not make a substantive difference in the analysis (Pallant, 2007).

Of the means, Response Times and User Participation have been scored the lowest by the respondents (3.00 and 2.43 respectively), while Team Leader Support, Personal Innovativeness and Tool Acceptance were given high scores (4.14 and 3.54 respectively).

This means that in Bank A, the former two constructs have room for improvement while the latter constructs are viewed quite positively by the respondents.

In terms of reliability, all the constructs scored high Cronbach Alpha values, i.e. greater than 0.7 showing high reliability of all the items in the model.

4.8 Correlation Matrix

Before putting the factors though regression analysis, it is considered necessary to rule out high inter-correlations between the variables. This is done to ensure that all the factors have a minimum loading of 0.3 (a medium correlation is when the r value is between 0.3 and 0.49) which is evidence that multicollinearity does not exist, and the scales are therefore considered independent (Pallant, 2007).

Table 15: Correlation Matrix

√AVE's	RSPT	PEON	TLS	PeerUse	PINN	UTrain	TechAs	UPAT	Useful	Acc
Response Times	**.836**	.463	.243(**)	266(**)	.066(**)	.313(**)	.397(**)	.237(**)	.434(**)	.267(**)
Perceived Ease-of-Navigation	.436(**)	**.883**	.378(**)	.546(**)	.231(**)	.570(**)	.558(**)	.446(**)	.706(**)	.583(**)
Team Leader Support	.294(**)	.378(**)	**.918**	.437(**)	.154(**)	.370(**)	.438(**)	.208(**)	.386(**)	.360(**)
Peer Usage	.266(**)	.546(**)	.437(**)	**.871**	.193(**)	.465(**)	.332(**)	.369(**)	.561(**)	.451(**)
Personal Innovativeness	.066(**)	.231(**)	.294(**)	.193(**)	**.821**	.234(**)	.236(**)	.244(**)	.256(**)	.359(**)
User Training	.313(**)	.570(**)	.370(**)	.465(**)	.234(**)	**.821**	.566(**)	.364(**)	.492(**)	.440(**)
Technical Assistance	.397(**)	.558(**)	.438(**)	.332(**)	.236(**)	.566(**)	**.823**	.338(**)	.490(**)	.343(**)
User Participation	.293(**)	.267(**)	.154(**)	.369(**)	.244(**)	.364(**)	.338(**)	**.832**	.464(**)	.341(**)
Perceived Usefulness	.434(**)	.706(**)	.386(**)	.561(**)	.256(**)	.492(**)	.490(**)	.464(**)	**.757**	.622(**)
User Acceptance	.267(**)	.583(**)	.360(**)	.451(**)	.359(**)	.440(**)	.343(**)	.341(**)	.622(**)	**.753**

**Correlations are significant at p<0.01 levels. The diagonal represents the square root of AVE's.

The correlations were all significant at p<0.01 levels, except for the correlation between Personal Innovativeness and Response Times. It appears as though the individual's tendency to use a technology is not correlated with the user's perception of the system's responsiveness. The square roots of AVE's are greater than the correlations between the

variables and are shown in the highlighted diagonal blocks all the way down Table 14. The standard rule is that in the case of highly discriminant constructs, the square root of the AVE of each construct should be far greater than the correlation of the specific construct with any of the other constructs in the model and should be at least .50 (Fornell and Larcker, 1981), and from looking at Table 15, one can see that this set of data has produced such a result. Discriminant validity is the extent to which a construct is able to account for more variance in the data set than: 1) the error rate and 2) other constructs within the model (Fornell and Larcker, 1981).

4.9 Correlation of Composite Scores: Independent Variables and User Acceptance

Table 16: Correlation of Independent variables and Acceptance

Independent Variables	**Acceptance**
Perceived Ease-of-Navigation	.583**
Perceived Usefulness	.622**

**Correlation is significant at p<0.01 levels

All correlations as shown in Table 16 are statistically significant, and in the expected direction. The correlations confirm the inclusion of the independent variables (PU and PEON) in the study of the dependent variable, User Acceptance. The Pearson's r correlation coefficient can range from -1 to +1, with the sign determining whether it is a negative or positive correlation. The closer the correlation coefficient is to 1, the stronger the correlation; therefore the scores in Table 15 are both over .5 and indicate relatively high correlation.

4.10 Correlation of Composite Scores: Independent Variables and Perceived Usefulness

Table 17: Correlation of Independent variables and Perceived Usefulness

Independent Variables	**Perceived Usefulness**
Response Times	.434**
Team Leader	.386**
Peer Usage	.561**
User Training	.492**
Technical Assistance	.490**
User Participation	.464**
Perceived Ease-of-Navigation	.706**

**Correlation is significant at p<0.01 levels

The independent variables as hypothesised show moderate correlations with the dependent variable, Perceived Usefulness (based on the scored shown in Table 17), however the strongest relationship is with the independent variable, Perceived Ease-of-Navigation (Pearson's correlation coefficient, or R, of 0.706), followed by Peer Usage (R = 0.561).

4.11 Correlation of Composite Scores: Independent Variables and Perceived Ease-of-Navigation

Table 18: Correlation of Independent variables and Perceived Ease-of-Navigation

Independent Variables	**Perceived Ease-of-Navigation**
Response Times	.436**
Team Leader	.378**
Peer Usage	.546**
Personal Innovativeness	.231**
User Training	.570**
Technical Assistance	.558**
User Participation	.446**

**Correlation is significant at p<0.01 levels

Again, all the correlations are statistically significant and in the expected direction. The testing revealed that all the independent variables as hypothesised are important in predicting the dependent variable (Perceived Ease-of-Navigation). Therefore, all variables are included in the regression analysis that is to follow.

4.12 Regression Analysis

It was then decided to test the factors using linear regression for hypothesis testing.

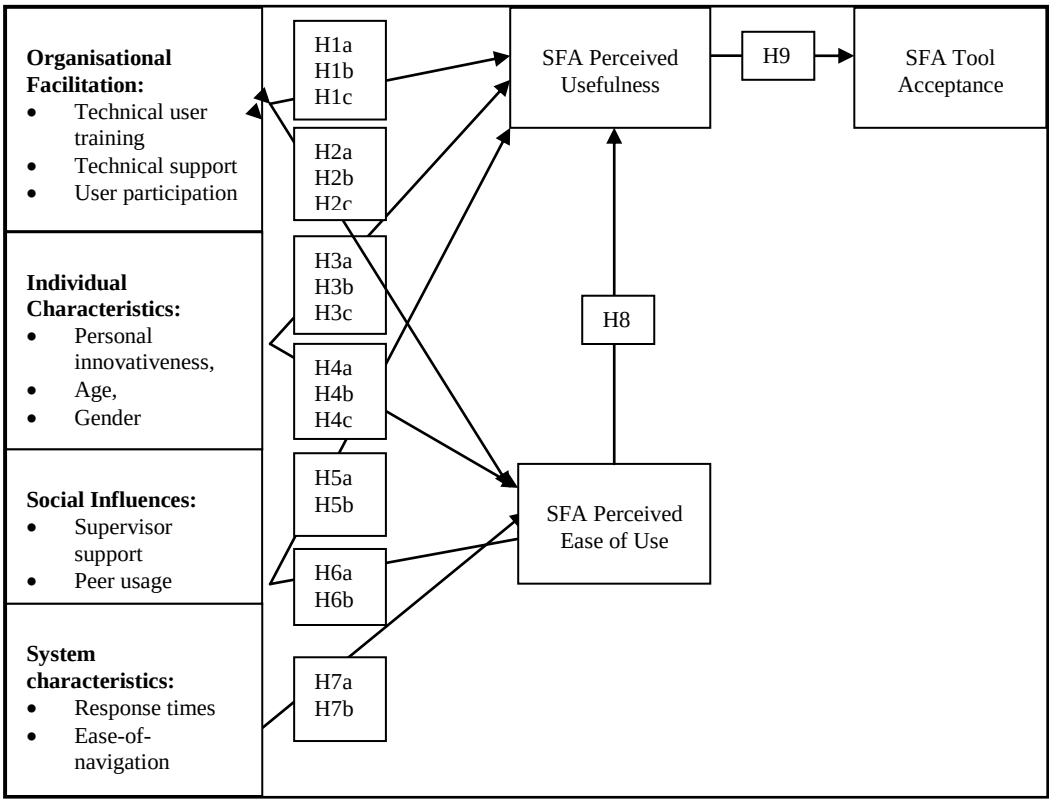


Figure 13: The research model (Adapted from Schillewaert et al (2005) and Avlonitis and Panagopoulos (2005))

As per Figure 13, the research model is divided into 4 components: the first part is to test the influence of Perceived Usefulness (PU) on User Acceptance (Model 1), followed by testing the effect of Perceived Ease-of-Navigation (PEON) on Perceived Usefulness (Model 2). The third part of the model is to test the effect of the independent variables (Organisational, Social, Individual and System factors) on Perceived Usefulness and Perceived Ease-of-Navigation, individually (Model 3a, 3b, 3c and 3d and Model 4a, 4b, 4c and 4d). Finally, the entire model is tested together to see what the combined effect is of all the factors loading against PU, PEON and User Acceptance (Model 5, Model 6 and Model 7).

The result of the tests on User Acceptance is reported first, followed by the result of the tests on Perceived Usefulness. Then, the independent variables are tested with PU and PEON, without the influences of other factors, to test whether they have a significant relationship on

their own. Once the relationships are tested in isolation, all the independent factors are regressed together on PU and PEON, to show which ones, in relation to all other factors, have the most significant influence. A table is provided at the end of the chapter to summarise the findings of the regression analyses. The reason the simple regressions are shown below, is to show at the end of this chapter, which of the models have a higher R^2 when compared to each other.

4.12.1 Effect of Perceived Usefulness on User Acceptance (Model 1)

Hypothesis 9 (H9): SFA Perceived Usefulness will positively influence SFA System Acceptance

Table 19: Effect of Perceived Usefulness on SFA System Acceptance

Independent Variables	**Unstandardised Coefficients**		**Standardised Coefficients**	**t**	**Sig.**
	Beta	Std Error	Beta		
Constant	2.54	.592			0.00
Perceived usefulness	***.319***	***.024***	***.607***	***13.35***	***0.00***
Adjusted R^2	***0.385***		***p<0.05***		

*Dependent variable: User Acceptance

Given the significance value of 0.00 for Perceived Usefulness, there exists a significant relationship with the dependent variable, User Acceptance. We can therefore reject the null hypothesis for H9. The R^2 of 0.385 indicates that approximately 39% of the variance has been explained through Model 1.

There are also some positive influences from the following control variable that warrant further discussion:

- Years of use on Siebel (significance value of 0.04): it appears from the data analysis that the significance of this correlation was higher with users who used Siebel for longer

While it was not proposed, it was decided to test for a significant relationship between Perceived Ease-of-Navigation and User Acceptance. Many authors in the past have previously have been unable to show that Perceived Ease-of-Navigation has a direct

influence on Acceptance, but rather has a significant relationship to Perceived Usefulness which in turn has a strong relationship with Acceptance (Davis, 1989, Davis, et al, 1989, Venkatesh and Davis, 2000 and Benbasat and Barki, 2007). However, other studies (such as that by Wixom and Todd, 2005) have been able to show a significant relationship between Perceived Ease-of-Use and User Acceptance, hence the decision to test whether this dataset reveals anything that can support the findings made by Wixom and Todd (2005).

Table 20: Effect of Perceived Ease-of-Navigation on User Acceptance

Independent Variables	**Unstandardised Coefficients**		**Standardised Coefficients**	**t**	**Sig.**
	Beta	Std Error	Beta		
Constant	2.112	.651			0.01
Perceived Ease-of-Navigation	***.217***	***.019***	***.554***	***11.508***	***0.00***
Adjusted R^2	***0.337***		***p<0.05***		

*Dependent variable: User Acceptance

Even though this relationship between Perceived Ease-of-Navigation and User Acceptance was not initially put forward as part of the research model, the results here show a significant relationship between users' adoption and how effortless a system is to use. With an adjusted R^2 of .337, this is something that the researcher should have proposed in the initial model.

4.12.2 Effect of Perceived Ease-of-Navigation on Perceived Usefulness (Model 2)

Hypothesis 8 (H8): SFA Perceived Ease-of-Navigation will positively influence Perceived Usefulness

Table 21: Effect on PU by PEON

Independent Variables	**Unstandardised Coefficients**		**Standardised Coefficients**	**t**	**Sig.**
	Beta	Std Error	Beta		
Constant	1.481	1.077			.170
Perceived ease-of-navigation	***.512***	***.031***	***.689***	***16.431***	***0.000***
Adjusted R^2	**0.496**		**p<0.05**		

*Dependent variable: Perceived Usefulness

As the results show, there is a highly significant relationship between Perceived Ease-of-Navigation and Perceived Usefulness, where PU is the dependent variable and PEON the independent. This supports the earlier hypothesis, and we can reject the null hypothesis for H8. It is also found that 49.6% of the variance in the data may be explained by Model 2. It must be noted that none of the control variables had any significant impact on this relationship.

4.12.3 Organisational Factors

This brings us to the investigation of the first set of independent variables. First we test the effect of Organisational Factors on PU and PEON, without the influence of any of the other independent variables. The control variables are also added to see whether they have any influence on the dependent variables

Hypothesis 1 (H1): Organisational factors (user training, technical assistance and user participation) will positively influence SFA Perceived Ease-of-Navigation.

> **Hypothesis 1 a (H1a):** User training will positively influence SFA Perceived Ease-of-Navigation

Hypothesis 1 b (H1b): Technical assistance will positively influence SFA Perceived Ease-of-Navigation

Hypothesis 1 c (H1c): User participation will positively influence SFA Perceived Ease-of-Navigation

Table 22: Effect of Organisational Factors on PEON

Independent Variables	**Unstandardised Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	4.574	1.507		3.035	.003
User Training	***.463***	***.088***	***.281***	***5.258***	***.000***
Technical Assistance	***.513***	***.079***	***.332***	***6.507***	***.000***
User Participation	***.477***	***.105***	***.209***	***4.555***	***.000***
Gender	-.660	.449	-.066	-1.471	.142
Age	-.456	.190	-.131	-2.398	.017
Primary Role	-.202	.497	-.019	-.406	.685
Performance Measured	.011	.504	.001	.022	.982
Use in Business	-.444	1.027	-.018	-.433	.666
Yrs in Org	-.046	.189	-.013	-.245	.807
Yrs of Use	***.958***	***.313***	***.136***	***3.063***	***.002***
Adjusted R^2	**0.474**		**p<0.05**		

*Dependent variable: Perceived Ease-of-Navigation

The results above show that User Training, Technical Support and User Participation all showed a significant relationship with the users' Perceived Ease-of-Navigation. However, by observing the Beta value under the Unstandardised Coefficients, we can see that of all three items under Organisational factors, Technical Assistance has the greatest contribution to Perceived Ease-of-Navigation. The larger the Beta coefficient, the stronger is its unique contribution to explaining the dependent variable. Also, the results showed that there was a significant relationship shown with the following independent variable:

- Years of Use (Significance values of 0.002) – the longer they spent on Siebel, the more easy they found the system to use.

With a high adjusted R^2 value of 0.474, this factor explains 47.4% variance in the data. Thus, the null hypothesis is accepted in this case for Hypotheses 1a, 1 b and 1 c.

We now test the second hypotheses as per the model; the relationship between Organisational factors and Perceived Usefulness:

Hypothesis 2 (H2): Organisational factors (user training, technical assistance and user participation) will positively influence SFA Perceived Usefulness.

Hypothesis 2 a (H2a): User training will positively influence SFA Perceived Usefulness.

Hypothesis 2 b (H2b): Technical assistance will positively influence SFA Perceived Usefulness.

Hypothesis 2 c (H2c): User participation will positively influence SFA Perceived Usefulness

Table 23: Effect of Organisational factors on PU

Independent Variables	**Unstandardised Coefficients**		**Standardised Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	1.631	1.203		1.355	.176
User Training	***.297***	***.070***	***.243***	***4.225***	***.000***
Technical Assistance	***.307***	***.063***	***.268***	***4.880***	***.000***
User Participation	***.441***	***.084***	***.260***	***5.269***	***.000***
Gender	.182	.359	.024	.508	.612
Age	-.160	.152	-.062	-1.054	.293
Primary Role	-.045	.397	-.006	-.114	.909
Performance Measured	-.099	.403	-.011	-.245	.807
Use in Business	.624	.820	.034	.761	.447
Yrs in Org	***-.317***	***.151***	***-.122***	***-2.104***	***.036***
Yrs of Use	.252	.250	.048	1.009	.314
Adjusted R^2	**0.393**		**p<0.05**		

*Dependent Variable: Perceived Usefulness

As can be determined from the results, there is a very low significance value of 0.000 for all three items under Organisational factors with Perceived Usefulness. This means that organisational factors have a significant relationship with Perceived Usefulness. The moderately high R^2 value is 0.393, which means that this model can explain approximately 39% of the variance in the data.

- Years spent in the organisation (significance values of 0.036) – the longer the respondents spent in the company, the more they found the system to be useful, and the more organisational factors positively impacted them.

Therefore, from the test above, it is clear that we should reject the null hypothesis for 2 b and 2 c and accept the null hypothesis for 2a.

4.12.4 Individual Factors

Hypothesis 3 (H3): Individual factors (that includes Personal Innovativeness, Age and Gender) will positively influence SFA Perceived Ease-of-Navigation.

Hypothesis 3 a (H3a): Personal innovativeness will positively influence SFA Perceived Ease-of-Navigation.

Hypothesis 3 b (H3b): Age will positively influence SFA Perceived Ease-of-Navigation.

Hypothesis 3 c (H3c): Gender will positively influence SFA Perceived Ease-of-Navigation

Table 24: Effect of Individual Factors on PEON

Independent Variables	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	12.158	2.057		5.910	.000
Personal Innovativeness	***.325***	***.081***	***.220***	***4.035***	***.000***
Gender	-.973	.591	-.097	-1.645	.101
Age	***-.566***	***.249***	***-.163***	***-2.278***	***.023***
Primary Role	-.764	.645	-.073	-1.184	.237
Performance Measured	-.968	.653	-.083	-1.484	.139
Use in Business	.180	1.340	.007	.135	.893
Yrs in Org	.047	.245	.014	.193	.847
Yrs of Use	***1.218***	***.395***	***.173***	***3.086***	***.002***
Adjusted R^2	***.103***		***p<0.05***		

*Dependent variable: Perceived Ease-of-Navigation

As can be seen from the regression tests above, one finds a significant relationship between Personal Innovativeness and Perceived Ease-of-Navigation (significance value of 0.00). The data shows that while gender does not have a significant relationship (p values of 0.101) on

Perceived Ease-of-Navigation, Age does have a significant relationship on the dependent variable (p-value of 0.023). However, with a low R^2 value of 0.103, this does not explain a significant enough proportion of the variance in the data set to be a considered significant predictor of Model 3.

From the control variables, it appears the following have a significant influence as well:

- Years of use: the longer the user has been using Siebel, the easier they perceive the system to be to use

Therefore, it appears that we can accept the null hypothesis for 3a, 3b and 3c.

Hypothesis 4 (H4): Individual factors will positively influence SFA Perceived Usefulness.

Hypothesis 4 a (H4a): Personal innovativeness will positively influence SFA Perceived Usefulness.

Hypothesis 4 c (H4c): Age will positively influence SFA Perceived Usefulness.

Hypothesis 4 d (H4d): Gender will positively influence SFA Perceived Usefulness

Table 25: Effect of Individual factors on PU

Independent Variables	**Unstandardised Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	6.232	1.534		4.062	.000
Personal Innovativeness	.265	.060	.242	4.420	.000
Gender	-.113	.441	-.015	-.257	.797
Age	-.226	.185	-.088	-1.221	.223
Primary Role	-.467	.481	-.060	-.971	.332
Performance Measured	-.760	.487	-.087	-1.563	.119
Use in Business	1.080	.999	.059	1.081	.281
Yrs in Org	-.272	.183	-.105	-1.489	.137
Yrs of Use	.391	.294	.075	1.327	.185
Adjusted R^2	***0.097***		***p<0.05***		

*Dependent variable: Perceived Usefulness

From the above table, we can see that there is a significant relationship between Personal Innovativeness with Perceived Usefulness, however no significance is found between Age and Gender on Perceived Usefulness (p-values of 0.797 and 0.233 respectively). However, with an R^2 value of 0.097, we cannot say that this model predicts a statistically significant

proportion of the variance in the data, and is therefore viewed not to be a good predictor of the dependent variable in this case. Therefore, we can accept the null hypothesis for 4 a, 4b and 4c.

4.12.5 Effect of Social Factors on Perceived Ease-of-Navigation (Model 4)

Hypothesis 5 (H5): Social factors (that includes team leader support and peer usage) will positively influence SFA Perceived Ease-of-Navigation.

Hypothesis 5 a (H5a): Team Leader support will positively influence SFA Perceived Ease-of-Navigation.

Hypothesis 5 b (H5b): Peer usage will positively influence SFA Perceived Ease-of-Navigation.

Table 26: Effect of Social factors on PEON

Independent Variables	**Unstandardised Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	3.958	1.788		2.214	.028
Team Leader Support	***.459***	***.093***	***.256***	***4.921***	***.000***
Peer Usage	***.670***	***.082***	***.448***	***8.170***	***.000***
Gender	***-1.056***	***.497***	***-.105***	***-2.124***	***.035***
Age	-.250	.212	-.072	-1.180	.239
(Constant)	.315	.563	.030	.560	.576
Performance Measured	1.104	.582	.094	1.898	.059
Use in Business	-1.467	1.147	-.060	-1.279	.202
Yrs in Org	-.007	.208	-.002	-.036	.971
Yrs of Use	***1.181***	***.334***	***.168***	***3.534***	***.000***
Adjusted R^2	***0.358***		***p<0.05***		

*Dependent variable: Perceived Ease-of-Navigation

The results in Table 25 show that while both Team Leader Support and Peer Usage have a significant relationship with PEON, by observing the Unstandardised Beta coefficient, one can see that Peer Usage has a far more significant influence on Perceived Ease-of-Navigation than Team Leader Support. At a high R^2 value of 0.358, it shows that approximately 36% of the variation in the data can be explained by Model 4, and this is considered statistically valid.

The following control variables were found to have a significant effect as well:

- Gender: it appears from the negative Beta coefficient that females tend to perceive the system as more difficult to use than their male counterparts
- Years of use of Siebel – the longer the respondents have used the system, the easier they tend to find the system to use

This allows us to reject the null hypothesis for the 5a and 5b.

Hypothesis 6 (H6): Social factors will positively influence SFA Perceived Usefulness.

Hypothesis 6 a (H6a): Supervisor support will positively influence SFA Perceived Usefulness

Hypothesis 6 b (H6b): Peer usage will positively influence SFA Perceived Usefulness

Table 27: Effect of Social factors on PU

Independent Variables	**Unstandardised Coefficients**		**Standardised Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
Constant	.481	1.337		.360	.719
Team Leader Support	***.303***	***.070***	***.227***	***4.337***	***.000***
Peer Usage	***.533***	***.061***	***.480***	***8.700***	***.000***
Gender	-.130	.372	-.017	-.351	.726
Age	.009	.159	.004	.059	.953
Primary Role	.389	.421	.050	.923	.357
Performance Measured	.789	.435	.091	1.813	.071
Use in Business	-.104	.858	-.006	-.122	.903
Yrs in Org	-.304	.156	-.117	-1.948	.052
Yrs of Use	.358	.250	.068	1.432	.153
Adjusted R^2	***0.350***		***p<0.05***		

*Dependent variable: Perceived usefulness

It is found that Team Leader Support and Peer Usage have a significant influence on Perceived Usefulness, both showing p-values of 0.000. With a moderate R^2 value of 0.350, the data shows that Model 3 explains 35% of the variation in the data. None of the control variables had any influence on this relationship.

Therefore it can be concluded that, in the absence of any other factors, Social factors have a significant influence on Perceived Usefulness, and we can reject the null hypotheses for 6a and 6b.

4.12.6 System Characteristics

Hypothesis 7 (H7): System characteristics will positively influence SFA Perceived Ease-of-Navigation.

Hypothesis 7 a (H7a): Response time will positively influence SFA Perceived Ease-of-Navigation

Table 28: Effect of System characteristics on PEON

Independent Variables	**Unstandardised Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	Std. Error	Beta		
(Constant)	10.354	1.734		5.972	.000
Response Times	***1.036***	***.123***	***.421***	***8.438***	***.000***
Gender	-.419	.541	-.042	-.775	.439
Age	-.552	.229	-.159	-2.407	.017
Primary Role	-.679	.596	-.065	-1.138	.256
Perf Measured	-.779	.603	-.066	-1.291	.198
Use in Business	-.069	1.239	-.003	-.055	.956
Yrs in Org	-.106	.227	-.030	-.464	.643
Yrs of Use	***1.585***	***.365***	***.225***	***4.339***	***.000***
Adjusted R^2	***0.233***		***p<0.05***		

*Dependent variable: Perceived Ease-of-Navigation

From the above tests, there is clearly a significant relationship between Response Times on Perceived Ease-of-Navigation, given the low p-values. The relatively high standardised Beta coefficient of 0.421 also implies that Response time contributes quite significantly to Perceived Ease-of-Navigation. With a R^2 of 0.233, this implies that approximately 23% of the variances in the data can be explained by this hypothesis. This is considered to be a moderate predictor of the dependent variable.

Of all the control variables the following had a significant influence on this relationship:

- Years of use - the longer the users work on Siebel, the better their perception on its ease of use

From the above results, we can reject the null hypotheses for 7a.

4.13 Regression Analysis on Dependent Variables

While the individual hypotheses were tested, it was also decided to test the entire model in three parts, to see what the R^2 values would be if we had to regress all the factors against:

- Perceived Usefulness
- Perceived Ease-of-Navigation
- User Acceptance

The aim of this regression is to understand whether the model as a whole can explain a significant variance in the results.

4.13.1 All Factors regression on Perceived Usefulness (Model 5)

Table 29: Effect of all independent variables on PU

Independent Variables	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-2.461	1.322		-1.862	.064
Team Leader Support	.128	.067	.096	1.924	.055
Peer Usage	***.368***	***.059***	***.331***	***6.211***	***.000***
Personal Innovativeness	.068	.047	.062	1.422	.156
User Training	.132	.069	.108	1.919	.056
Technical Assistance	***.248***	***.061***	***.217***	***4.085***	***.000***
User Participation	***.346***	***.079***	***.204***	***4.402***	***.000***
Gender	-.075	.337	-.010	-.222	.825
Age	.006	.142	.002	.040	.968
Primary Role	.463	.377	.060	1.229	.220
Performance Measured	.748	.389	.086	1.921	.056
Use in Business	.160	.767	.009	.209	.835
Yrs in Org	***-.299***	***.140***	***-.115***	***-2.142***	***.033***
Yrs of Use	.277	.231	.053	1.198	.232
Adjusted R^2	***0.482***		***p<0.05***		

*Dependent variable: Perceived Usefulness

From Table 29, it can be seen that Peer Usage, Technical Assistance and User Participation have a significant relationship on Perceived Usefulness. It therefore appears that in the presence of Social and Organisational factors, the effect of the Individual characteristics are dramatically lessened. This has important implications for management, to be discussed in the next chapter. By performing regression analysis on all the various factors (Organisational, Social, and Individual characteristics) to test for the relationship with Perceived Usefulness, a high R^2 of 0.482 is achieved. Of the control variables, the only one that has a significant relationship on Perceived Usefulness is the number of years the user has spent in the organisation.

4.13.2 All Factors regression on Perceived Ease-of-Navigation (Model 6)

Table 30: Effect of all independent variables on Perceived Ease-of-Navigation

Independent Variables	Unstandardised Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.948	1.675		-.566	.572
Response Times	***.401***	***.104***	***.163***	***3.866***	***.000***
Team Leader Support	.131	.083	.073	1.568	.118
Peer Usage	***.398***	***.074***	***.266***	***5.383***	***.000***
Personal Innovativeness	.057	.059	.038	.957	.339
User Training	***.250***	***.086***	***.152***	***2.918***	***.004***
Technical Assistance	***.382***	***.077***	***.247***	***4.927***	***.000***
User Participation	***.350***	***.098***	***.153***	***3.558***	***.000***
Gender	***-.827***	***.421***	***-.082***	***-1.965***	***.050***
Age	-.259	.177	-.075	-1.466	.144
Primary Role	.362	.469	.035	.772	.440
Performance Measured	.952	.485	.081	1.963	.051
Use in Business	-.927	.956	-.038	-.970	.333
Yrs in Org	-.071	.174	-.020	-.406	.685
Yrs of Use	***1.115***	***.290***	***.158***	***3.850***	***.000***
Adjusted R^2	***0.557***		***p<0.05***		

*Dependent variable: Perceived Ease-of-Navigation

As can be seen from Table 30, it is clear that from all the categories, System Characteristics (i.e. Response Times), Social Factors (Peer Usage) and all the factors from Organisational Factors (User Training, Technical Assistance and User Participation) have highly significant relationships with Perceived Ease-of-Navigation, with the exception of any items from Individual factors. Once again, it can be noted that in the presence of Organisational, Social and System factors, most of the items under Individual factors (i.e. Personal Innovativeness and Age) have a dramatically reduced effect on Perceived Ease-of-Navigation. This has important implications for practice, which will be discussed in the following chapter.

With a relatively high R^2 of 0.557, Model 6 predicts a significant percentage of the variation in the data set. By looking carefully at the Unstandardised Beta Coefficients, we can see what the effect on the dependent variable by noting the highest B coefficient value, so the following are in ranked order in terms of influence:

1. Peer Usage
2. Technical assistance
3. Response Times
4. User Participation
5. User Training

Of all the control variables, two have a significant relationship on acceptance:

- Years of Use - the longer the respondents use the system, the more positive the relationship is with User Acceptance
- Gender – given the negative Beta coefficient, this implies that females tend to perceive the system more negatively in terms of ease-of-use than their male counterparts

4.13.3 All Factors regression on User Acceptance (Model 7)

Table 31: All Factors regressed on User Acceptance

Independent Variables	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.518	.718		-.721	.472
Response Times	-.021	.046	-.021	-.448	.654
Team Leader Support	***.067***	***.035***	***.096***	***1.898***	***.059***
Peer Usage	.042	.034	.072	1.248	.213
Personal Innovativeness	***.140***	***.025***	***.243***	***5.555***	***.000***
User Training	.026	.037	.040	.702	.483
Technical Assistance	-.056	.034	-.094	-1.649	.100
User Participation	.018	.043	.021	.429	.668
Perceived Usefulness	***.189***	***.034***	***.360***	***5.651***	***.000***
Perceived Ease-of-Navigation	***.082***	***.026***	***.210***	***3.151***	***.002***
Gender	-.260	.180	-.066	-1.447	.149
Age	.113	.075	.083	1.506	.133
Primary Role	-.140	.199	-.034	-.702	.483
Performance Measured	.199	.207	.043	.960	.338
Use in Business	.571	.406	.060	1.406	.161
Yrs in Org	.062	.075	.046	.835	.404
Yrs of Use	***.243***	***.126***	***.088***	***1.938***	***.054***
Adjusted R^2	***0.480***		***p<0.05***		

*Dependent variable: User Acceptance

After performing regression analysis on all the factors to rest the relationship with Acceptance, the following factors have shown a significant relationship, in order of significance (from highest to lowest Unstandardised Beta coefficient):

1. Perceived Usefulness
2. Personal Innovativeness (Individual Factors)
3. Perceived Ease-of-Navigation
4. Team Leader Support (Social Factors)

The results show that of all the independent variables, Team Leader Support and Personal Innovativeness show a significant influence on User Acceptance, considering that neither of these factors had a significant direct influence on Perceived Ease-of-Navigation and Perceived Usefulness. This shows a significant direct influence on User Acceptance that is not reliant on PU and PEON.

From the control variables, only the following shows a marginally significant relationship:

- Years of use of the system – so the longer the users persist with the SFA tool, the better their acceptance will be

By excluding Perceived Usefulness and Perceived Ease-of-Navigation, and performing regression analysis on only the Organisational, Social, Individual and System factors to test the relationship with Acceptance, the following significance values and R^2 values were attained. The aim of this test was to see what the effects on the dependent variables are from the other constructs, excluding the mediating effects of PU and PEON, and to see whether any construct shows significant direct relationships to SFA acceptance in the absence of the two mediating factors.

Table 32: Effect of all factors on User Acceptance, excluding PU and PEON

Independent Variables	**Unstandardised Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	-1.274	.777		-1.641	.102
Response Times	.084	.048	.087	1.751	.081
Team Leader Support	***.096***	***.039***	***.137***	***2.496***	***.013***
Peer Usage	***.142***	***.034***	***.242***	***4.129***	***.000***
Personal Innovativeness	***.161***	***.027***	***.278***	***5.842***	***.000***
User Training	.066	.040	.103	1.665	.097
Technical Assistance	.011	.036	.018	.294	.769
User Participation	***.108***	***.046***	***.121***	***2.365***	***.019***
Gender	-.325	.195	-.083	-1.666	.097
Age	.096	.082	.070	1.168	.244
Primary Role	-.023	.218	-.006	-.106	.916
Performance Measured	.414	.225	.090	1.843	.066
Use in Business	.542	.443	.057	1.224	.222
Yrs in Org	-.007	.081	-.006	-.093	.926
Yrs of Use	***.408***	***.134***	***.148***	***3.041***	***.003***
Adjusted R^2	***0.377***		***p<0.05***		

In the absence of Perceived Usefulness and Perceived Ease-of-Navigation, the following factors have a significant relationship with User Acceptance, in order of importance (highest B coefficient to smallest):

1. Personal Innovativeness
2. Peer Usage

3. Team Leader Support
4. User Participation

Therefore, we can add Peer Usage and User Participation as additional items that load with User Acceptance when the effects of PU and PEON are removed from the dependent variable.

The following control variable also showed significant influences on User Acceptance:

- Years of use – the longer users work on the system, the more likely they are to accept the SFA tool into their daily routines

4.13.4 Summary of the Regression Analysis

Table 33: Summary of R^2 values when tested independently vs. tested in the model

Independent Variables	**R^2 when tested Independently**			**R^2 when tested in the combined model**		
	User Acceptance	PU	PEON	User Acceptance	PU	PEON
Perceived Usefulness	0.385*			0.480*		
Perceived Ease-of-Navigation	0.337*	0.496*		0.480*	0.574*	
Organisational Factors	0.341*	0.393*	0.474*	0.377*	0.482*	0.557*
1) User Training						
2) Technical Assistance						
3) User Participation						
Individual Factors	0.344*	0.097*	0.103*	0.377*	0.482*	0.557*
1) Personal Innovativeness						
2) Age						
3) Gender						
Social Factors	0.253*	0.350*	0.358*	0.377*	0.482*	0.557*
1) Peer Usage						
2) Team Leader Support						
System Characteristics	0.102*		0.233*	0.377*		0.557*
1) Response Times						

*Significance at p<0.01 levels

The results depicted in Table 33 show that in every instance, the R^2 value was higher when testing the effects of the independent variables in the combined model than when testing each independent variable on its own with the dependent variables. Therefore, the combined model is superior in terms of explaining the effects on PU, PEON and User Acceptance, even though some items dropped in terms of significance.

Table 34: Summary of Findings

Hypotheses	**Description**	**R^2 when tested in the combined model**	**Results**
H1a	Technical assistance plays a significant role in whether users perceive an SFA system to be easy to use	0.557	Supported
H1b	User training plays a significant role in whether users perceive an SFA system to be easy to use	0.557	Supported
H1c	User Participation plays a significant role in whether users perceive an SFA system to be easy to use	0.557	Supported
H2a	Technical assistance plays a significant role in whether users perceive an SFA system to be useful	0.482	Supported
H2b	User training plays a significant role in whether users perceive an SFA system to be useful	0.482	Not Supported
H2c	User Participation plays a significant role in whether users perceive an SFA system to be useful	0.482	Supported
H3a	Personal innovativeness plays a significant role in whether users perceive an SFA system to be easy to use	0.557	Not Supported
H3b	Age plays a significant role in whether users perceive an SFA system to be easy to use	0.557	Not supported
H3c	Gender plays a significant role in	0.557	Supported

	whether users perceive an SFA system to be easy to use		
H4a	Personal innovativeness plays a significant role in whether users perceive an SFA system to be useful	0.377	Not Supported
H4b	Age plays a significant role in whether users perceive an SFA system to be useful	0.377	Not Supported
H4c	Gender plays a significant role in whether users perceive an SFA system to be useful	0.377	Not Supported
H5a	Team Leader support plays a significant role in whether users perceive an SFA system to be easy to use	0.557	Not Supported
H5b	Peer usage plays a significant role in whether users perceive an SFA system to be useful	0.482	Supported
H6a	Team Leader support plays a significant role in whether users perceive an SFA system to be useful	0.482	Not Supported
H6b	Peer usage plays a significant role in whether users perceive an SFA system to be useful	0.482	Supported
H7a	Response Times plays a significant role in whether users perceive an SFA system to be easy to use	0.577	Supported
H8	Users who perceive a system to be easy to use also find the system to be useful	0.574	Supported
H9	Users who perceive an SFA system to be useful will in turn adopt and accept that tool	0.482	Supported

4.14 Conclusion

This chapter presented the full set of results from the empirical study that was conducted on a data set of 337 responses (a summary of the results are shown in Table 34). The research model was tested for significant relationships between Organisational, Individual, Social and System characteristics on what users of Siebel perceived about its ease-of-use and usefulness. A regression analysis was done to see whether users who perceive a system to be user friendly also tend to find it useful. Lastly, the model tested whether users who find a system useful in turn accept that tool. The combined model was shown to have an R^2 of 0.557 which is higher than any of the individual models (as shown in Table 29).

4.15 Revised model

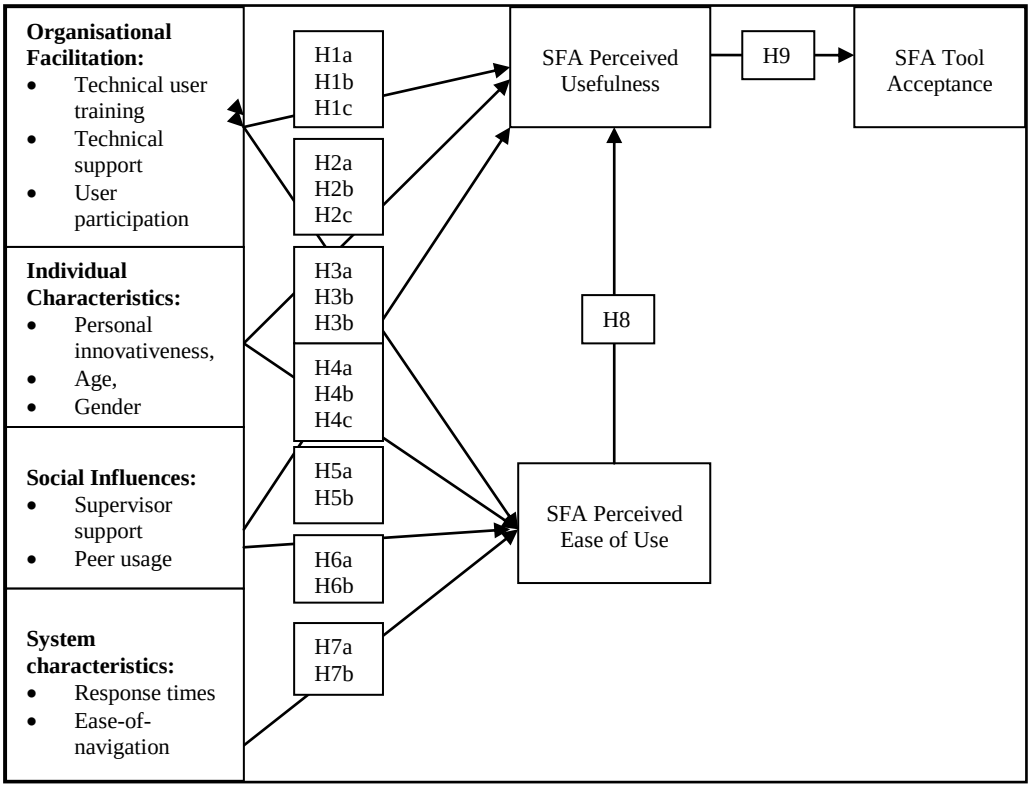


Figure 14: Initial Proposed Model

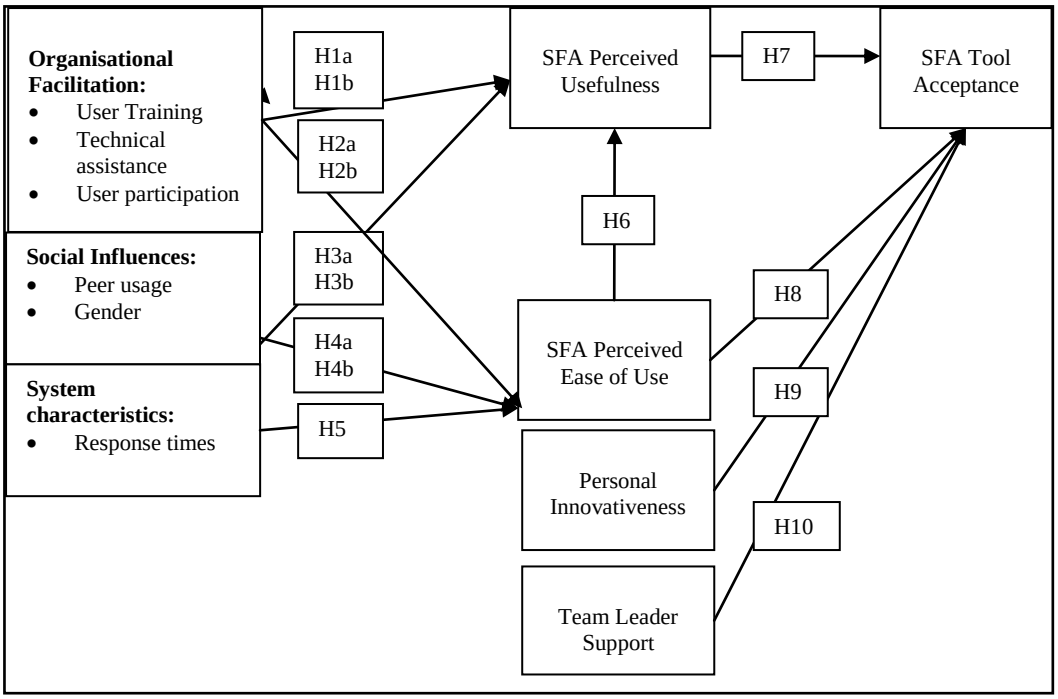


Figure 15: New Proposed Research Model (adapted from Schillewaert et al, 2005 and Avlonitis and Panagopoulos, 2005)

5. Discussion of Results

5.1 Introduction

This chapter reflects on the results reported in the previous chapter and will describe whether the data analysis can support the hypotheses as suggested in Chapter 2. The results are discussed, taking into account various aspects found in literature presented by other researchers in this field, and reflecting on that literature in light of the empirical results of this study.

5.2 Significant influences on User Acceptance

Since the advent of the computer in 1947, and the proliferation of the personal computer in the 1980's, businesses and researchers alike have promoted the use of technology in organisations (Ahearne and Rapp, 2010). In the world of the salesperson, technology plays an ever-increasing role in the job of personal selling as well as customer relationship management (CRM) (Ahearne, Srinivasan and Weinstein, 2004). Sales Force Automation (SFA) is the use of technology to automate many of the traditional sales functionality, such as order processing, information sharing, sales forecasting and analysis. As a technology, it has the potential to automate and standardise sales processes, as well as link the sales force to the rest of the company. It is no wonder then, that organisations have spent billions of dollars on SFA tools – with the industry spend forecasted to be approximately $9billion by 2012 (Cascio et al, 2010).

However, despite the ever-increasing popularity of CRM implementation, success remains elusive to most companies. A recent study indicates that approximately one in every three **Table 22: Effect of Organisational factors on PU** of all SFA implementations fail (Gohlami and Rahman, 2012). SFA failure is said to be due to the lack of user acceptance, which has been attributed to many reasons, such as lack of management support, disruption of sales routines, and differences in expectations (Barker, et al, 2009). With booming sales figures forecasted for SFA, it is not surprising that a number of academic papers have been published to help the industry better understand what factors are barriers to, or lead to acceptance of SFA technology (Cascio, Mariadoss and Mouri, 2010).

The following factors were found to have significant impact on User Acceptance:

- Team Leader Support (taken from Social Factors)
- Personal Innovativeness (taken from Individual Factors)
- Perceived Usefulness (PU)
- Perceived Ease-of-Navigation (PEON)

Perceived Usefulness and Perceived Ease-of-Navigation have been shown to have a direct influence on user acceptance in many previous studies (Davis, 1989, Davis et al, 1989, Venkatesh and Davis, 2000, Speier and Venkatesh, 2002),

Team Leader support has also been previously shown to have a direct significant influence on User Acceptance (Morgan and Inks, 2001, Buehrer et al, 2005, Schillewaert et al, 2005, Ahearne, Jelinek and Rapp, 2005 and Barker et al, 2009). However, the study done by Avlonitis and Panagopoulos (2005) found that User Training did not have a significant impact on User Acceptance. This study confirms its significance and proposes it to be an important factor for organisations to consider.

Although Personal Innovativeness was introduced as a factor in User Acceptance by Speier and Venkatesh (2002), that study was unable to show a direct influence on User Acceptance. Jones, Sundaram and Chin (2002) and Schillewaert et al (2005) in the subsequent research studies were both able to show significant influence on the intention to use as well as technology adoption. The current research study was also able to confirm that Personal Innovativeness is a significant factor in the field of system acceptance, particularly related to salespeople.

From a practitioner perspective, this study shows that these four factors are the main factors to consider when considering the roll-out of an SFA tool. Since most of these, except Personal Innovativeness, can be influenced by the organisation, it shows that there are numerous factors within the control of the company and its management to make the acceptance process easy.

However, in order for practitioners and researchers to better understand what drives Perceived Usefulness and Perceived Ease-of-Navigation, the next section describes in detail the various factors that were shown to have a direct and significant influence on these dependent variables.

5.3 The effect from independent variables on Perceived Usefulness and Ease of Use

5.3.1 Influence of Organisational Factors on PU and PEON

The importance of Organisational factors, such as user training, technical assistance and user participation have been included as antecedents in numerous papers (Schillewaert, et al, 2005, Avlonitis and Panagopoulos, 2005, Ahearne et al, 2005) to explain adoption of SFA tools.

The current study showed the following results:

- ***User Training*** was found to have a significant relationship with how easy the users perceive the system to be but no significant relationship with whether they perceive the system to be useful. There have been conflicting findings on whether user training does assist in tool adoption, for example, Buehrer et al (2005) found that user training was perceived to be important for salespeople to adopt an SFA system. However, research done by Avlonitis and Panagopoulos (2005) did not find a significant relationship between CRM training and technology acceptance. The set of results from this study is not contrary to the researcher's experience in the industry, as training can assist in helping a user with the usability of the system. It cannot, however, undertake to make the system valuable in the eyes of the user.
- ***User Participation*** was found to significantly change the way users perceive the system's ease-of-use and its usefulness. This has previously been supported in research (Avlonitis and Panagopoulos, 2005 and Speier and Venkatesh, 2002). Rogers, Stone and Foss (2008) even mentioned that SFA is often misconstrued as a way to replace the sales force by many in the industry, so involving them in the design may reassure them that the organisation still values them as the end-users. Participation with management around system implementation and changes often gives users a feeling of empowerment, and therefore there is less likelihood for resistance (Avlonitis and Panagopoulos, 2005).
- ***Technical User Support*** showed a strong influence on Perceived Ease-of-Use and Perceived Usefulness of the system. According to Rangarajan et al (2004), the general belief about salespeople is that they are averse to technology, and prefer the interaction with their clients to being forced in front of a computer, inputting data. Their study found that the more effort the technology required, the less it would be accepted into their daily work. Buehrer et al (2005) and Schillewaert et al (2005) also

found that a lack of technical support is a significant barrier to user acceptance of an SFA system.

The only control variable in this research that had any effect on the relationship between Organisational factors and PU and PEON is the number of years the individual has spent in the organisation. It is possible to extrapolate from this finding that the longer an individual is working in the company; the more likely they are to be influenced by Organisational factors.

5.3.2 Influence of Individual characteristics on PU and PEON

While the research conducted by Speier and Venkatesh in 2002 found that personal innovativeness, age and gender played an important role in user acceptance, the current study shows a different set of results (to be discussed). Research studies have implied that salespeople are less technologically-inclined than their counterparts (Rangarajan et al, 2004), while some researchers have mentioned that older salespeople are more 'set in their ways' and find adoption more difficult (DelVicchio, 2009). The Baby Boomers generation (generally believed to be those born between 1946 and 1964) have been described as being less open to change (DelVicchio, 2009). Given that 39% of Bank A's users fall into the Baby Boomers category, this has an important implication for Bank A's management in terms of understanding the resistance to adopt new technology. Similarly, some papers have mentioned that females are said to experience more anxiety when it comes to using new technology than their male counterparts (Speier and Venkatesh, 2002). Given that more than half of the user group in Bank A (52%) are female, this could imply that many of the female users have an inherent anxiety towards the acceptance of the SFA tool.

The current study showed the following set of results:

- ***Personal Innovativeness*** was found to have a diminished relationship with Perceived Ease-of-Use in the presence of Organisational, System and Social factors, meaning that extrinsic factors have more influence on users' perceptions than intrinsic ones
- ***Age*** was not found to have a significant influence on users' perceptions nor on their acceptance of the system. This can be viewed positively by Bank A, considering that Bank A tends to employ older employees as its salespeople.
- ***Gender*** was found to have a considerable influence on Perceived Ease-of-Use. The results showed that females did perceive the system to be less easy to use, as

compared with males. This confirmed earlier studies performed by Speier and Venkatesh (2002).

The above sets of findings have a significant implication for practitioners – Individual factors are generally constructs that organisations cannot influence. This study found that, in the presence of Organisational, System and Social factors, these individual characteristics have diminished influence on user's perceptions. This can be viewed as good news by management in organisations who wish to implement SFA tools and have an existing sales force, which may be older or largely female or considered to be technology-averse. By providing user training and support, ensuring user participation and team-leader support, the findings from this study show that any inherent individual limitations can be overcome.

5.3.3 Influence of Social Factors on PU and PEON

In 2000, when Venkatesh and Davis proposed an extension to the original TAM model, they included social influences as a positive contributing factor towards perceived usefulness. They believed that users attribute credibility to a system if their respected colleagues/managers are using it, and therefore will be more inclined to adopt this technology. Studies following this (Ahearne et al, 2005, Avlonitis and Panagopoulos, 2005, Buehrer et al, 2005 and Homburg, Wieseke and Kuehnl, 2010) have all confirmed that management and peer support are critical influences to perceived usefulness and ease-of-use. Most previous research has shown that technology adoption does not occur in a vacuum, and that most salespeople are strongly influenced by those around them in the organisation (Schillewaert et al, 2005).

The current study found the following set of results:

- ***Team Leader Support*** was not found to have significant relationships with users' perceptions. This finding is in contradiction with that found in literature, which have shown that the influence from the salesperson's manager is one not to be underestimated (Avlonitis and Panagopoulos, 2005). It was, however, found that Team Leader support had a direct and significant relationship with User Acceptance. This study therefore implies that Team Leader support is in fact a strong, independent construct on its own and has a very significant influence on User Acceptance directly. While its influence on user's perceptions is diminished in the

presence of System, Individual and Organisational factors, this construct manages to show significant impact on User Acceptance in the presence of all factors, including perceptions.

- ***Peer Usage*** was found to have a strong statistical relationship on Perceived Ease-of-Navigation and Perceived Usefulness. The co-workers' influence on technology adoption has been found to occur either through social learning (i.e. when peers draw attention to specific features of the tool, or by hearing what others are saying about the technology) or through observation of how they are utilizing this technology in their day-to-day lives (Homburg, et al, 2010).

The only control variable to show a significant influence on the relationship between Social factors and users' perceptions on ease-of-use and usefulness is the number of years the individual has spent in the organisation. One may be able to assume from this fact that the longer the individual has been in the organisation, the more they are influenced by their peers and line managers.

5.3.4 Influence of System Characteristics on PU and PEON

Since Davis' (1989) initial TAM model, most papers published after that date have treated PU and PEOU as black boxes, with few research efforts going into what makes a system useful or easy-to-use (Benbasat and Barki, 2007). Therefore, much of the literature has few actionable recommendations for design of the IT artefact (Wixom and Todd, 2005). Goodhue and Thompson (1995) and Dishaw and Strong (1999) were among the first authors who presented a combined TAM-TFF model (this was discussed in Chapter 2). Their report, and those of Zeithaml, Parasuraman and Malhotra (2002) and Wixom and Todd (2005) formed the basis for the current study to include response times and ease-of-navigation as independent variables.

In their model, Wixom and Todd (2005) looked at the following system characteristics as antecedents, such as reliability, flexibility, integration, accessibility and timeliness. Zeithaml et al's (2002) study of e-SERVQUAL (a model to measure service, quality and delivery of websites) included perceived transaction speed, responsiveness to the user's needs and general ease of navigation. Given the literature support for including these constructs and the researcher's close understanding to the common complaints of the users, it was decided to include "ease of navigation' and "response times" to the constructs under System Characteristics. However, "ease of navigation" was strongly associated with Perceived Ease-

of-Use, and was thus combined to form Perceived Ease-of-Navigation (PEON) as a new, joined dependent variable.

- **Response Times** was found to have a significant effect on the users' perceptions of how easy it is to use. This finding is a contribution to this field of study by providing a tangible and actionable design element (that of increasing the system's responsiveness) that can be incorporated in the future when creating SFA tools. It is clear, that the more complicated the interface and the longer the response times, the less users tend to perceive the system as being friendly, and the less they will tend to adopt the system.

5.4 Summary

The findings from this research study confirm 11 out of the 19 proposed hypotheses while the results do not support the other 8 hypotheses. The current study proposes three new hypotheses that were not initially part of the research model, which are the direct relationships between Perceived Ease-of-Navigation, Team Leader Support and Personal Innovativeness to User Acceptance.

While most of the findings are consistent with literature, such as the confirmation of Perceived Usefulness and Perceived Ease-of-Navigation as important antecedents to Acceptance, the results question previously postulated assumptions, such as the effect that individual characteristics (e.g. age) have on technology adoption.

6. Conclusion

6.1 Introduction

The chapter proceeds to review the findings from the research as well as a discussion on whether the initial objectives have been met. It also aims to reflect on how these findings contribute towards practice and future research. Limitations of this study are discussed, as well as proposed hypotheses for future investigation.

6.2 Summary of the Findings from the Research Study

This research study was developed to address very specific research questions pertaining to the employees within Bank A who utilize an SFA tool called Siebel. The researcher was involved in rolling out this program while working in Bank A, and noticed considerable resistance from the sales teams in adopting the system. While working on the Master's research programme, the researcher found a noteworthy amount of literature on reasons why users adopt and resist certain technology. However, there was very little at the time of the research that was explicitly looking at the issues of adoption by salespeople in a developing economy context. Also, not many articles considered system-characteristics as an antecedent to Information Systems (IS) adoption, along with Subjective Norms, Individual Factors and Organisational Facilitation. What is commonly found in practice is that some of the biggest complaints from the users were the system's lack of responsiveness and its poor navigation. Hence the need to investigate the issue further and the construct was added to the research model.

The research model was developed by adopting various aspects from the TAM-TFF models, as well as numerous subsequent models that evolved from TAM, specifically those that viewed the issues of adoption among salespeople. The actual study was conducted in Bank A by sending an online questionnaire to the licensed users of Siebel.

Bank A is one of South Africa's oldest and largest banks, and is considered to be at the forefront of innovation by its customers, and has won numerous international awards for some of its breakthroughs in product and service innovations. Bank A also uses many sophisticated banking systems, and can be considered to be on-par with any international bank in terms of technology use.

In a recent global survey conducted by the World Economic Forum, South Africa ranked first in the world on the trustworthiness of its financial markets, and second on the soundness of its banks (Sarah Britten, 2012).

337 responses were received in total at the end of the survey period. Tests for reliability and validity showed all constructs could be used, with the exception of Ease-of-Navigation, which was subsequently combined with Perceived Ease-of-Use to form a new construct. All the hypotheses were tested using linear regression modelling. The results confirmed that when tested individually, Social, Organisational and System characteristics are important in contributing towards user adoption. However, Personal Innovativeness and Age were found not to play a significant role towards influencing users' perceptions on usefulness or ease-of-use.

In the second part of the regression analysis, when all the factors were tested together to see the combined effects on Perceived Usefulness, Perceived Ease of Use and User Acceptance: the following was found:

- Perceived Usefulness was most influenced by Peer Usage, User Participation and Technical Assistance
- Perceived Ease-of Navigation was most influenced by Peer Usage, User Participation, Technical Assistance, Response Times and User Training
- User Acceptance was significantly affected by Perceived Usefulness, Perceived Ease-of-Use, Personal Innovativeness and Team Leader Support

6.3 Contributions to Research

While previous research has been inconclusive on the significance of the effect that Perceived Ease of Use has on system acceptance, this study found an important and direct relationship between the two.

The findings from the current study also found direct and significant influence from Personal Innovativeness with the user's tendency to accept technology (Jones et al, 2002, Avlonitis and Panagopoulos, 2005 and Robinson et al, 2005), while refuting other claims that Personal Innovativeness and Age have an important influence on users' perceptions of the system's usability (Speier and Venkatesh, 2002).

Findings from the current research also show the relative importance of Social and Organisational factors on users' perceptions. Therefore, it appears that extrinsic factors have a relatively more significant effect than intrinsic factors on users' perceptions of the SFA tool. This means that organisations could have more control over the acceptance process if the above-mentioned aspects are fully utilised (Ahearne et al, 2005).

Finally, the relative importance of Response Times to users' Perceived Ease-of-Navigation confirmed that adding the construct of System Characteristics was justified, and could be further explored in future research by collaborating with Web-QUAL measures to find other systemic characteristics to analyse.

6.4 Contribution to Practice

Organisations that were previously concerned about claims that Salespeople are technologically-challenged (Rangarajan et al, 2004), may find some reprieve based on the findings from this study. The current study showed that Social and Organisational facilitation can overcome a lack of personal innovativeness when it comes to users' perceptions of a system's usability. By ensuring that users are included in discussions with management prior to the implementation of the SFA system, and by providing ample user training and technical support during the implementation, users may be able to overcome any technological challenges they face (Buehrer et al, 2005, and Homburg et al, 2010). Also, according to the current research, the findings confirm previous findings that women tend to be less confident about the usability of new technology (Speier and Venkatesh, 2002). Given that the findings suggest women are more apprehensive about using new technology, it may be a worthwhile exercise for organisations to concentrate on the female users during training sessions, while being careful not to appear to be sexist or prejudiced in any way. This could alleviate any potential stress or worry the female users have about using new SFA tools, and therefore increase their acceptance through the focused training.

Response times were also shown in the current study to have a strong influence on users' perceptions of the system's usability (Chu et al, 2008). SFA vendors therefore need to focus on simplifying the back-end integration of data so that users are provided with quick responses to their queries. This will encourage repeated usage, and eventual acceptance. This finding is even more important for companies like Bank A who implemented the system over 10 years prior, and whose database has slowly been amended with the demands of the users. However, the back-end database is no longer stable due to the ad-hoc changes made over the years. The system requires a general overhaul and needs to be re-done completely,

so that the employees can enjoy a positive experience with the system. The current findings have also shown that prolonged usage of the system tends to improve perceptions of the system's usability and increase user acceptance.

6.5 Limitations of the study

There are a number of limitations to this study that must be noted. Firstly, the questionnaire was published in an online format, which poses its own set of bias as only respondents who felt comfortable with an electronic format would have volunteered to respond to the questionnaire. Online environments tend to present their own set of complexities, as opposed to traditional paper-based formats (Loiacono, et al, 2007).

Secondly, the sample of respondents was all Siebel license-holders within Bank A. While the group was large (there are over 4000 registered users of the system), the respondents from Bank A cannot be considered to be representative of all users of a SFA system across South Africa. There would certainly be some degree of bias when all the respondents are from within the same organisation, especially when considering many of the questions pertain to organisational and social factors that request the respondents to describe their situation with their peers, team leaders and the kind of technical and user support from the company. While Bank A is run as a federated model[7], one can still expect certain commonalities between the employees. A degree of sampling bias may be found from using a convenience sample from one organisation which limits the ability to generalise the results from this study (Maree, 2007). Social desirability bias could also have crept into the results, where users feel obliged to give what they believe is the "right" or "acceptable" answer in the mind of the organisation (Thompson and Phua, 2005).

Thirdly, while qualitative responses were provided for in the questionnaire (in a Comments section), the researcher was unable to include a qualitative analysis in this research paper due to time constraints. It is suggested that future studies include a qualitative component.

Finally, another limitation of this study is the fact that a few heads of departments within Bank A sent out reminder e-mails to the user group to encourage them to complete the questionnaire. It is very possible that the e-mails from senior management may have resulted in the study receiving a large number of responses. Although, the larger response

[7] A federated model is one where each Business Unit runs almost fully autonomously from the parent company or greater division. Each Business Unit has a CEO and is managed according to an owner-manager culture

rate allows greater statistical variability, it is possible that some users may have felt a level of pressure to complete the questionnaire and thus created a bias in the study.

6.6 Future research

This study puts forward a few points for further discussion and research: the first one is to better understand the factors under System Characteristics that have an impact of users' perceptions of ease-of-use. From an academic and practical perspective, this has significant implications. Many researchers studying user acceptance have not investigated the intrinsic qualities of the IT tools to understand which qualities are considered critical from a usability and adoption point-of-view (Benbasat and Barki, 2007). While Perceived Ease-of-Use has often been included in adoption studies post-TAM, only a few (specifically those research studies that investigated measures for website quality and service, e.g. Loiacono et al, 2007 and Parasuraman et al, 2005) have considered which aspects of the usability of the tool assist or deter adoption.

This study initially put forward two characteristics: ease-of-screen navigation and response times, but the items under ease-of-screen navigation were found to be very similar with Perceived Ease of Use, and was thus joined with each other to create a new construct called Perceived Ease-of-Navigation (PEON).

However, there are other aspects to be considered from the literature, specifically those that measure the quality of websites. By examining the web-QUAL model, one could potentially find ways to integrate aspects of this measure with that of technology acceptance studies to find more definitive ways to unpack what constitutes "ease-of-use", for example, information availability and content, graphic style, reliability, accessibility or reporting ability of the tool that are considered important by users when it comes to inherent system characteristics (Parasuraman et al, 2005).

The second aspect that could be considered for further research is the direct relationship that Perceived Ease-of-Navigation, Team Leader Support and Personal Innovativeness have been shown to have on tool adoption in this current study. While the initial model did not hypothesise a significant relationship between these constructs and Tool Acceptance, the results from the current strongly support a direct correlation between User Acceptance and all three items.

Finally, it appears that the number of Years in the Organisation and Years of Use of the system have strong influences on PU, PEON and User Acceptance. Practitioners worldwide could appreciate further insight into how to get users to persevere with the system, in order for users to see the full benefit of the system. Perhaps making the system mandatory for a specific period of time post-implementation, or measuring their performance through their usage of the system would be ways that management could ensure continued usage by the end-users.

6.7 Conclusion

The results of this study enriches current IS literature on the topic of IT Adoption, by specifically looking at the adoption of SFA tools by Salespeople in a South African context. The research report measured the responses of sales and non-sales people in Bank A on their perceptions of the usefulness and ease-of-use of the SFA tool in their organisation. These results were then used to gauge what factors lead users to accepting SFA tools.

Findings from the current study suggest that Team Leader Support and Personal Innovativeness could be added to future technology acceptance models as independent constructs in the same way that TAM has been proposing Perceived Usefulness and Perceived Ease-of-Use as antecedents to user acceptance. Further research could extrapolate from the current research and confirm whether this new model provides similar results in different organisations and contexts. Including qualitative analysis in further studies could also result in deeper understanding of the users' perceptions.

The current research also confirms the addition of the new construct, System Characteristics and proposes further research into understanding what other technical characteristics of SFA tools (in addition to Response Times) that could assist practitioners and researchers to further understand the tangible aspects of the system that deter or enable user acceptance.

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Appendix A: The final questionnaire

Dear Bank A Staff Member

My name is Marlyn Jose-Menon and I am a Masters student at the University of Witwatersrand. I am conducting research on the factors that result in the acceptance of Siebel amongst both sales and non-sales staff across Bank A.

You are invited as a user of Siebel to take part in this survey.

Your response is important and there is no right or wrong answer. This survey is both confidential and anonymous. Should you wish to participate, you will be routed to an internet-based link that allows access to all employees on the Bank A server. There is no way of tracing your employee number or any other details. 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 survey comprises 34 statements. Please indicate the extent to which you agree or disagree with each statement, by ticking in the appropriate box.

The entire survey should take between 10 to 15 minutes to complete. Kindly have this survey completed by the 1st of February 2010 (2 weeks from this date).

The survey was approved unconditionally by the Wits University Human Research Ethics Committee (Non-Medical), Protocol Number: H090905

Thank you for your participation. Should you have any questions, or should you wish to obtain a copy of the results of the survey, please contact me on 082 537 9287 or at marlyn.jose@xxx.co.za

Kind regards
M Jose-Menon
Department of Information Systems
School of Economic and Business Sciences
University of Witwatersrand

☐ **I hereby agree that I have read the above and choose to continue with the survey**

For each question, please place a cross/tick under the relevant heading, indicating the extent to which you disagree or agree with each statement.

		Strongly Disagree	Disagree	Neither Agree nor disagree	Agree	Strongly Agree
	The following questions pertain to Siebel's response times					
1.	Siebel has an acceptable response time					
2.	When I use Siebel there is very little waiting time between my actions and the system's response					
3.	I often get impatient while using Siebel					
	The following questions pertain to screen navigation on Siebel					
4.	The information on the Siebel screens is well organised					
5.	It is easy to navigate the Siebel screens					
6.	It is easy to find information on the Siebel screens					
	The following questions pertain to Team Leader/Line manager support					
7.	My team leader/line manager strongly advocates Siebel in performing our daily tasks					
8.	My team leader/line manager believes there are true benefits from using Siebel					
9.	My team leader/line manager continuously encourages me to use Siebel					
	The following questions pertain to your peer's usage of Siebel					
10.	Siebel is heavily used by everyone in my Organisation					
11.	A lot of my colleagues rely on Siebel to perform their roles					
12.	I would say that the majority of my colleagues are using Siebel to perform their tasks					
	The following questions pertain to your personal innovativeness					
13.	Among my peers, I am usually the first one to try out new technology					
14.	In general, I consider myself quite innovative when it comes to technology					
15.	I am generally able to learn a new technology without any assistance					

		Strongly Disagree	Disagree	Neither Agree nor disagree	Agree	Strongly Agree
16.	Generally, I find it easy to get technology to do what I want it to do					
	The following questions pertain to Siebel user training					
17.	My company has extensively trained me in the use of Siebel					
18.	I am getting the user training I need to be able to use Siebel effectively					
19.	My company has provided me complete instructions and guidelines in using Siebel					
	The following questions pertain to Siebel technical assistance					
20.	I know where to turn to when I need any technical assistance with Siebel					
21.	We have extensive support to help with technical problems related to Siebel					
22.	We get adequate technical assistance and support for Siebel					
	The following questions pertain to user participation					
23.	My opinion is requested whenever new functionality is added on Siebel					
24.	I actively take part in discussions with management regarding my opinions on Siebel					
	The following questions pertain to how useful you find Siebel					
25.	Using Siebel improves my job performance					
26.	Using Siebel increases my productivity					
27.	Using Siebel enhances my effectiveness in my job					
	The following questions pertain to your acceptance of Siebel					
28.	I have fully accepted Siebel in my daily work					
29.	I believe that Siebel constitutes an integral part of my work					
30.	Compared to my peers, I consider myself a frequent user of Siebel					
31.	I use more of Siebel's capability compared to my colleagues					
	The following questions pertain to Siebel's ease of use					
32.	Using Siebel requires a lot of mental effort					
33.	It was easy for me to become skilful at using Siebel					
34.	I find it easy to get Siebel to perform the required tasks					

30. Do you have any other comments about Siebel? Please write your thoughts below…

Please place a cross on the relevant boxes (☒)

- **Age Group:**

  20 – 25 ☐
  26 - 31 ☐
  32 - 37 ☐
  38 - 44 ☐
  44 – 49 ☐
  ≥50 ☐

- **Gender:**

  Male ☐ Female ☐

- **My primary role in the Organisation is:**

  Sales (RM or CPE) ☐
  Non-sales ☐

  (i.e. Transactional Banker, Online Banking Specialist, Banking Specialist, CPA, Team Leader, Operations Specialist, Call Centre Agent. etc)

- **Using Siebel in my business unit is……? (Please select the appropriate box)**

  Mandatory ☐
  Voluntary ☐

- **My manager measures my performance through Siebel**

  Yes ☐ No ☐

- **I have been using Siebel for**

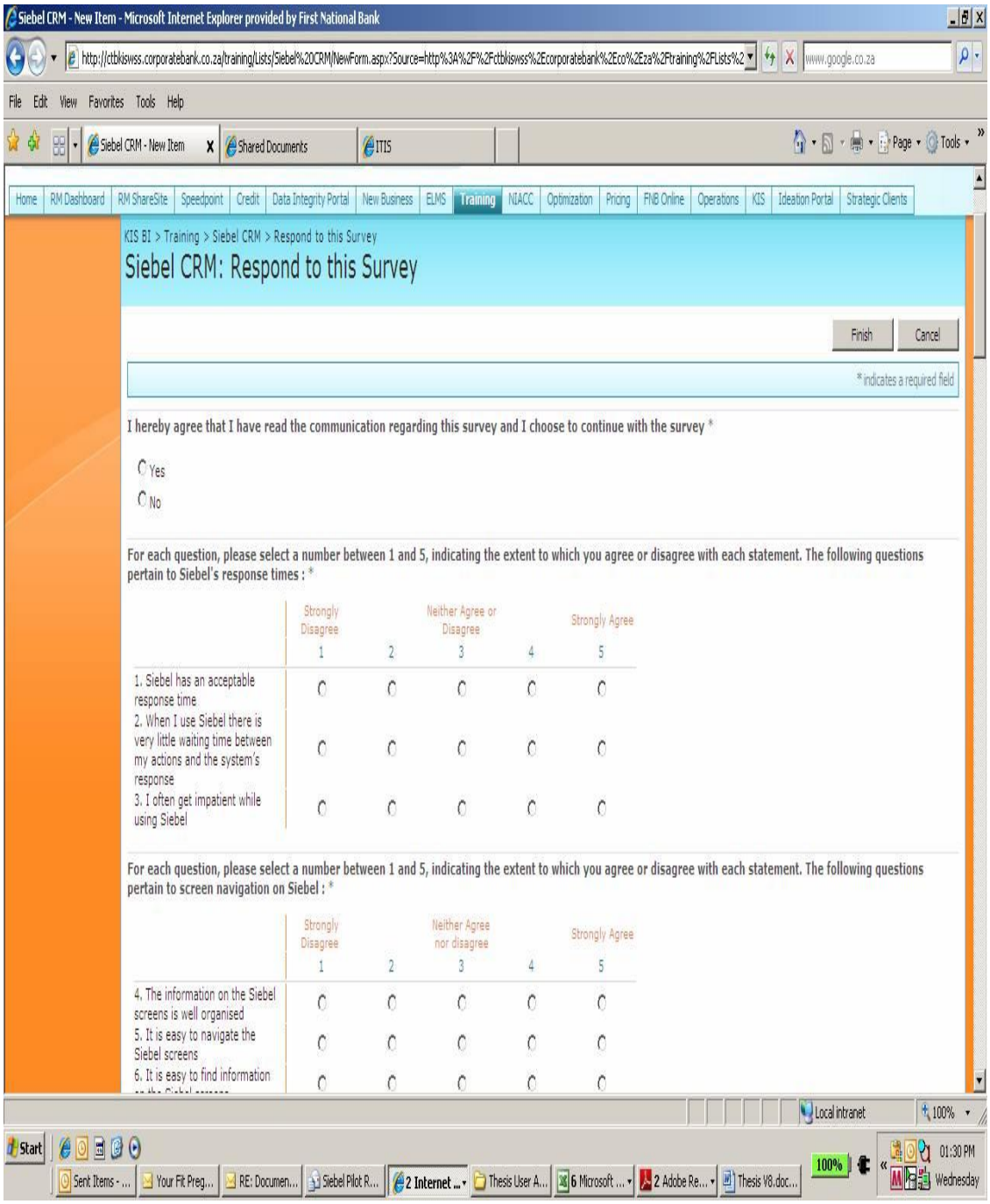
  0 – 2 years ☐
  3 – 5 years ☐
  6 – 10 years ☐
  > 11 years ☐

- **I have been working in the organisation for**

  0 – 3 years ☐
  4– 6 years ☐
  6 – 10 years ☐
  11 – 15 years ☐
  >16 years ☐

Thank you for your participation in the above survey.

Appendix B: Screen-shot of Online Questionnaire



Appendix C: Letter of Consent from Bank A

TO WHOM IT MAY CONCERN:

Marlyn Jose-Menon (MCom II student at the University of Witwatersrand, studer number: 336017) ***has been granted permission*** to conduct her research (titled "Individual, Social, Organizational and System Factors that Influence Acceptanc SFA Tools: The Case Study of CRM in a South African Banking Context") on se participants within [redacted].

She will choose her participants based on all active users of the Siebel CRM sys and will send her questionnaire to them electronically, using [redacted]'s e-mail platfo well as our intranet portal.

A general and high-level feedback report may be provided to [redacted] provided the does not require the confidentiality of her research to be compromised.

Yours sincerely

Mercia van Oudtshoorn

Acting Head of HR

Appendix D: Reliability Scores of questions to be included from Literature **(Cronbach's alpha scores as per the individual study are presented)**

Hypothesis	Question	Reference	Reliability Score
Hypothesis 9: SFA perceived usefulness will positively influence SFA tool acceptance.	Using Siebel improves my job performance	Davis, 1989	0.91
Hypothesis 9: SFA perceived usefulness will positively influence SFA tool acceptance.	Using Siebel increases my productivity	Davis, 1989	0.93
Hypothesis 9: SFA perceived usefulness will positively influence SFA tool acceptance.	Using Siebel enhances my effectiveness in my job	Davis, 1989	0.96
Hypothesis 9: SFA perceived usefulness will positively influence SFA tool acceptance.	I have fully accepted Siebel in my daily work	Cited by Avlonitis and Panagopoulos, 2005	0.55
Hypothesis 8: SFA perceived ease-of-use will positively influence SFA perceived usefulness.	I find it easy to get Siebel to do what I want it to do	Davis, 1989	0.74
Hypothesis 8: SFA perceived ease-of-use will positively influence SFA perceived usefulness.	Using Siebel requires a lot of mental effort	Davis, 1989	0.76
Hypothesis 7b: Response time will positively influence SFA perceived ease-of-use	Siebel is very quick in its response times.	Loiacono et al, 2007	0.88
Hypothesis 7b: Response time will positively influence SFA perceived ease-of-use	When I use Siebel there is very little waiting time between my actions and the system's response	Loiacono et al, 2007	0.88
Hypothesis 7c: Ease-of Navigation will positively influence SFA perceived ease-of-use	The information on the Siebel screens is well organized	Parasuraman, Zeithaml and Malhotra, 2005	0.86
Hypothesis 7c: Ease-of Navigation will positively influence SFA perceived ease-of-use	It is easy to navigate to where I need to on the Siebel screens	Parasuraman, Zeithaml and Malhotra, 2005	0.87
Hypothesis 7c: Ease-of Navigation will positively influence SFA perceived ease-of-use	It is easy to find information on the Siebel screens	Parasuraman, Zeithaml and Malhotra, 2005	0.87
Hypothesis 6a and 5a: Supervisor support will positively influence SFA perceived usefulness and ease-of-use	My team leader clearly advocates Siebel in performing our daily tasks	Avlonitis and Panagopoulos, 2005	0.92
Hypothesis 6b and 5b: Peer usage will positively influence SFA perceived usefulness and ease-of-use	Siebel is heavily employed by everyone in my Organisation	Schillewaert et al, 2005	0.92

Hypothesis	Question	Reference	Reliability Score
Hypothesis 6b and 5b: Peer usage will positively influence SFA perceived usefulness and ease-of-use	A lot of my colleagues rely on Siebel	Schillewaert et al, 2005	0.92
Hypothesis 4a and 3a: Personal innovativeness will positively influence SFA perceived usefulness and ease-of-use	Among my peers, I am usually the first one to try out new technology	Jones, Sundaram and Chin, 2002	0.91
Hypothesis 4a and 3a: Personal innovativeness will positively influence SFA perceived usefulness and ease-of-use	In general, I consider myself quite innovative when it comes to technology	Jones, Sundaram and Chin, 2002	0.83
Hypothesis 4b and 3b: Computer self-efficacy will positively influence SFA perceived usefulness.	I am generally able to learn a new technology without any assistance	Adapted from Compeau and Higgins, 1995	0.91
Hypothesis 4b and 3b: Computer self-efficacy will positively influence SFA perceived usefulness and ease-of-use	Generally, I find it easy to get technology to do what I want it to do	Jones, Sundaram and Chin, 2002	0.93
Hypothesis 4c and 3c: Age will positively influence SFA perceived usefulness and ease-of-use	Age Group Please select the age group you fit into: 20 – 30 31 – 40 41 - 50 51 - 60		
Hypothesis 4d and 3d: Gender will positively influence SFA perceived usefulness and ease-of-use	Please select your gender: _Male _Female		
Hypothesis 2a and 1a: Technical user training will positively influence SFA perceived usefulness and ease-of-use	My company has extensively trained me in the use of Siebel	Schillewaert, et al, 2005	0.93
Hypothesis 2a and 1a: Technical user training will positively influence SFA perceived usefulness and ease-of-use	I am getting the user training I need to be able to use Siebel effectively	Schillewaert, et al, 2005	0.93
Hypothesis 2a and 1a: Technical user training will positively influence SFA perceived usefulness and ease-of-use	My company has provided me complete instructions and guidelines in using Siebel	Schillewaert, et al, 2005	0.93

Hypothesis	Question	Reference	Reliability Score
Hypothesis 2b and 1b: Technical support will positively influence SFA perceived usefulness and ease-of-use	I know where to turn to when I need any technical assistance with Siebel	Schillewaert et al, 2005	0.92
Hypothesis 2b and 1b: Technical support will positively influence SFA perceived usefulness and ease-of-use	We have extensive support to help with problems related to Siebel	Schillewaert et al, 2005	0.92
Hypothesis 2c and 1c: User participation will positively influence SFA perceived usefulness and ease-of-use	My opinion and needs (or at least those of my colleagues) were consulted before deciding to buy and implement Siebel	Avlonitis and Panagopoulos, 2005	0.81
Hypothesis 2c and 1c: User participation will positively influence SFA perceived usefulness and ease-of-use	I constructively and actively take part in discussions with management regarding my opinions on Siebel	Avlonitis and Panagopoulos, 2005	0.81

Appendix E: Letter from Ethics Clearance Committee

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (NON MEDICAL)
R14/49 Jose-Menon

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER H0 90905**
PROJECT	Individual, social organizational and system factors that influence acceptanc of SFA tools: the case study of CRM in a South African Banking context
INVESTIGATORS	Ms M Jose-Menon
DEPARTMENT	Information System
DATE CONSIDERED	11.09.2009
DECISION OF THE COMMITTEE*	Approved Unconditionally
NOTE:	

Unless otherwise specified this ethical clearance is valid for 2 years and may be renewed upon application

DATE 29.10.2009 **CHAIRPERSON** .....
(Professor R Thornton)

cc: Supervisor : Ms JM Bancilhon

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

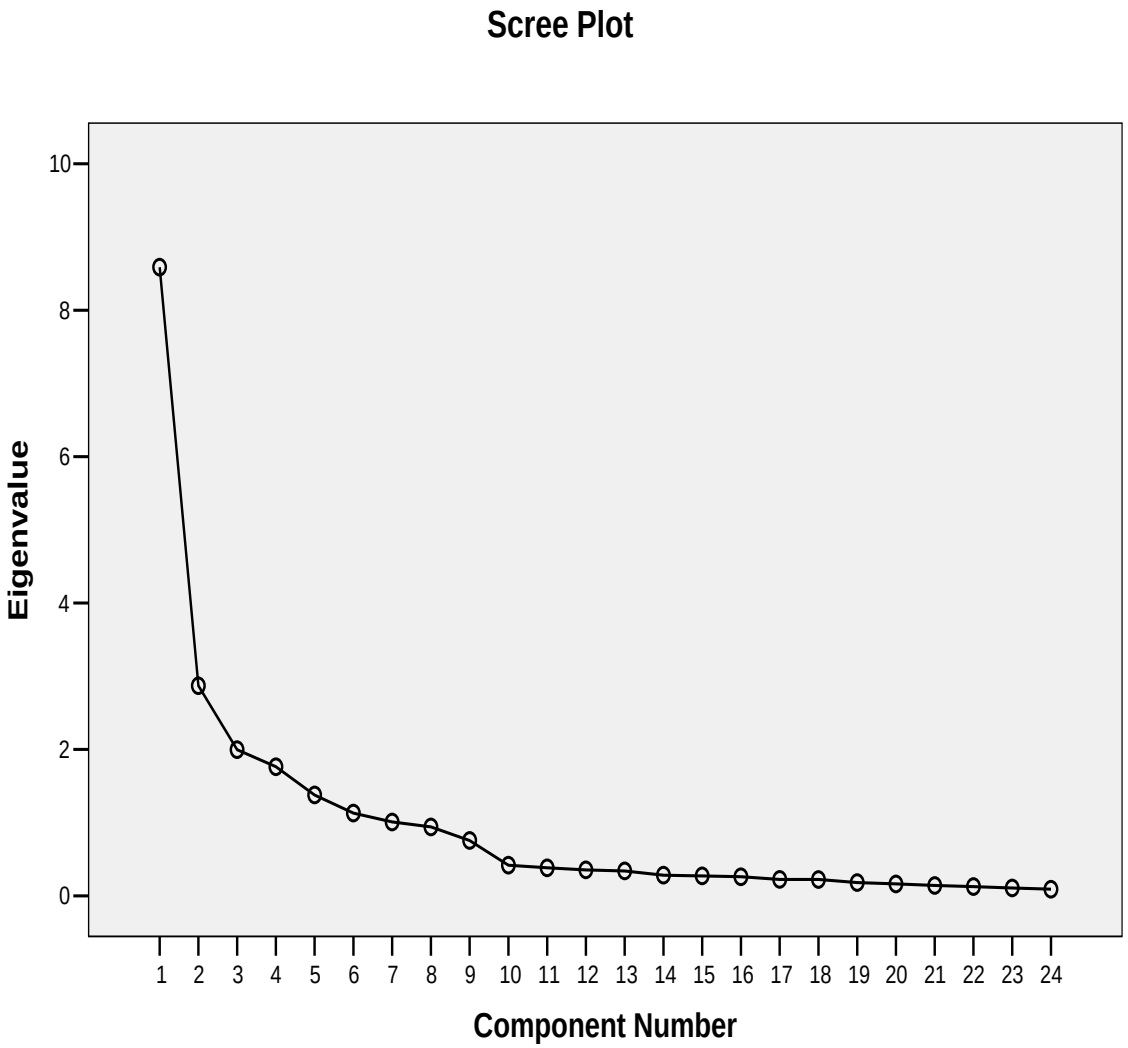
.....
Signature

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix F: Name of all constructs used in data set

Abbreviations	Item Number	Questionnaire Items	Comment
RSPT1	1	Siebel has an acceptable response time	
RSPT2	2	When I use Siebel, there is very little waiting time between my actions and the system's response	
RSPT3	3	I often get impatient while using Siebel	Dropped
SCRN1	4	The information on the Siebel screens is well organised	Merged with PEOU
SCRN2	5	It is easy to navigate the Siebel screens	Merged with PEOU
SCRN3	6	It is easy to find information on the Siebel screens	Merged with PEOU
TeamLead1	7	My team leader/line manager strongly advocates Siebel in performing our daily tasks	
TeamLead2	8	My team leader/line manager believes there are true benefits from using Siebel	
TeamLead3	9	My team leader/line manager continuously encourages me to use Siebel	
PeerUsage1	10	Siebel is heavily used by everyone in my Organisation	
PeerUsage2	11	A lot of my colleagues rely on Siebel to perform their roles	
PeerUsage3	12	I would say that the majority of my colleagues are using Siebel to perform their tasks	
PersInnov1	13	Among my peers, I am usually the first one to try out new technology	
PersInnov2	14	In general, I consider myself quite innovative when it comes to technology	
PersInnov3	15	I am generally able to learn a new technology without any assistance	
PersInnov4	16	Generally, I find it easy to get technology to do what I want it to do	
UserTrain1	17	My company has extensively trained me in the use of Siebel	
UserTrain2	18	I am getting the user training I need to be able to use Siebel effectively	
UserTrain3	19	My company has provided me complete instructions and guidelines in using Siebel	
TechAssist1	20	I know where to turn to when I need any technical assistance with Siebel	Dropped
TechAssist2	21	We have extensive support to help with technical problems related to Siebel	
TechAssist3	22	We get adequate technical assistance and support for Siebel	
UserPart1	23	My opinion is requested whenever new functionality is added on Siebel	
UserPart2	24	I actively take part in discussions with management regarding my opinions on Siebel	
PUseful1	25	Using Siebel improves my job performance	
PUseful2	26	Using Siebel increases my productivity	
PUseful3	27	Using Siebel enhances my effectiveness in my job	
PAccept1	28	I have fully accepted Siebel in my daily work	Dropped
PAccept2	29	I believe that Siebel constitutes an integral part of my work	Dropped
PAccept3	30	Compared to my peers, I consider myself a frequent user of Siebel	
PAccept4	31	I use more of Siebel's capability compared to my colleagues	
PEOU1	32	Using Siebel requires a lot of mental effort	Dropped
PEOU2	33	It was easy for me to become skilful at using Siebel	
PEOU3	34	I find it easy to get Siebel to perform the required tasks	

Appendix G: Scree Plot



Appendix H: Statistical Tests in order to perform Linear Regression

1. Descriptive Statistics, Skewness & Kurtosis

All results for descriptive statistics have been described in Chapter 4, page 41. Below are the statistical tables showing that Skewness results were between -1 and +1, and Kurtosis results were between -3 and +3 (Hair, et al, 2003). Team Leader Support's skewness result was slightly higher at -1.031 however the value is marginally outside the expected norms.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite RSPT	337	2.00	10.00	6.0059	2.06299	-.129	.133	-.765	.265

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite TeamLead	337	3.00	15.00	12.3828	2.88346	-1.031	.133	.445	.265

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite PeerUsage	337	3.00	15.00	9.8783	3.37357	-.298	.133	-.779	.265

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite PersInnov	337	4.00	20.00	14.2908	3.45615	-.272	.133	-.194	.265

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite UserTrain	337	3.00	15.00	10.2404	3.08488	-.320	.133	-.506	.265

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite TechAssist	337	3.00	15.00	10.4659	3.22003	-.488	.133	-.341	.265

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite UserPart	337	2.00	10.00	4.8605	2.26414	.302	.133	-.818	.265

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite Usefulness	337 337	3.00	15.00	9.3828	3.75183	-.224	.133	-.916	.265

Descriptive Statistics

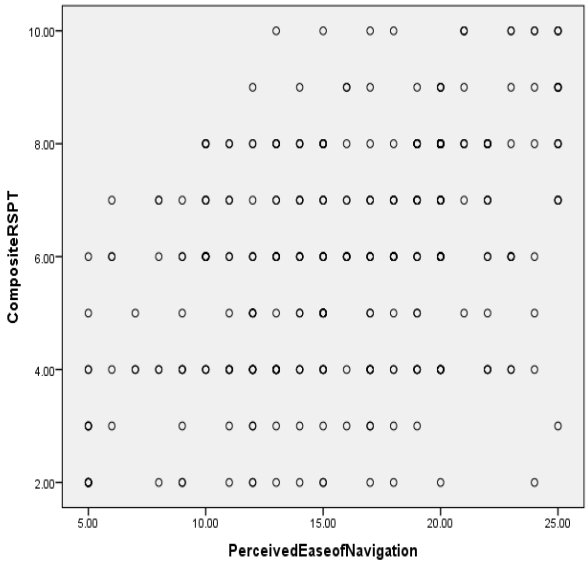
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Perceived EaseofNavigation	337	5.00	25.00	15.9228	5.11650	-.239	.133	-.669	.265

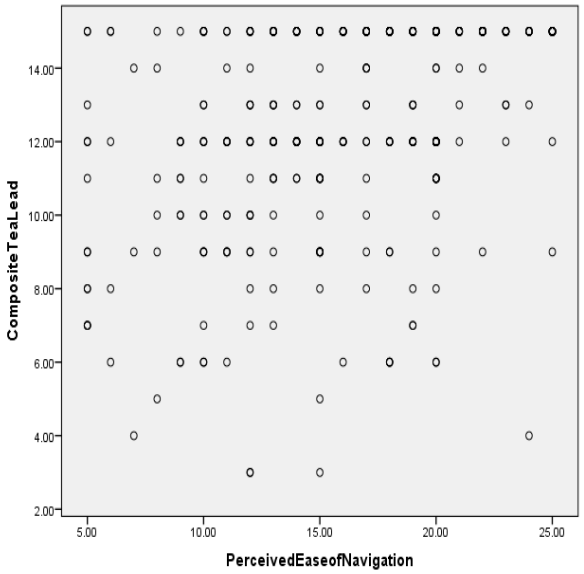
Descriptive Statistics

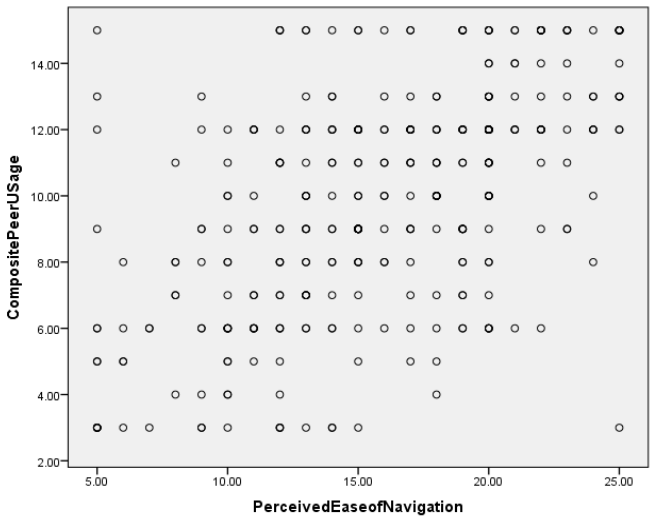
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Composite Acceptance	336	2.00	10.00	6.8423	1.99150	-.337	.133	-.221	.265

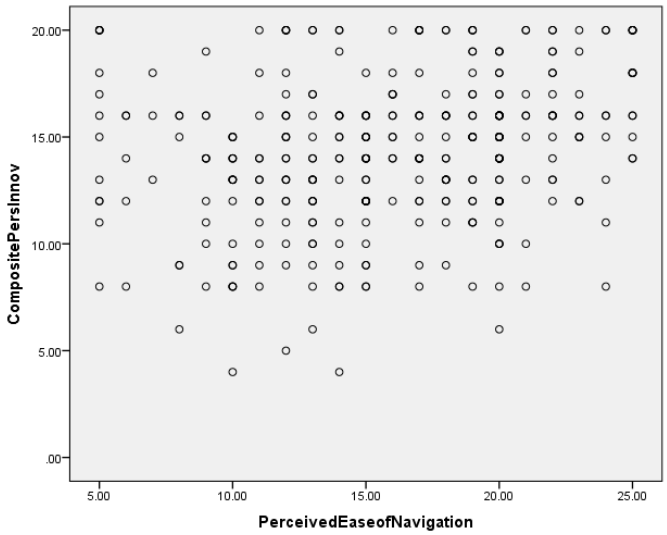
2. Testing for Linearity: Independent Variables with PEON

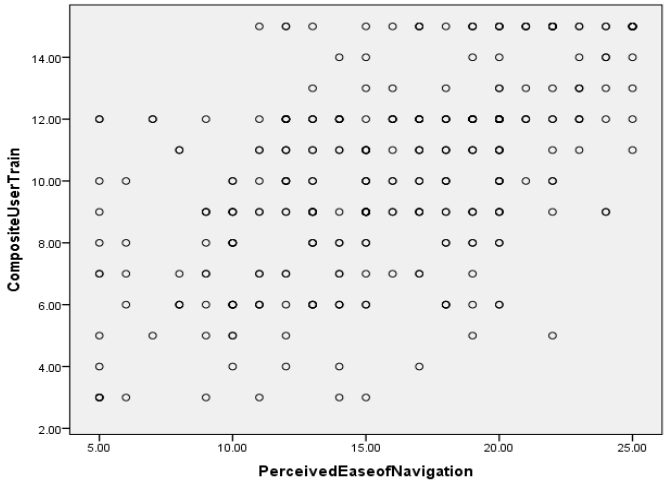
None of the tests revealed curvilinear relationships, therefore there were no concerns about using Linear Regression (Pallant, 2007).



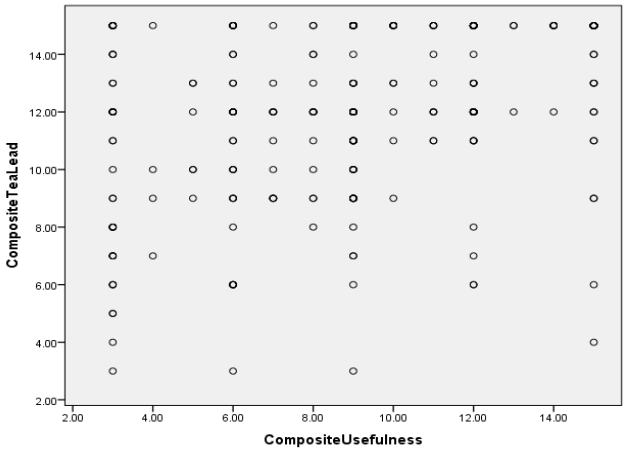


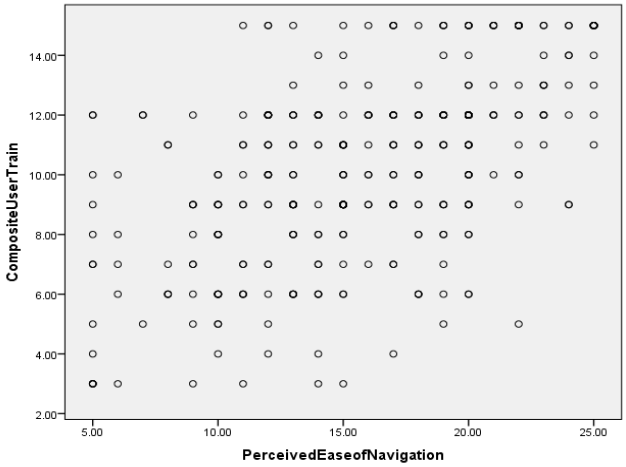

CompositePeerIUSage
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PerceivedEaseofNavigation

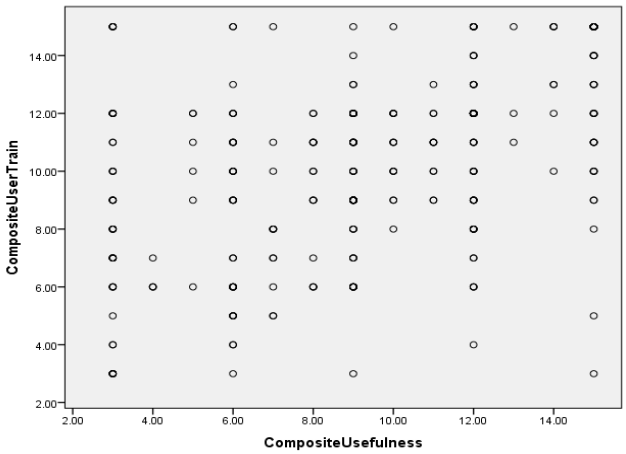

CompositePersInnov
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PerceivedEaseofNavigation

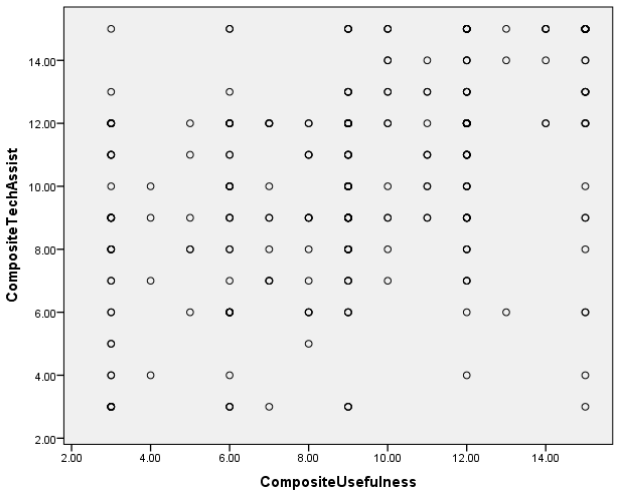

CompositeUserTrain
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25.00
PerceivedEaseofNavigation

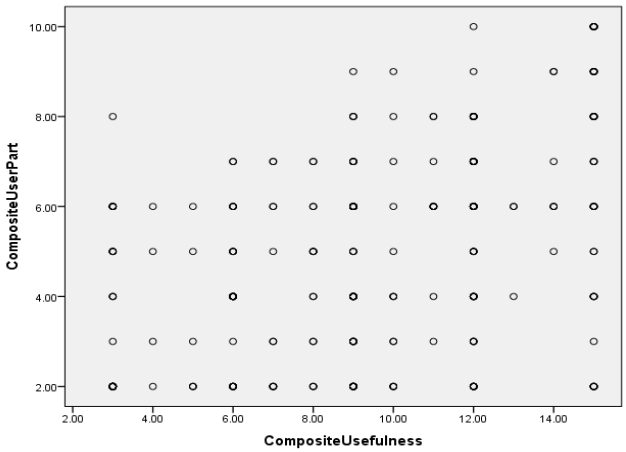
3 Testing for Linearity: Independent Variables with PU

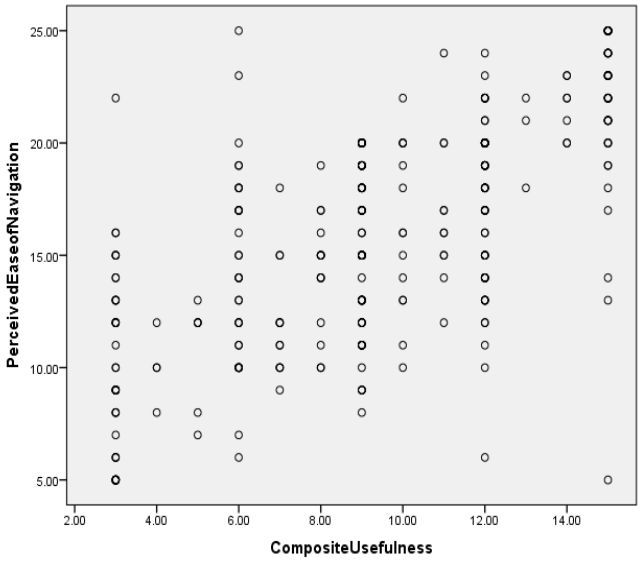




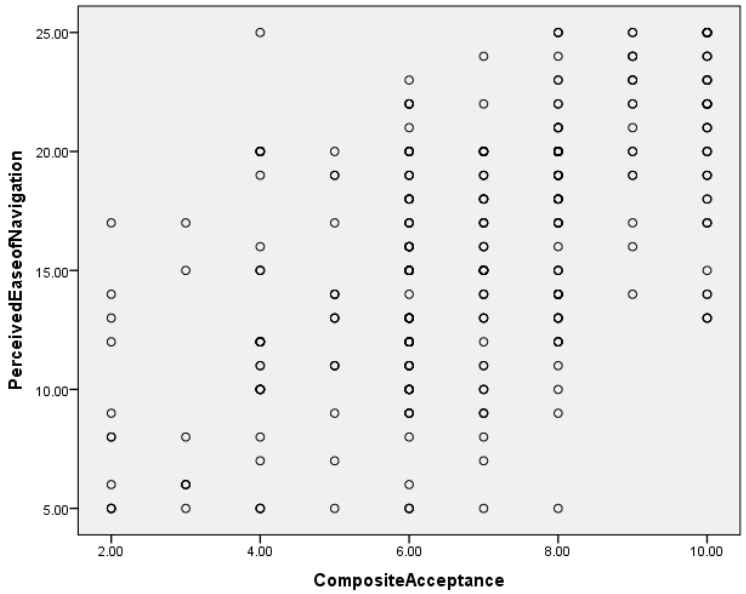


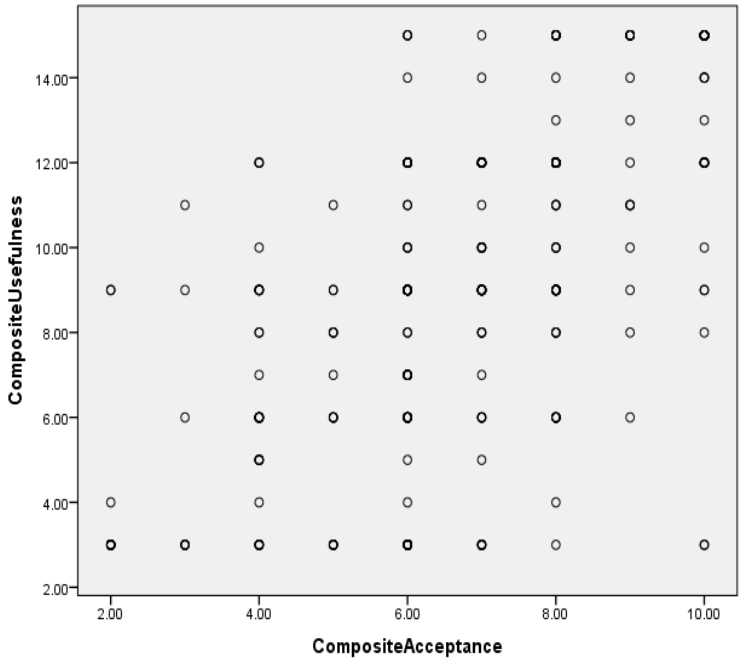

CompositeTechAssist
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12.00
14.00
CompositeUsefulness


CompositeUserPart
10.00
8.00
6.00
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6.00
8.00
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12.00
14.00
CompositeUsefulness


PerceivedEaseofNavigation
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CompositeUsefulness

4 Testing for Linearity: Independent Variables with Acceptance





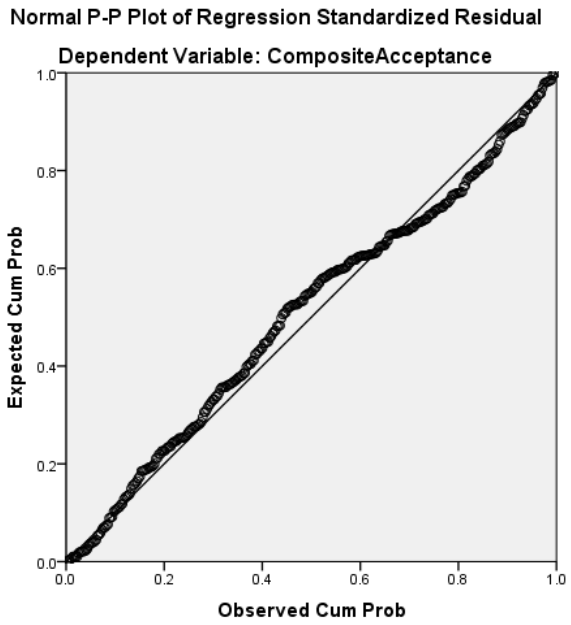
5. Testing for Collinearity and Heteroscedasticity

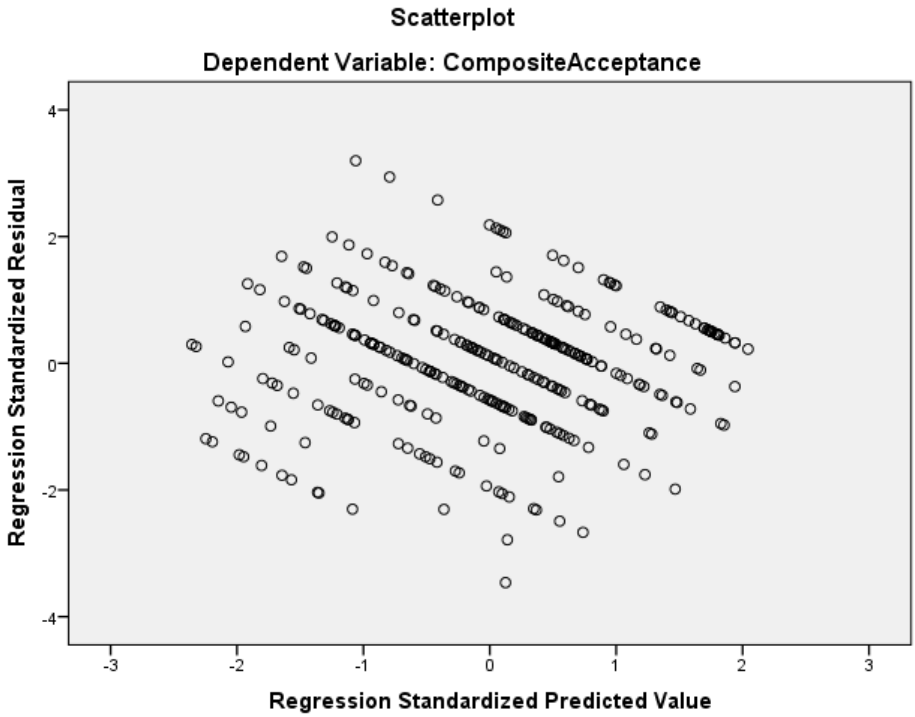
All the tolerance values are close to 1 and the VIF's are below 5, so the results confirm no issues regarding multicollinearity.

Model	Unstandardised Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.158	.478		2.423	.016		
CompositeRSPT	-.035	.045	-.037	-.793	.428	.740	1.352
CompositeTeaLead	.072	.033	.104	2.188	.029	.702	1.424
CompositePeerUSage	.018	.031	.030	.565	.573	.565	1.770
CompositePersInnov	.112	.024	.195	4.621	.000	.891	1.123
CompositeUserTrain	.062	.035	.096	1.796	.073	.550	1.820
CompositeTechAssist	-.072	.034	-.117	-2.146	.033	.531	1.884
CompositeUserPart	-.009	.041	-.010	-.211	.833	.725	1.380
CompositeUsefulness	.194	.033	.366	5.916	.000	.413	2.420
PerceivedEaseofNavigation	.099	.025	.255	3.980	.000	.386	2.592

a. Dependent Variable: Composite Acceptance

By viewing the P-P plot of the dependent variable, one can see that the residuals are approximately normally distributed.





By viewing the scatterplot above, there are no signs of an obvious curved pattern (indicating a violation of linearity assumption) or a fan-shaped pattern (indicating a violation of Heteroscedasticity assumption).